Regional Economic Function Analysis of U.S. Foreign-Trade Zones

By

Hirotoshi Otsubo

Bachelor of Law (1999)

University of Tokyo

Submitted to the Department of Urban Studies and Planning
in partial fulfillment of the requirements for the degree of
Master in City Planning

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 2005

© 2005 Hirotoshi Otsubo. All Rights Reserved

The author hereby grants to MIT permission to reproduce and to
 distribute publicly paper and electronic copies of this thesis document in whole or in part.

Author

Department of Urban Studies and Planning
May 19, 2005

Certified by

Professor Karen R. Polenske
Department of Urban Studies and Planning
Thesis Supervisor

Accepted by

Professor Dennis Frenchman
Chair, MCP Committee
Department of Urban Studies and Planning
Regional Economic Function Analysis of U.S. Foreign-Trade Zones

By

Hirotoshi Otsubo

Submitted to the Department of Urban Studies and Planning on May 19, 2005
in Partial Fulfillment of the Requirements for the Degree of Master in City Planning

Abstract

Foreign-Trade Zones (FTZs) are defined as designated areas in the United States where foreign merchandise is considered to be international commerce and not subject to U.S. customs duties unless or until it enters into the U.S. market. The original purpose of the FTZ program was to generate new business and employment in the United States by encouraging foreign trade, especially export and transshipment trade.

Since the early 1980s, the program has grown in popularity in terms of the number of FTZs established and the value of goods traded through them. Meanwhile, the program has shifted its primary function from export promotion to import promotion. Today, offshoring manufacturers, such as oil refineries and auto-assembly plants, are the major beneficiaries of the program. They can reduce the payment of customs duties by converting high-duty imported materials into low-duty finished products under FTZ procedures. This import-oriented activity is enabled by the liberality of the FTZ Act and administrative support from the FTZ Board.

FTZ #27, located around Boston Harbor, is not an exception. Since the late 1990s, this zone has amplified its function in import promotion by accommodating several distributors, including BOSFUEL and Reebok. Under FTZ procedures, these firms can benefit considerably from duty exemption and deferral. I estimated that the cost savings reach 940,000 dollars at BOSFUEL and 1.1 million dollars at Reebok.

However, FTZ #27 has failed to generate employment both at the local and regional levels. The number of workers in the zone has declined by 61% since 1999 because employment loss at existing manufacturers has outpaced the increase at BOSFUEL and Reebok. Also, I estimated that the import promotion of jet fuel and footwear creates only limited employment in Greater Boston. This is mostly because FTZ #27 lacks locational incentives and supply-chain linkages that would initiate regional economic growth.

This case study indicates that, through the functional shift, the FTZ program is losing its economic significance for regional economies. This suggests that the program requires substantial modifications in policy and administration to improve its efficacy.
Thesis Supervisor: Karen R. Polenske, Professor of Regional Political Economy and Planning, Department of Urban Studies and Planning

Thesis Reader: Joseph Ferreira Jr., Professor of Urban Planning and Operation Research, Department of Urban Studies and Planning
Acknowledgement

I am grateful to Professor Karen R. Polenske, my thesis supervisor, for continuously encouraging and keeping me to focus on this study. She provided valuable knowledge and insights about regional economics and international trade. She also referred me to contacts who enabled me to deepen and widen my understanding.

I would also like to express my appreciation to Professor Joseph Ferreira Jr., my thesis reader, for his sincere advice, which was always helpful to form and correct the analytical framework.

My special thanks go to Frederick Treyz and Billy Leung of Regional Economic Models, Inc. (REMI), Gregory W. Perkins and Dominic Modicamore of the Boston Redevelopment Authority, Andrew McGilvray of the FTZ Board, and Lynn Vikesland of the Massachusetts Port Authority. They generously provided analysis tools and data resources, which were indispensable for this study.

Finally, I am deeply grateful to the Japanese government for letting me study at MIT for two years with financial support.

I would like to dedicate this thesis to my parents and my sister, who have always been with me, supporting my dream to pursue a Master’s degree in the United States.
# List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>APAA</td>
<td>Automobile Parts and Accessories Association</td>
</tr>
<tr>
<td>BRA</td>
<td>Boston Redevelopment Authority</td>
</tr>
<tr>
<td>DDP</td>
<td>Direct Delivery Procedure</td>
</tr>
<tr>
<td>DPA</td>
<td>Designated Port Area</td>
</tr>
<tr>
<td>EPF</td>
<td>Export Processing Factory</td>
</tr>
<tr>
<td>EPZ</td>
<td>Export Processing Zone</td>
</tr>
<tr>
<td>FAZ</td>
<td>Foreign Access Zone</td>
</tr>
<tr>
<td>FTZ</td>
<td>Foreign-Trade Zone</td>
</tr>
<tr>
<td>GPZ</td>
<td>General-Purpose Zone</td>
</tr>
<tr>
<td>GRP</td>
<td>Gross Regional Product</td>
</tr>
<tr>
<td>NAFTA</td>
<td>North American Free Trade Agreement</td>
</tr>
<tr>
<td>NAFTZ</td>
<td>National Association of Foreign-Trade Zones</td>
</tr>
<tr>
<td>NAICS</td>
<td>North American Industry Classification System</td>
</tr>
<tr>
<td>REMI</td>
<td>Regional Economic Models, Inc.</td>
</tr>
<tr>
<td>SEZ</td>
<td>Special Economic Zone</td>
</tr>
<tr>
<td>WEP</td>
<td>Weekly Entry Procedure</td>
</tr>
</tbody>
</table>
Table of Contents

Abstract ........................................................................................................ 2
Acknowledgements ..................................................................................... 4
List of Abbreviations .................................................................................. 5
Table of Contents ....................................................................................... 6
List of Tables .............................................................................................. 8
List of Figures ............................................................................................ 9
List of Photos ............................................................................................ 10

Chapter 1. Introduction ........................................................................... 11
  1.1 Background ...................................................................................... 11
  1.2 Scope of the Study .......................................................................... 16

Chapter 2. Review of the FTZ Program ................................................... 18
  2.1 Major Benefits of the FTZ Program .................................................. 18
  2.2 Legislative Intention of the FTZ Act .................................................. 20
  2.3 Liberality of the FTZ Act ................................................................. 22
  2.4 Business Demands for the FTZ Program .......................................... 25
  2.5 Administration of the FTZ Program .................................................... 30
  2.6 General Arguments .......................................................................... 33

Chapter 3. Local Economic Function Survey: A Case Study of FTZ #27 ....... 35
  3.1 General and Historical Background ................................................ 35
  3.2 Site Operation .................................................................................. 37
  3.3 Verification ....................................................................................... 48
List of Tables

Table 2.1 Selected Free-Trade-Zone Programs ................................................. 23
Table 3.1 Trade through Subzone 27C, 1997-2003 ............................................ 40
Table 3.2 Trade through Subzone 27F, 1997-2003 ............................................. 42
Table 3.3 Trade through Subzone 27H, 1997-2003 ............................................. 43
Table 3.4 Trade through Subzone 27I, 1997-2003 ............................................. 43
Table 3.5 Trade through GPZ Site 3, 1997-2003 .............................................. 44
Table 3.6 Trade through Subzone 27M, 1997-2003 ........................................... 47
Table 4.1 FTZ Cost Savings at BOSFUEL Corporation ...................................... 57
Table 4.2 FTZ Cost Savings at Reebok International Ltd. ................................. 57
Table 4.3 REMI Policy Variables Selected for the Simulation ............................. 60
Table 4.4 Aggregated Economic Impact in Greater Boston, 2005-2015 ............... 61
Table 4.5 Aggregated Employment Impact in Greater Boston, 2005-2015 .......... 61
Table 4.6 Economic Impact of Jet Fuel Cost Reduction in Greater Boston, 2005-2015... 62
Table 4.7 Economic Impact of Footwear Cost Reduction in Greater Boston, 2005-2015.. 62
List of Figures

Figure 1.1  Map of U.S. FTZs ................................................................. 12
Figure 1.2  Merchandise Received at U.S. FTZs, 1982-2002 .................. 13
Figure 1.3  Merchandise Shipped from U.S. FTZs, 1982-2002 ............... 13
Figure 1.4  Employment in U.S. FTZs, 1982-2002 ............................ 13
Figure 1.5  Trend of Export/Import Ratio, 1982-2002 .......................... 15
Figure 1.6  Overview of Research Structure ....................................... 17
Figure 2.1  Share of Products Imported to the United States, 2002 ............ 26
Figure 2.2  Share of Foreign-Status Products Received at U.S. FTZs, 2002 26
Figure 2.3  Trend of Top 5 Foreign-Status Products Received at U.S. FTZs, 1982-2002 ... 28
Figure 2.4  Number of Active U.S. FTZs, 1980-2002 .......................... 31
Figure 3.1  Merchandise Received at FTZ #27, 1982-2003 .................... 37
Figure 3.2  Map of FTZ #27 ................................................................ 38
Figure 3.3  Employment in FTZ #27, 1997-2003 .................................. 50
Figure 4.1  Map of the Greater Boston Region ..................................... 53
List of Photos

Photo 3.1  Polaroid Corporation (Norton) .................................................................41
Photo 3.2  Reebok International Ltd. (Canton) .........................................................46
Photo 3.3  Boston Autoport (Charlestown) ...............................................................48
Chapter 1

Introduction

1.1 Background

Foreign-Trade Zones (FTZs) are designated areas licensed by the Foreign-Trade Zones Board (the FTZ Board) in or near customs ports-of-entry in the United States. Within FTZs, foreign merchandise is considered international commerce and thereby not subject to U.S. customs duties unless or until it enters into the U.S. market. Raw materials, parts, and components can be admitted duty-free into FTZs, and goods can be assembled, manufactured, or processed without paying customs duties. FTZs have been established all over the United States, in both coastal and inland areas, to accommodate various types of firms that can benefit from this privileged zone status (Figure 1.1).

The FTZ program was established by the Foreign-Trade Zones Act (the FTZ Act) of 1934. The primary purpose of the program was to create and retain economic activity, especially employment, in the United States through the promotion of export and transshipment trade (Dymsza, 1964). The National Association of Foreign-Trade Zones (NAFTZ) described the benefits of the program as the following:

. . . the economy benefits through capital investment in the United States, increases in U.S. labor, increases in Federal, State and local taxes (Federal income taxes, sales taxes, etc.), increased opportunities for domestic sourcing of parts and equipment, and the peripheral economic impact throughout the service industries which support this new U.S. production activity (Hearings, 1989).

It was not until the 1980s that the program started to grow in popularity. During FY 1980, annual shipments through FTZs were less than three billion dollars, and there were
only around 10,000 workers engaged in zone activities.\textsuperscript{1} However, since the early 1980s, the program has grown rapidly in shipments and employment while expanding its geographical territory. By 2002, annual shipments had soared to 200 billion dollars, and the employment at FTZ firms had reached 320,000 (Figures 1.2, 1.3, and 1.4). For this reason, many analysts asserted that the program was relatively successful in encouraging international trade and attracting jobs and investment in the United States (Sager, 1999).

Despite this phenomenal growth, the function of FTZs has changed from its original and conventional intention. The FTZ Board (2003) reported that, during FY 2002, the value of imports (foreign-status merchandise entered into FTZs) totaled 70.5 billion

\textsuperscript{1} In FTZ annual reports, a fiscal year starts on October 1 and ends on September 30. For example, FY 1980 starts on October 1, 1979 and ends on September 30, 1980.
Figure 1.2 Merchandise Received at U.S. FTZs, 1982-2002


Figure 1.3 Merchandise Shipped from U.S. FTZs, 1982-2002

dollars, while the value of exports only amounted to 15.6 billion dollars. The ratio of exports to imports decreased from 71% in 1982 to 22% in 2002 (Figure 1.5). This growing import intensity is raising arguments about the necessity and efficacy of the program. The FTZ Board (1996) and some analysts, including Ryu (1987), Sullivan (2000), and Jones (2002), contend that import promotion can still have as much positive economic impact as export promotion by generating or retaining import-related business in the regional economies. However, others, particularly the Automobile Parts and Accessories Association (APAA) (1989) and the United Nations Centre on Transnational Corporations (1991), argue that the increased import of finished or semi-finished goods can have negative impacts on domestic manufacturers. They posit that the program is effectively encouraging domestic firms to rely on foreign sources for components that are
crowding out domestic products. For instance, APAA claims that:

It does not matter whether American or foreign capital controls the operation, or whether the product assembled is a car, a component system for a car, or any product manufactured in a zone. APAA believes that before the federal government grants a subzone, the real U.S. economic issue must be: who is supplying the high value added parts? Unless the value added is sourced here, employment benefits are enjoyed by foreign workers. This means we are exporting profits, tax revenues, and R&D (Research and Development). And most of all we are exporting jobs (Hearings, 1989).

There are numerous reports and surveys that deal with economic activities within FTZs, but little research has been done to measure their impact on related sectors in the regional economies. Due to the lack of such extensive research, the necessity and efficacy
of the program is still contentious. I plan to examine the regional economic function of FTZs, especially in terms of employment in related sectors, because the ultimate purpose of the program is to generate new business and employment in the United States.

1.2 Scope of the Study

The main interest of this study is in the regional economic function of FTZs during the last two decades. I will verify that the FTZ program has shifted its primary function from export promotion to import promotion since the 1980s, whereby the program has been losing its significance for regional economies. This hypothesis contains many initial challenges to analyze, so I first discuss the program design, then an FTZ locality, and finally the surrounding region (Figure 1.6).

Specifically, this report is organized in the following manner: First, in Chapter 2, I examine the legislative features and modifications of the program that have fostered the import-driven growth of FTZs. Also, I locate the commodities and industries that have taken full advantage of the program’s import-supportive factors and accelerated its functional evolution at the national level. Then, Chapter 3 sheds some light on the process of the functional shift at the local level. A case study of FTZ #27 refers to zone operations in the Boston regional area. Based on this survey, in Chapter 4, I conduct economic simulations for FTZ #27 to estimate its impact on the regional economy. Finally, in Chapter 5, I summarize the key lessons from the Boston case and suggest some policy recommendations to improve the efficacy of the program.

Overall, I will provide the FTZ authorities, namely the FTZ Board and its official members, with a wider framework to administer the program and appraise FTZ
applications. Also, the case study of FTZ #27 will be of great use for Boston’s economic agencies, particularly the Massachusetts Port Authority (Massport) and the Boston Redevelopment Authority (BRA), to review the land-use policy for FTZ #27 and the Boston waterfront area in the context of the regional economy and international trade.

Figure 1.6 Overview of Research Structure

---

2 The FTZ Board consists of the Secretary of Commerce, who shall be chairman and executive officer of the Board, and the Secretary of the Treasury (the FTZ Act, Sec.81a.).
Chapter 2

Review of the FTZ Program

FTZs’ function has shifted from export promotion to import promotion. In this chapter, I first explore the legislative features and modifications of the FTZ program that have fostered the import-driven growth of FTZs. Then, I locate the commodities and industries that have accelerated the functional evolution around the nation.

2.1 Major Benefits of the FTZ Program

The FTZ program has its legal basis in the FTZ Act (19 USC 81a-81u) and two sets of regulations: the FTZ Regulations (15 CFR Part 400) and the Customs Regulations (19 CFR Part 146). The FTZ Act, which covers the administration and regulation of FTZs, is the principal statute governing FTZs (Appendix A). The FTZ Regulations provide the technical details concerning their management, and the Customs Regulations grant them customs privileges.

Due to its privileged status for imposing customs duties, the FTZ program generally can provide its users with a wide range of benefits, including:

1. **Duty Exemption.** No duty is paid on merchandise exported from an FTZ. Therefore, duties are eliminated on foreign merchandise admitted into an FTZ if it is stored or used in a manufacturing process, but eventually exported from the zone.

2. **Duty Deferral.** No duty is paid to the U.S. government until the merchandise leaves the FTZ and enters U.S. customs territory. The practical benefit of this is cash-flow
savings that allow companies to hold funds accessible for their operational needs while the merchandise remains in the zone.

3. **Duty Reduction.** Manufacturers may reduce the payment of customs duties by converting imported components to finished products within FTZs because duty rates on finished products can be lower than individual duty rates on the components used in the manufacturing process.

4. **Volume Reduction.** Customs duties are reduced or eliminated on merchandise subject to defect, damage, obsolescence, waste, or scrap in an FTZ. Likewise, substandard goods can be destroyed after quality-control inspections and before a duty is paid.

5. **Merchandise Consumption.** Merchandise consumed in an FTZ is not subject to customs duties.

6. **U.S. Quotas.** Most merchandise may be stored in an FTZ, even if it is subject to U.S. quota restrictions. When the quota opens, the product may be immediately shipped into U.S. customs territory.

7. **Nondutiability of Labor, Overhead, and Profit.** Customs duties are not charged on labor, overhead, and profit attributed to production operations in an FTZ.

8. **Inventory Taxes.** By federal statute, tangible personal property imported from outside the United States and tangible personal property produced in the United States held in an FTZ for exportation are not subject to state and local ad valorem taxes. Actually, most state and county tax authorities exempt all merchandise in the FTZs from inventory tax.

9. **Zone-to-Zone Transfer.** Merchandise can be transferred in-bond from one zone to another. Customs duties may be deferred until the merchandise is removed from the final zone for entry into U.S. customs territory.
10. *Simplification of Foreign-Trade Procedures.* Two procedures can be used in concert to improve logistics for FTZ users. First, the so-called Direct Delivery Procedure (DDP) enables foreign merchandise to be transported directly to zone users’ facilities without reporting to the local customs office beforehand. Second, the so-called Weekly Entry Procedure (WEP) streamlines shipments and customs paperwork. Under the WEP, zone users file only one customs entry per week, as opposed to one customs entry per shipment. These simplified foreign-trade procedures can reduce the time required for customs clearance and thereby support just-in-time logistics. (Jones, 2002)

With these benefits, various firms can take advantage of the zone status. It should be noted that, while duty exemption contributes solely to export promotion, all other benefits can encourage imports as well as exports. The growing import intensity may imply that the program has shifted its emphasis from duty exemption to other import-supportive benefits. I examine this assumption from a legal, economic, and administrative viewpoint.

2.2 **Legislative Intention of the FTZ Act**

The FTZ Act was created “to expedite and encourage foreign commerce” in the United States, but it does not mention employment issues nor define the meaning of “foreign commerce.” Thus, a historical examination is needed to reveal its legislative

---

3 The WEP also allows users to reduce the amount of their merchandise processing fees to U.S. Customs by reducing the number of customs entry procedures.

4 This phrase is included in the official title of the FTZ Act: “An act to provide for the establishment, operation and maintenance of foreign trade zones in ports of entry of the United States, to expedite and encourage foreign commerce, and for other purposes” (emphasis by author).
intention: the generation of new business and employment through the promotion of exports and transshipments.

The movement to establish free ports in the United States was based on the experience and success of such programs in northern European countries, especially the German city of Hamburg (Dymsza, 1964). In the 1920s, the free port of Hamburg was the gateway through which trade between all of northern Europe and overseas points occurred (Corps of Engineers et al., 1929). The principal supporters of free ports in the United States, namely Congressman Emmanuel Celler of New York, foreign-trade groups, port authorities, and other business associations, argued that free ports would facilitate the expansion of exports and transshipments to other countries in North America, Central America, and South America (Hearings, 1934). The Senate Report encapsulated the legislative intention as follows:

The establishment of foreign-trade zones will liberate the transshipment trade from the burden and expense now imposed on it, and will do much to assist in building up the United States as a transshipment center (the Senate, 1934).

Moreover, the original sponsors of the FTZ Act expected that the duty-free status of exports would encourage the mixture of domestic goods with foreign goods to be exported and also the establishment of assembly centers in the United States (Hearings, 1934). These arguments indicate that the supporters of the Act assumed that duty exemption, which would encourage transshipment trade, would be the primary benefit of the program.

Meanwhile, there was also widespread concern that the United States lacked the geographic proximity to other countries that northern Europe enjoyed in promoting transshipments (Dymsza, 1964). Moreover, there were persistent opponents who worried
even then that the program would only promote increased imports of foreign components and damage domestic manufacturing companies (Hearings, 1934). Facing this opposition, the bill was amended to prohibit exhibition and manufacturing in FTZs, expecting that the program would not encourage imports without these activities. Congressman John W. McCormack of Massachusetts stated,

[The bill] prohibits manufacturing, because we do not want manufacturing in the foreign-trade zones entering into competition with our domestic manufactures [sic]. We specifically protected our American manufacturers and we provided that there shall be no exhibition within a foreign-trade zone, to protect our American manufacturers (Congress, 1934).

It was after these arguments and amendments that the FTZ Act was passed by the U.S. Congress in 1934. This course of the legislation left no doubt that the Act was originally designed to foster the growth of export and transshipment trade, which would generate business and employment in the United States.

2.3 Liberality of the FTZ Act

Despite its export-oriented intention, the Act contains not only export-supportive but also import-supportive factors. Some of these are found in the original Act of 1934, and the rest appear in its amendments in the 1950s.

First, the export intensity of the U.S. FTZ program has not been firmly secured by law from the beginning. FTZs are a type of so-called “free trade zone,” which is more generally defined as a physical area within countries’ borders that is treated, for customs purposes, as if it were outside those borders (McGilvray, 2004). There are currently more than 800 zones in the world, and it is widely reported that the most successful free trade zones are located in Asian countries, namely China, Taiwan, and Malaysia. Table 2.1 highlights the difference in free-trade-zone program design between the United States
<table>
<thead>
<tr>
<th>Country</th>
<th>Program</th>
<th>Claimed Purpose</th>
<th>Defining Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>Foreign-Trade Zone (FTZ)</td>
<td>- Promotion of foreign commerce</td>
<td>- No customs duty&lt;br&gt;- Spatial enclaves&lt;br&gt;- Proximity to ports&lt;br&gt;- Storage, assembly, manufacturing&lt;br&gt;- Foreign and domestic shipment</td>
</tr>
<tr>
<td>China</td>
<td>Special Economic Zone (SEZ)</td>
<td>- Export growth&lt;br&gt;- Foreign investment promotion&lt;br&gt;- Technology transfer&lt;br&gt;- National development promotion&lt;br&gt;- Reform experimentation</td>
<td>- No customs duty&lt;br&gt;- Spatial enclaves&lt;br&gt;- Preferential treatment for exporters&lt;br&gt;- Proximity to ports&lt;br&gt;- Comprehensive development&lt;br&gt;- No domestic shipment</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Export Processing Zone (EPZ)</td>
<td>- Export growth&lt;br&gt;- Foreign investment promotion&lt;br&gt;- Employment generation</td>
<td>- No customs duty&lt;br&gt;- Spatial enclaves&lt;br&gt;- Preferential treatment for exporters&lt;br&gt;- Proximity to ports&lt;br&gt;- Manufacturing&lt;br&gt;- No domestic shipment</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Export Processing Factory (EPF)</td>
<td>- Growth of export and transshipment trade&lt;br&gt;- Employment generation</td>
<td>- No customs duty&lt;br&gt;- County-wide location&lt;br&gt;- Preferential treatment for exporters&lt;br&gt;- Manufacturing&lt;br&gt;- No domestic shipment</td>
</tr>
<tr>
<td>Japan</td>
<td>Foreign Access Zone (FAZ)</td>
<td>- Import promotion&lt;br&gt;- Foreign investment promotion</td>
<td>- No customs duty&lt;br&gt;- Preferential treatment for importers&lt;br&gt;- Proximity to ports&lt;br&gt;- Storage, assembly, distribution&lt;br&gt;- Foreign and domestic shipment</td>
</tr>
</tbody>
</table>

and these Asian countries. Regarding the United States, on the one hand, the FTZ Act does not mention export promotion, and it actually allows both foreign and domestic shipments from zones. On the other hand, the free-trade-zone programs of China, Taiwan, and Malaysia clearly define their primary purposes as export growth. These programs, often with export quota systems, generally require zone users to export their products and generate foreign exchange for the host countries. More importantly, they provide zone users with a wide range of government support to promote exports (Amirahmadi and Wu, 1994). In this context, U.S. FTZs are comparable to Japan’s Foreign Access Zones, designed for import promotion, rather than other export-oriented free trade zones.

Second, the amendment of 1950, the so-called “Boggs Amendment,” broadened the functional scope of the program by conditionally permitting manufacturing and exhibition within zones. The introduction of manufacturing enabled zone users to transform foreign materials into manufactured or reduced goods for export as well as for import to the U.S. market (Dymsza, 1964). Moreover, after 1980, the FTZ program allowed firms to choose to pay duties either on imported parts and materials or on the finished products that leave the zone, whichever is lower (Swenson, 2000). Hereby, the program achieved its additional benefit, duty reduction, which then made a significant contribution to import promotion.

Third, the interpretative amendment of 1952 by the FTZ Board expanded the geographical scope of the program by allowing the establishment of “subzones” in addition to the original type of zone, which has been referred to as a “general-purpose zone.” While general-purpose zones were designed for multiple activities by multiple users, subzones were technically subordinate and physically separate areas of general-purpose zones for specialized uses that could not be performed in existing general-
purpose zones (NAFTZ, http://www.naftz.org/). In effect, subzones made it possible for existing, often inland, firms to operate under FTZ status without relocating to general-purpose zones. This feature of subzones formed the basis for the subsequent blossoming of the program and even the escalation of its import intensity; the level of economic growth in subzones has outpaced that in general-purpose zones, and the export/import ratio declined less in subzones (0.15-0.39) than in general-purpose zones (0.27-0.55) after 1995 (the FTZ Board, 1995-2002).

Admittedly, there is little evidence that these liberal factors and adjustments were originally intended for import promotion. Actually, they did not make a notable impact on the program’s performance until the 1980s. Nonetheless, it is still true that, in unison, they have made an indispensable contribution to the import-driven growth of FTZs since then.

2.4 Business Demands for the FTZ Program

Business demands for the program are reflected in FTZs’ international trade data. Zone grantees are obliged to file the top five foreign-status commodities handled in the zones, and FTZ Annual Reports archive the aggregate values of these reported goods. According to these reports, oil, gas, and related products (hereafter referred to as “petroleum products”) and transportation equipment are currently in a dominant position among zone imports. Figures 2.1 and 2.2 highlight the feature of the zone trade compared with the total U.S. trade. Although petroleum products rank third among commodities imported into the United States, they rank first among zone imports, accounting for 69%, which is significantly higher than the national rate of 10%. The second-ranked commodity is transportation equipment, which accounts for 18% of the total zone imports,
Figure 2.1  Share of Products Imported to the United States, 2002

![Pie chart showing the share of products imported to the United States, 2002. The major categories are: Transportation Equipment (19%), Computer & Electronic Products (18%), Oil & Gas & Related Products (10%), Machinery, Except Electrical (6%), Chemicals (7%), and All Others (42%).]

Source: U.S. Census Bureau, Foreign Trade Division

Figure 2.2  Share of Foreign-Status Products Received at U.S. FTZs, 2002

![Pie chart showing the share of foreign-status products received at U.S. FTZs, 2002. The major categories are: Transportation Equipment (13%), Computer & Electronic Products (6%), Oil & Gas & Related Products (69%), Machinery, Except Electrical (7%), Chemicals (2%), and All Others (7%).]

Source: The Foreign-Trade Zones Board, 64th Annual Report of the Foreign-Trade Zones Board to the Congress of the United States
Note: Products are classified by author according to the North American Industry Classification System (NAICS) code.
which is almost the same as the national rate of 19%. Figure 2.3 illustrates the historical
trend of major zone imports, which shows the phenomenal growth of these two leading
goods in the past two decades.

First, transportation equipment, especially automobile parts, spurred and led the
growth of zone imports in the 1980s. By 1990, the value of automobile parts imported
through FTZs had reached 12.8 billion dollars, which accounted for 71% of their total
value imported to the U.S. market, 18.0 billion dollars (the FTZ Board, 1990). The
automotive industry was subject to so-called “inverted tariffs.” The tariff rate charged on
finished automobiles, 2.5% ad valorem, was considerably lower than that charged on
automotive parts, 4 - 11% ad valorem (Hearings, 1989). Thus, the automotive industry
could benefit from duty reduction, as well as duty deferral, by converting automobile
parts into finished automobiles in the assembly process. It should be noted that foreign
automobile companies, more than U.S. companies, could take advantage of the inverted
tariff. In the 1980s, Japan rapidly increased exports of selected products, especially
automobiles, the success of which in the U.S. market sparked opposition from domestic
manufacturers. This trade friction and the yen’s subsequent appreciation in the mid-1980s
compelled Japanese automobile companies, namely Toyota, Honda, Nissan, Mazda, and
Mitsubishi, to establish assembly plants in the United States. Most of these plants
depended heavily on Japan and other countries for components, so they obtained subzone
licenses to reduce customs duties on the imported components (Ryu, 1987). In the 1990s,
the automobile import boom slowed, but this was only because most of the offshoring
automotive companies had already joined the zone market.
In the mid-1990s, petroleum products surpassed transportation equipment in zone imports. In 2002, there were approximately 60 refinery subzones in the United States, and around half of the crude oil that entered the U.S. market was imported through these zones (the FTZ Board, 2002). Just like automotive companies, oil refineries could take advantage of the inverted tariff on crude oil; the duty rates on certain refined products were considerably lower than that on crude oil. Chevron’s refinery, located in El Segundo,
California, estimated that its FTZ status allowed duty savings on approximately 28% of the foreign crude oil admitted into its plants. It testified in its annual report to the Board, Foreign-Trade Zone (FTZ) subzone status eliminates certain inadvertent tariff advantages available to foreign competitors. Specifically, subzone status provides Chevron with inverted tariff relief for certain products refined from foreign crude oil. Such benefits increase Chevron’s competitiveness with its foreign competitors and domestic refineries who already have or are pursuing FTZ subzone status (Chevron El Segundo Refinery, 2002).

Due to concerns from the U.S. oil industry, oil-refinery subzones were approved prior to 1995 only under conditions that prohibited such inverted tariff savings. As circumstances in the industry changed, a re-evaluation was done in the mid-1990s, and in 1995 the first oil refinery to enjoy inverted tariff savings on specific products was approved. The increased savings encouraged other refineries to apply for zone licenses, and petroleum imports increased rapidly in the late 1990s. Though petroleum imports showed a sharp decline in value after 2000, this drop mostly could be attributed to oil-price fluctuations. Refineries’ cost of imported crude oil declined by 18%, from 26.3 dollars per barrel in 2000 to 21.5 dollars per barrel in 2002 on average, which nearly corresponds to the decrease of petroleum imports in value (Energy Information Administration, 2004).

In summary, the FTZ privilege of duty reduction has made the largest contribution to the growth and transformation of zone economies by attracting auto-assembly plants in the 1980s and oil refineries in the 1990s. Today, a large number of zones serve this sort of “offshoring manufacturers,” sourcing components or materials used in production processes from overseas markets.
2.5 Administration of the FTZ Program

FTZs are established and monitored by the FTZ Board, which consists of the Secretaries of Commerce and Treasury (the FTZ Act, Sec.81a.). The Board has permitted and supported the import-oriented growth of the program effectively by granting zone licenses to importers, particularly offshoring manufacturers. In fact, the number of FTZs has rapidly grown in the last two decades. Until 1980, there were only 35 active FTZs, counting both general-purpose zones and subzones. By 2002, the number of general-purpose zones had increased to 116 and that of subzones had soared even more to 237, most of which were offshoring manufacturers (Figure 2.4).

Since its inception, the scope of the program has been kept ambiguous to its potential applicants, especially offshoring manufacturers, due to its original export-oriented intention. The Board has issued zone licenses on a case-by-case basis, and the criteria have not been open to the public in detail. In effect, this case-by-case method had made the program unpopular before the 1980s. Even so, once the program’s doors were opened by some pioneering companies in the 1980s, it became easier for offshoring manufacturers in the approved sector to pursue zone licenses. The rapid growth in automobile imports in the 1980s and petroleum imports in the mid-1990s implied the significance of these breakthroughs for such potential applicants.

The Board’s reasoning behind this growing import intensity has not been consistent. Throughout the 1980s, the Board tried to justify the declining export/import ratio by emphasizing that the ratio level (0.5-0.7) was still higher than the pre-1980 level (0.3-0.7). For instance, when the Annual Report for 1989 showed a slight upturn in the export/import ratio, the Board regarded this trend favorably and expected it to be a long-

---

5 An active FTZ accommodates at least one firm in operation under zone procedures.
term trend (the FTZ Board, 1989). However, it would later be seen that the figures for 1989 were just an anomaly and that the growing import intensity was a long-term trend. In 1996, the Board clearly stated its more balanced stance between export promotion and import promotion:

While it is in support of export activity that free trade zones have historically found their chief purpose, the globalization of manufacturing in today’s dynamic world economy has – in regard to employment impact – blurred the distinction between domestically made products exported to other countries and those made for domestic sale in competition with products imported in finished form from plants abroad. This is reflected in the way FTZ procedures are being used as a means of rationalizing
customs treatment to help keep domestic producers internationally competitive in terms of both export markets and finished-product imports (the FTZ Board, 1996).

After 1989, the policy intention of the program was administratively revised from its original purpose by putting much more emphasis on its efficacy for offshoring finished-product manufacturers.

Meanwhile, the growing import intensity had generated a conflict of interest among domestic manufacturers because the promotion of component imports would affect different types of manufacturers in different ways. Offshoring manufacturers could benefit from zone privileges by saving duties, but domestically sourcing manufacturers and component manufacturers in the United States could be marginalized by these privileged imports. In 1983, bicycle component producers raised an argument against a subzone proposal from Huffy Corporation, a bicycle assembly firm in Ohio. In settling this case, the Board clarified its standpoint:

The main task for the Board continues to entail weighing the arguments of proponents, that zone procedures help finished-product industries in their international competitive efforts, against the concerns of component producers that zone procedures encourage imports (the FTZ Board, 1984).

The logic behind this statement was that, without FTZ status, finished-product industries would be totally lost to international competition, inviting finished products from foreign countries. By encouraging the final processing of certain imported goods in FTZs, domestic labor, facilities, and materials can be used to a certain degree in making a product that otherwise would be totally finished outside the United States. Later, in 1989, the Board again applied this logic to a case raised by automobile component manufacturers (Hearings, 1989).
2.6 General Arguments

In general, the primary advantage of the FTZ program has shifted from duty exemption to other import-supportive benefits, particularly duty reduction. Although it was originally created to encourage export and transshipment trade, the FTZ Act contained import-supportive elements from the beginning, as well. This import intensity was amplified by the amendments of the 1950s, thoroughly utilized by auto-assembly plants and oil refineries after the 1980s, and effectively supported by the Board.

Even though the function of the program is different from its original intention, this does not mean that its present performance is prohibited. The economic fabric of society has changed significantly since the Act was legislated in 1934. The controversy over this functional evolution reflects the growing recognition that manufacturers in the United States are losing their competitiveness in the global economy. Today’s primary aim is to keep employment by retaining manufacturers in the United States as well as to generate new employment by exploiting foreign markets. Many manufacturers have already lost to foreign competition, and the rest are still making a concerted effort to cut production costs to improve their competitiveness. Offshoring is one of the most effective strategies for reducing production costs because labor, land, and the other resources can be substantially cheaper abroad, and the FTZ program can contribute to offshoring, while retaining finished-product manufacturers in the United States.

On the other hand, it is also convincingly argued that the program is marginalizing U.S.-based manufacturers. They may believe that their industries still have international competitiveness and that imported components through FTZs are only being substituted for domestic ones. If this is the case, the program may be making the matter even worse for U.S.-based manufacturers and the U.S. labor force.
This controversy contains many “what if” questions about the competitiveness of U.S. industries as well as the effectiveness of their global-sourcing strategies. The Board continuously has triumphed in the growth of FTZ economies, but the implication for the related sectors in the United States has never been clarified. I examine this issue in the context of a regional economy in Chapter 4.
Chapter 3

Local Economic Function Survey: A Case Study of FTZ #27

In general, the FTZ program has changed its function from export promotion to import promotion, which has allowed the program to blossom in the past two decades. In this chapter, I use FTZ #27 as a case study to verify this functional evolution at the local level.

3.1 General and Historical Background

FTZ #27 is located around the Port of Boston in Massachusetts, which is not only the oldest major port in the United States but also the leading port in New England. During the past ten years, imports passing through the port have averaged over 10 million tons a year and exports around 600 thousand tons. FTZ #27 is also in the vicinity of Logan International Airport, the gateway of air cargo to New England. The airport handled more than 440 thousand tons of imports and exports in 1997. (Massport, http://www.massport.com)

The plan of establishing an FTZ in Boston began to take shape in 1974. At that time, the New England economy was still suffering a sustained period of economic recession that began in the early 1960s, although there were faint signs of the subsequent economic boom, the so-called “Massachusetts Miracle.” Many traditional manufacturers, such as the textile, apparel, and leather industries, had left the region or transformed themselves into importers. As a result, Boston had lost employment in the manufacturing, transportation, and trade sectors, and the unemployment rate in Boston, and
Massachusetts as a whole, had surpassed the national average (Horan and Jonas, 1998). Thus, the primary goal of the FTZ establishment was naturally to stimulate the economic recovery and generate employment opportunities for Boston, the Commonwealth, and New England (Massport, 1976).

The FTZ project attained few, but fervent, supporters both from importers and exporters in the Commonwealth. When Massport sent out a “feeler” letter to 2,500 firms to identify the needs of industry, 118 firms responded, and 32 firms showed strong interest in the project. Out of the 11 responses that were submitted to the FTZ Board, nine firms were engaged both in import and export, one was primarily in import, and the other was exclusively in export. Most of them expressed interest in a wide range of FTZ benefits, including duty exemption, duty deferral, duty reduction, and the simplification of customs procedures. (Massport, 1976)

After authorization at the state level, the plan was submitted to the Board in October 1976 and approved as the 27th FTZ in the United States in April 1977. FTZ #27 began its operation in 1980 at an initial 5.1-acre site established within the Boston Marine Industrial Park that had been known as the South Boston Naval Annex. Contrary to the expectations initially expressed by interested firms, FTZ #27 experienced a long time of underutilization. Although FTZ #27 grew geographically by expanding its territory three times and establishing 13 subzones in and around Boston (Appendix B), most of its sites remained inactive more than a decade. It was in the late 1990s that FTZ #27 finally began expanding its trading function (Figure 3.1). Today, FTZ #27 is ranked in the middle of U.S. FTZs: 58th in the total volume of handled goods, 35th in exports, 66th in imports, and 54th in direct employment. The movement of merchandise is balanced between imports
and exports; the export/import ratio was 105% in FY 2002, remarkably higher than the national FTZ average of 22%. (the FTZ Board, 2002)

Figure 3.1 Merchandise Received at FTZ #27, 1982-2003


3.2 Site Operation

FTZ #27 contains one general-purpose zone (GPZ), which includes two active sites, and two active subzones (Figure 3.2). These sites total about 400 acres in area, and there are four businesses in operation employing 1,637 full-time workers (NAFTZ, 2004). FTZ #27 has undergone not only rapid growth in trade but also substantial changes in operation since the late 1990s. During this period, all of the currently active firms began
Source: Author, using Yahoo! Maps (http://maps.yahoo.com/)
Note: This map shows the sites that have operated under FTZ procedures since 1997. Active sites are colored red, and currently inactive sites are green.
operations while another two left the zone. Based on the annual reports from site operators, this study sheds much light on the operation of these zone users.

3.2.1 Lawrence Textiles Inc. (Subzone 27C)

In 1984, Lawrence Textiles Inc. began operating Subzone 27C, located in Lawrence, Massachusetts, which consisted of 50,000 square feet of production, office, and warehouse space. The company dealt with fabrics in bond for a number of processes, including:

1. The examination of fabrics for defects that might be overlooked by the manufacturers;
2. The processing and stabilization of fabrics using steam or water;
3. The warehousing and distribution of fabrics.

The fabrics were imported mostly from China, India, and Mexico, and then shipped to the U.S. market as well as foreign countries, particularly Canada, Mexico, and Croatia. By using the zone status, Lawrence Textiles could benefit from duty exemption and duty deferral. (Massport, 2001)

Although Lawrence Textiles had access to these foreign markets, it depended more on the U.S. market to sell foreign-status fabrics. The shipped fabrics were cut and sewn by domestic manufacturers into garments. Hence, in the late 1990s, when these garment manufacturers lost their competitiveness to imported garments, Lawrence Textiles decreased its domestic shipment substantially and then cut a large portion of its workforce. In 2001, facing a financial crisis, Lawrence Textiles warned in its annual report to Massport,
FTZ #27 lost the once potential it had to succeed. Since the NAFTA Agreement and the flooding of garments in China, our companies here in the US have abandon [sic] the manufacturing of clothing to overseas production to compete. The duty rate for garments is 1/3 of the rate for fabric we work on. Until our government changes it’s [sic] trade policies, this industry will be declining till it’s all overseas (Massport, 2001).

This company eventually went out of business in January 2002. Subzone 27C is no longer in operation.

Table 3.1 Trade through Subzone 27C, 1997-2003

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>From U.S.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>From Foreign Countries</td>
<td>5,240</td>
<td>5,399</td>
<td>3,040</td>
<td>3,216</td>
<td>1,578</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>To U.S.</td>
<td>2,530</td>
<td>3,137</td>
<td>1,917</td>
<td>1,662</td>
<td>949</td>
<td>296</td>
<td>0</td>
</tr>
<tr>
<td>To Foreign Countries</td>
<td>1,710</td>
<td>1,571</td>
<td>1,404</td>
<td>824</td>
<td>1,566</td>
<td>1,377</td>
<td>0</td>
</tr>
</tbody>
</table>


3.2.2 Polaroid Corporation (Subzones 27F, 27H, and 27I)

In 1995, the Polaroid Corporation established seven subzones in the Boston region. Since then, Polaroid has operated Subzones 27F, 27H, and 27I under FTZ procedures, employing more than 1,000 workers.

Subzone 27F was a 36-acre site in Needham, Massachusetts, which was temporarily used as a transit point and warehouse for imported film, cameras, and camera accessories (Massport, 1998). However, as the volume of shipments decreased, Polaroid closed and sold the site in June 1999, transferring its function to other sites in Boston. The warehouse was eventually torn down, and an office complex was built on the site.

Subzone 27H was a 104-acre site in Waltham, Massachusetts, used for film production as well as research and development. In the factory, imported photographic emulsions and chemicals were processed into film and then shipped mostly to foreign
countries. With such a duty-free factory, Polaroid could take advantage of duty exemption, reduction, and deferral (Massport, 2002). However, laborious inspection and paperwork were required throughout the production process to keep track of the imported materials that would be mixed with domestic materials. Furthermore, the duty rates on photographic emulsions and chemicals dropped from approximately 10% to 3-4%. As a result, Polaroid lost the financial incentive to keep FTZ functions at this site, which were suspended in 2003.

Subzone 271 is a 336,000-square-foot warehouse and office space on a 33-acre site in Norton, Massachusetts, used as the central storage and distribution point in the United States. There is a flexible packaging system in the warehouse which prepares final packaging prior to distribution. Camera accessories and film are imported primarily from Europe and Asia and are distributed throughout North America. A Polaroid factory in the Netherlands manufactures most of the film, which is first shipped to Canada for in-bond transshipment, and then trucked to this site. Afterwards, under FTZ procedures, a certain portion of the film is reexported to a Polaroid subsidiary in Mexico. (Massport, 2002)

By using the zone status, Polaroid can reduce its duty payment in two ways. First, Polaroid can avoid the customs duty
of 3.7% that would be charged on the film upon entry into the United States. Second, the company can also reduce the film duty rate upon entry into the Mexican customs territory by keeping the film in-bond throughout the shipment. While Mexican Customs imposes customs duties on U.S.-originated film at the rate of 15%, it favorably differentiates European-originated film under the so-called “Euro-One Agreement,” which reduces the duty rate to 3%. From the Mexican Customs’ perspective, Polaroid’s film is shipped directly from the Netherlands to Mexico, so Polaroid can reduce the duty rate by 12%.

At present, Polaroid is facing a substantial crisis that far exceeds these zone benefits; the growth of digital photography has marginalized Polaroid’s competitive position in the world market. Subsequently, zone activity at these sites has declined, and employment has decreased by 70% in the past five years. Subzones 27E, 27G, 27J, and 27K, also established by Polaroid in 1995, have not been in FTZ operation mostly due to this shrinking business. In its annual report for 2002, Polaroid claimed that FTZ benefits are unlikely to improve the current business situation (Massport, 2002). Polaroid finally emerged from bankruptcy in July 2002, and it is now under new ownership by Chicago-based BankOne.

Table 3.2 Trade through Subzone 27F, 1997-2003

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>From U.S.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>From Foreign Countries</td>
<td>76,300</td>
<td>91,218</td>
<td>75,833</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>To U.S.</td>
<td>75,700</td>
<td>90,333</td>
<td>75,396</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>To Foreign Countries</td>
<td>590</td>
<td>885</td>
<td>437</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>


---

6 Subzone 27E in Norwood, Massachusetts, is currently utilized as a business park under new ownership. Subzone 27G in New Bedford is under suspension. Subzones 27J in Boston and 27K in Cambridge have been permanently shut down.
Table 3.3  Trade through Subzone 27H, 1997-2003

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>From U.S.</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11,277</td>
<td>5,400</td>
</tr>
<tr>
<td><strong>From Foreign Countries</strong></td>
<td>1,880</td>
<td>7,156</td>
<td>4,175</td>
<td>5,735</td>
<td>1,881</td>
<td>1,621</td>
<td>600</td>
</tr>
<tr>
<td><strong>To U.S.</strong></td>
<td>1,860</td>
<td>970</td>
<td>8,348</td>
<td>981</td>
<td>868</td>
<td>5,203</td>
<td>3,300</td>
</tr>
<tr>
<td><strong>To Foreign Countries</strong></td>
<td>0</td>
<td>112</td>
<td>284</td>
<td>802</td>
<td>3,011</td>
<td>8,268</td>
<td>3,900</td>
</tr>
</tbody>
</table>


Table 3.4  Trade through Subzone 27I, 1997-2003

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>From U.S.</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>From Foreign Countries</strong></td>
<td>3,550</td>
<td>744</td>
<td>0</td>
<td>687</td>
<td>573</td>
<td>4,373</td>
<td>10,000</td>
</tr>
<tr>
<td><strong>To U.S.</strong></td>
<td>1,550</td>
<td>3,921</td>
<td>0</td>
<td>676</td>
<td>573</td>
<td>3,933</td>
<td>0</td>
</tr>
<tr>
<td><strong>To Foreign Countries</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>440</td>
<td>10,000</td>
</tr>
</tbody>
</table>


3.2.3  BOSFUEL Corporation (GPZ Site 3)

The BOSFUEL Corporation (BOSFUEL) is a consortium of major airlines, including American, Delta, Northwest, and United, that use aircraft turbine (jet) fuel at Logan International Airport. Since 1997, BOSFUEL has been operating in GPZ Site 3, located in and around Logan, which is dedicated to the receipt, storage, and delivery of foreign- and domestic-status jet fuel. The site includes three jet fuel storage and delivery facilities:

1. Conoco Phillips Petroleum Terminal: Eight jet fuel storage tanks in East Boston (29 acres);
2. Conoco Phillips Pipeline Company: Pipeline from Conoco Phillips Terminal to the jet fuel storage and distribution facilities at Logan (seven acres);
3. BOSFUEL Corporation: Four above-ground jet fuel storage tanks at Logan (three acres). (Massport, 2002)
Though these facilities deal with domestic-status jet fuel as well as foreign-status jet fuel, these fuels are strategically differentiated in usage. While domestic-status jet fuel is carried by domestic flights, foreign-status jet fuel is primarily “exported” duty-free on international flights out of Logan Airport. This fueling system has made a significant contribution to duty savings. During FY 2002, foreign-status jet fuel valued at more than 74 million dollars was disbursed through the site, but only 7,000 dollars in customs duties were collected. It should also be noted that the foreign-status jet fuel was transferred mostly from subzone refineries in the United States. (Massport, 2002)

With these advantages, jet fuel has been leading the rapid growth of international trade through FTZ #27. For FY 2002, it accounted for 93% of the total import and 84% of the total export, and more than 300 workers were involved in the fuel operations (Massport, 2002).

### Table 3.5 Trade through GPZ Site 3, 1997-2003

<table>
<thead>
<tr>
<th></th>
<th>Trade Volume (Thousand$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From U.S.</td>
<td>167,960</td>
</tr>
<tr>
<td>From Foreign Countries</td>
<td>23,800</td>
</tr>
<tr>
<td>To U.S.</td>
<td>55,810</td>
</tr>
<tr>
<td>To Foreign Countries</td>
<td>21,950</td>
</tr>
</tbody>
</table>


### 3.2.4 Summit Logistics (GPZ Site 1-1)

Summit Logistics, a third-party logistics company, activated GPZ Site 1-1 in South Boston in 1998. This site included a 466,000-square-foot one-story building, of which Summit leased 44,000 square feet for a warehouse and office space. Summit intended to use this site for logistics management, warehousing, packaging, assembly, and
distribution. However, this company suffered from the lack of adequate, reliable labor and the loss of a major account at a critical time in the growth of the business. As a result, only minimum activity was carried out there, and Summit eventually went out of business at the end of 2000 (Massport, 2000). The site was then withdrawn from FTZ #27 in a minor boundary modification. At present, there are no zone activities. The building where Summit Logistics used to operate still stands on the site and is being used by various companies for warehouse storage, domestic distribution, and offices.

3.2.5 Coastal, Inc. (GPZ Site 4)

Coastal, Inc. activated GPZ Site 4 in October 2002. This site is strategically located at the intersection of Interstate Highways 95 and 495 in Mansfield, Massachusetts. Coastal’s facility includes a nine-acre container yard and a two-acre warehouse and office space. The container yard provides 24-hour security, and it operates 365 days a year. Coastal is mainly engaged in the distribution of footwear, employing 10 workers. This company imports footwear from China and ships it exclusively to the U.S. market, mostly for Reebok International Ltd (Massport, 2002). Customs duties are not charged while footwear is stored in the warehouse. Thus, duty deferral is the primary benefit to Coastal and its customers.

3.2.6 Reebok International Ltd. (Subzone 27M)

Reebok International Ltd. has been operating Subzone 27M since 2003. Reebok, headquartered in Canton, Massachusetts, is a global company engaged primarily in the design and marketing of footwear and apparel for sports and fitness as well as non-athletic casual use. Most of the company’s footwear is produced by independent
manufacturers located outside the United States. China, Indonesia, Thailand, and Vietnam are the primary sources for footwear manufacturing, accounting for 51%, 24%, 12%, and 12%, respectively, of the total footwear production. Likewise, over 70% of the company’s apparel to be sold in the United States is sourced from countries in the Caribbean Basin and East Asia. (Reebok, 2003)

This worldwide sourcing system is constrained by strict U.S. regulations on foreign trade. First, footwear products that are manufactured overseas and shipped to the United States for sale are subject to U.S. customs duties, which range from 4.3% to 66.0% depending on their construction and primal component. Second, certain Chinese-sourced apparel is subject to U.S. import quotas. Third, the United States has imposed additional inspection and documentation requirements on the importation of these products to identify the country of origin, which have, in some cases, resulted in delays in delivery to customers (Reebok, 2003). For these reasons, Reebok is establishing not only supply chains throughout the world but also subzone networks around the nation to streamline its logistics.

Subzone 27M is one node of Reebok’s worldwide supply chain. Subzone 27M consists of three sites located in Stoughton, Norwood, and Lancaster in Massachusetts, which total about 260 acres in area. Even though Reebok’s application to the Board for
this zone’s establishment emphasized its potential of export operations to Western Hemisphere countries, the three sites of Subzone 27M are mainly used for the importation of finished footwear. These imports are unloaded at the Port of Boston, trucked to the warehouses, packaged, and then shipped around the nation. In the warehouses, substandard footwear is destroyed after quality-control inspections. Therefore, the subzone status allows the company to benefit from duty deferral, volume reduction, and the simplification of foreign-trade procedures. (Massport, 2003)

<table>
<thead>
<tr>
<th>Table 3.6 Trade through Subzone 27M, 1997-2003</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>From U.S.</td>
</tr>
<tr>
<td>From Foreign Countries</td>
</tr>
<tr>
<td>To U.S.</td>
</tr>
<tr>
<td>To Foreign Countries</td>
</tr>
</tbody>
</table>


3.2.7 Inactive Sites

In addition to these active sites, there are 13 inactive sites that have not been utilized under zone procedures in the last decade. There are a number of reasons for this inactivity, and one of the most critical is insufficient trading volume. To enjoy privileged customs procedures, a company in an FTZ needs to meet certain government requirements, including extra merchandise security and thorough inventory control. Thus, the activation of an FTZ site incurs additional operation costs, which would not be offset by cost savings from zone benefits without substantial trading volume.
For example, GPZ Site 2, the so-called “Boston Autoport,” has not been activated because the trading volume has fallen under the profit level. The Boston Autoport opened at the 65-acre former Moran Container Terminal and Mystic Pier One in 1998, a time when the Boston Autoport was offering automobile import, processing, and distribution for approximately 100,000 cars per year (Massport, http://www.massport.com). However, since Volkswagen left Boston for Rhode Island in 2002, the import volume has declined to around 10,000 cars per year. This trade volume is not enough to offset the activation cost. Moreover, this site is located within a Designated Port Area (DPA) that strictly limits the land use to water-dependent industry. The DPA designation makes it even more difficult to find alternative uses for this underutilized lot (the BRA, 2000).

Photo 3.3 Boston Autoport (Charlestown)

Source: Author, taken on March 17, 2005

3.3 Verification

While the merchandise trade through FTZ #27 soared in the late 1990s, the export/import ratio increased to over 100%. This trend looks inconsistent with the national trend outlined in the previous chapter. However, this survey reveals that the reality of FTZ #27 is still different from the original program intention: export promotion.

First of all, the high export/import ratio does not indicate its export intensity in this case. More than 80% of the export from the zone is jet fuel, which is imported, stored,
and then exported immediately on international flights from Logan Airport. This logistics strategy goes far beyond the conventional concept of “export” or “transshipment trade.” Although the original supporters of the FTZ Act expected the establishment of assembly centers in the United States that would stimulate foreign demand for U.S. materials, there is no evidence that the export of jet fuel has generated such transactions with the U.S. market. More importantly, this export is little “promoted” by the zone status because even without the zone status BOSFUEL would still operate at the same level of export—the fueling service for international flights. Thus, this sort of operation should be considered not transshipment trade but simply import.

Meanwhile, FTZ #27 has reinforced its import-supportive operations by changing its users. Besides BOSFUEL, FTZ #27 is currently serving importers to the New England region and wider domestic markets. Today’s primary importer, Reebok, started its zone operation in 2003 and has made a considerable contribution to the increase of zone imports. They are operating in FTZ #27 partly because of import-supportive zone benefits, particularly duty deferral. Thus, FTZ #27 has amplified its function in import promotion, and this survey result is in line with the historical, nationwide trend.

It should be mentioned, however, that despite this trade growth, the number of employees in FTZ #27 has declined to 1,637 in 2003, compared to 4,213 in 1997 (Figure 3.3). This decline is due to the loss of employment in zone manufacturers. Unlike the nationwide trend, the success of FTZ #27 is driven by finished-product distributors rather than offshoring manufacturers. In fact, two distributors, BOSFUEL and Reebok, have begun zone operations, employing a relatively small number of workers, only to import a

---

7 The number of employees counts all the workers employed by firms operating under FTZ procedures. Thus, some of them are engaged in domestic-trade or even non-trade activity.
large amount of finished products. On the other hand, traditional manufacturing firms are withdrawing from zone operations by laying off a substantial number of workers. Lawrence Textiles used to engage in the import and processing of fabrics, which employed about 40 workers, but it eventually went out of business. Currently, Polaroid is the only manufacturer in the zone, and it has already lost its competitiveness and laid off more than 2,000 employees. This new phase of functional shift – from manufacturing to distribution – may have other effects on the local and regional economy; however, this is outside the scope of this study.

Figure 3.3  Employment in FTZ #27, 1997-2003

Chapter 4

Regional Economic Function Analysis: A Case Study of FTZ #27

In Chapter 3, I described that, at the local level, FTZ #27 has shifted its function from export promotion to import promotion by changing zone users. In this chapter, I analyze the meaning of this functional evolution at the regional level, that is, Greater Boston.

4.1 Background

While designed as a foreign-trade policy at the national level and utilized by businesses at the local level, the FTZ program has been implemented as an economic development tool at the regional level. Once granted by the FTZ Board, all FTZs are established, operated, and maintained by public or public-type corporations that represent the interest of regional economies (the FTZ Act, Sec. 81b.).

Nevertheless, little research has been done to measure the regional economic impact of FTZs. Many researchers, instead, have appraised the program by paying most attention to operating firms and direct employment within FTZs. Given the growth of zone economies after the 1980s, most of the researchers forcefully claimed that the program had succeeded in generating new business and employment in the United States; these analyses, however, covered only a small part of the entire regional economic impact.

In this chapter, I widen the scope of analysis from zone economy to regional economy. The focus of this study is whether or not the FTZ program is losing its significance for regional economies by shifting its primary function from export
promotion to import promotion. This question is to be explored by conducting a case study of FTZ #27, which I proved is actually an import-oriented FTZ in the previous chapter.

4.2 Methodology

I estimate the regional economic impact of FTZ #27 over a ten-year period beginning in 2005 and ending in 2015. I conduct simulations based on historical data from FY 2003, the latest data available from public and private sources, including FTZ Annual Reports and interviews with zone users. In this year, jet fuel and footwear accounted for 35% and 60% of the total zone imports, respectively. Thus, this simulation reasonably concentrates on GPZ Site 3, operated by BOSFUEL, and Subzone 27M, operated by Reebok, where most of these products were handled.

I cover the impact on the Greater Boston economy, that is, the economy of Suffolk County and the four surrounding counties: Essex, Middlesex, Plymouth, and Norfolk (Figure 4.1). Suffolk and Norfolk are the locations of GPZ Site 3 and Subzone 27M. I also select Essex, Middlesex, and Plymouth because these counties are closely linked to the other two counties in terms of labor force and merchandise transactions.

To conduct the analysis, I employ the Regional Economic Modeling, Inc. (REMI) Policy Insight model of the Greater Boston economy. This is a dynamic model that includes non-survey based input-output tables for 70 sectors, computed from national technical coefficients provided by the United States Bureau of Labor Statistics, and this

---

8 Two of the Subzone 27M sites are located in Norfolk, and the other is in Worcester. Due to the lack of site-based trade data, all the three sites are regarded as one locality in Norfolk.
input-output model is combined with econometric regression and forecasting. Therefore, the REMI model can forecast the economic and demographic effects that policy initiatives or external events may cause on a regional economy.⁹

Among a number of indicators that the REMI model can provide, I estimate the impact in terms of employment, Gross Regional Product (GRP), and personal income, because the ultimate purpose of the FTZ program is to generate business and employment in the United States.

4.3 Modeling

I estimate the economic impact of FTZ #27 by comparing the REMI baseline forecast with a hypothetical forecast. This hypothetical forecast can be simulated on the basis of the policy changes that may directly result from the zoning of FTZ #27 – the granting of customs privileges to the firms located in FTZ #27.¹⁰ The difficulty is that there could be various types of direct effects, which would lead to different courses of economic growth. Therefore, I examine the following potential effects prior to determining the policy changes.

4.3.1 Business-Attraction Effect

Traditionally, the direct effect of FTZs has been found in the original intention of the program: the generation of business and employment in FTZs. In fact, some FTZ authorities expected that the establishment of FTZs would create new business and employment that would then generate indirect and induced growth of the regional economies. For instance, Massport estimated that the establishment of FTZ #27 would generate 325 jobs in directly related occupations, which would be multiplied two- to four-fold in the Boston area (Massport, 1976).¹¹

This type of rapid growth has been realized in some free trade zones in Asia. For example, free trade zones in South Korea and Taiwan accomplished their full planned

---

¹⁰ Technically, I cannot measure the zoning impact directly because this is already included as part of the REMI baseline forecast. To derive the zoning impact from the baseline forecast, I take the following steps: (1) I hypothetically simulate the de-zoning impact; (2) I estimate the zoning impact by reversing the results of the de-zoning simulation.

¹¹ "Directly related occupations" included administrative and clerical labor, U.S. customs officials, security guards, and employees in storing, grading, marking, manufacturing, and assembly. The multiplier of two to four was based on the multiplier that Massport had applied to water-dependent activities in the Port of Boston.
capacity shortly after they were established. They attracted ample foreign investment by providing a wide range of government support, and most products handled there were exported rather than imported. To meet this increased foreign demand, industrial linkages have been established in the regional economies, and domestic value added in exports has increased over the years. In Taiwan, almost half of the materials and equipment needed in zones are supplied by regional industries. These zones, therefore, have satisfied the expectations of host governments with such industrial agglomeration. (Amirahmadi and Wu, 1994)

There is little evidence, however, that this growth model has ever been realized in the United States. Dennis Puccinelli of the U.S. Department of Commerce’s International Trade Administration testifies that it is difficult to locate the direct effect of an FTZ designation in zone activity (Sullivan, 2000). Likewise, Andrew McGilvray of the FTZ Board states that many of the firms currently located in an FTZ would still be there even if the zone did not exist. In one instance, the Board failed to measure the regional economic impact of FTZs mostly due to the difficulty in deducing the business-attraction effect of FTZs.

There are several reasons for this weak business-attraction effect. One of the most critical reasons is that the U.S. FTZ program provides the subzone system for existing firms. These firms can enjoy zone benefits without relocating to general-purpose zones simply by obtaining subzone licenses. Thus, in most cases, zone benefits are not decisive factors for business location. Moreover, zone firms in the United States source most materials to be exported or domestically sold from foreign countries. Therefore, they create a very limited foreign demand for upstream domestic industries, which would be a secondary force for industrial agglomeration in the surrounding regions.
FTZ #27 is not an exception. BOSFUEL and Reebok determined their locations by taking into account a number of factors, including land cost, convenient transportation and traffic, market proximity, and safety. The zoning of FTZ #27 was only a part of these factors. In fact, BOSFUEL began operation in the proximity of Logan Airport simply aiming to minimize oil transmission costs. Reebok located their warehouses adjacent to interstate highways considering overall transportation costs before applying for the subzone license. This means that the zoning was not a determinant of their business locations; conversely, their business locations were the determinant of the zoning. Conventional growth models fall short here.

4.3.2 Cost-Reduction Effect

What the business-attraction model does not consider is the impact on production processes in zone firms. FTZ status can lower operation costs to acquire supplies and distribute products. Zone businesses can become more cost competitive and thus expand their market shares. Moreover, cost reduction in intermediate inputs can be transmitted to downstream firms in the sequence of production. Therefore, cost reduction is another initiator of regional economic growth.

FTZ #27 may decrease the production costs of jet fuel and footwear as follows:

1. BOSFUEL annually gains 940,000 dollars in cost savings from duty exemption (Table 4.1);
2. This cost reduction occurs in the air transportation industry at the regional level because BOSFUEL is a consortium of the airlines serving Logan Airport;
3. Reebok annually gains 1.1 million dollars in cost savings from duty deferral (Table 4.2);
Table 4.1 FTZ Cost Savings at BOSFUEL Corporation

<table>
<thead>
<tr>
<th>Commodity description</th>
<th>Jet Fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual dollar volume imported</td>
<td>$68.8 Million</td>
</tr>
<tr>
<td>Annual barrels imported</td>
<td>1.79 Million bbl</td>
</tr>
<tr>
<td>Duty rate</td>
<td>$0.525 per bbl</td>
</tr>
<tr>
<td>Annual FTZ savings on jet fuel</td>
<td>$940,000</td>
</tr>
<tr>
<td>elimination on consumption</td>
<td></td>
</tr>
</tbody>
</table>


Table 4.2 FTZ Cost Savings at Reebok International Ltd.

<table>
<thead>
<tr>
<th>Commodity description</th>
<th>Footwear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual dollar volume imported</td>
<td>$118 Million</td>
</tr>
<tr>
<td>Duty rate (Ad Valorem)</td>
<td>37.5%</td>
</tr>
<tr>
<td>Annual duty liability</td>
<td>$44.3 Million</td>
</tr>
<tr>
<td>Cost of money (estimate)</td>
<td>10%</td>
</tr>
<tr>
<td>Annual savings if commodity not entered in the U.S. customs territory</td>
<td>$4.43 Million</td>
</tr>
<tr>
<td>365 days per year</td>
<td>$12,100</td>
</tr>
<tr>
<td>Average number of days commodity remains in inventory</td>
<td>90</td>
</tr>
<tr>
<td>FTZ savings on commodity through duty deferral</td>
<td>$1.1 Million</td>
</tr>
</tbody>
</table>

Source: Calculated by author. For the annual dollar volume imported, see the Foreign-Trade Zones Board, 65th Annual Report of the Foreign-Trade Zones Board to the Congress of the United States. For the duty rate, see U.S. International Trade Commission. http://www.usitc.gov/. I assume the customs category to be “footwear with outer soles of rubber/plastic and uppers of textile…” (HTS64041935), which accounts for more than 50% of the total value of footwear imports to the United States (USITC, 2001). I base the average number of days commodity remains in inventory on interviews with Reebok.
4. This cost reduction occurs in the footwear industry at the national level because Reebok distributes footwear products throughout the nation from its sites in FTZ #27.

4.3.3 Crowding-Out Effect

Another effect to be considered is the potential conflict between offshoring zone firms and U.S.-based regional firms. It is characteristic of zone firms to source a considerable portion of goods to be sold in the United States from foreign countries. As I already discussed, while offshoring zone firms can profit from zone benefits, U.S.-based regional firms might be even marginalized by privileged imports.

In the case of FTZ #27, however, zone imports are not substituted for regionally produced goods. This is based on the following assumptions:

1. There is no petroleum refining capacity to produce jet fuel in the Greater Boston region (Energy Information Administration, 2005);

2. The footwear industry in the Greater Boston region has already lost its competitiveness in the global economy. Today, the overall U.S. footwear market is dominated by imports, which supply at least 90% of footwear sales by quantity. The majority of the footwear sold in the United States comes from China and other low-cost countries. U.S.-origin footwear can compete only on nonprice factors, such as brand names, product quality and differentiation, and support services. (U.S. International Trade Commission, 2001)

4.4 Policy Variables and Data

Using the REMI model, I forecast the economic impact of FTZ #27 on the basis of the following policy changes:
1. Cost reduction in jet fuel production (940,000 dollars per year);
2. Cost reduction in footwear production (1.1 million dollars per year).

Prior to conducting the simulation, there are three preparatory steps for each policy change: (1) select the level of a control forecast, (2) select REMI policy variables, and (3) input relevant data into the selected variables.

First, REMI provides two types of forecasts: “National Control Forecast” and “Regional Control Forecast.” I select one depending on the geographical sphere of the policy changes. In the case of jet fuel, I select “Regional Control Forecast” because the cost reduction in jet fuel production happens at the regional level. On the other hand, I select “National Control Forecast” for the footwear case because the cost reduction in footwear production occurs nationwide.

Then, among the REMI variable categories, I select “Production Cost (amount)” in both cases. From the list of industries in the category, I select “Air Transportation” and “Leather and Allied Products Manufacturing” for jet fuel and footwear, respectively (Table 4.3).

Finally, I input data into the selected variables from 2005 to 2015. The inputs are constant values of 940,000 dollars for jet fuel and 1.1 million dollars for footwear. When inputted into REMI, all data are in 2004 dollars, which means that the model takes into account inflation since 2004.

To obtain the combined impact of the two policy changes, I first run the “National Control Forecast” with the footwear data, and then I run the “Regional Control Forecast” with the jet fuel data on the basis of the adjusted “National Control Forecast.”
Table 4.3 REMI Policy Variables Selected for the Simulation

<table>
<thead>
<tr>
<th>Policy Change</th>
<th>Level of Control</th>
<th>REMI Policy Variables Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Reduction in Jet Fuel</td>
<td>Regional Control</td>
<td>Wage, Price, and Profit Block &gt; Production Cost &gt; Air Transportation</td>
</tr>
<tr>
<td>Production</td>
<td></td>
<td>Costs &gt; Production Cost (amount) &gt; Air Transportation</td>
</tr>
<tr>
<td>Cost Reduction in Footwear</td>
<td>National Control</td>
<td>Wage, Price, and Profit Block &gt; Production Cost &gt; Leather Manufacturing</td>
</tr>
<tr>
<td>Production</td>
<td></td>
<td>Costs &gt; Production Cost (amount) &gt; Leather and Allied Products Manufacturing</td>
</tr>
</tbody>
</table>

Source: Author, based on REMI Policy Insight Version 6.0.100
Note: Policy variables are selected by the author according to the NAICS code.

4.5 Results and Limitations

As summarized in Table 4.4, the economic impact of the zoning is positive throughout the projection period. In 2015, the zoning is responsible for 12 jobs, 1.6 million dollars in GRP, and 900,000 dollars in personal income. With respect to employment, the zoning slightly affects a wide range of sectors, including retail trade, transportation and warehousing, and finance and insurance (Table 4.5). I also derive the contribution of each policy change by running the REMI simulation for the two policy changes separately (Tables 4.6 and 4.7).

The magnitude of these impacts is negligibly small compared to the size of the Greater Boston economy. Economic levels are projected in the REMI baseline forecast: 3.1 million jobs, 415 billion dollars in GRP, and 315 billion dollars in personal income in 2015. With the precision of the REMI model, the estimated impact is insignificant.

Even though this result provides valuable implications, there are nonetheless certain limitations that should be recognized. In this simulation, the following factors that might be affected by the zoning are excluded from the simulation:

1. Cost savings from volume reduction and the simplification of customs procedures;
2. Additional costs incurred to operate under FTZ procedures;
3. A reduction in government spending due to a decrease in government revenue from customs duties.

These disregarded factors, however, might have only minimal impact on the regional economy because they are secondary to production cost reductions, the impact of which is estimated to be insignificant.

Table 4.4  Aggregated Economic Impact in Greater Boston, 2005-2015

<table>
<thead>
<tr>
<th>Impact</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment (Number)</td>
<td>8</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>GRP (Million Fixed 1996$)</td>
<td>0.7</td>
<td>1.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Personal Income (Million Nominal$)</td>
<td>0.3</td>
<td>0.7</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Source: Simulated by author using REMI Policy Insight Model, version 6.0.100

Table 4.5  Aggregated Employment Impact in Greater Boston, 2005-2015

<table>
<thead>
<tr>
<th>Sector</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail Trade</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Administration and Waste Services</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Professional and Technical Services</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Source: Simulated by author using REMI Policy Insight Model, version 6.0.100
Table 4.6 Economic Impact of Jet Fuel Cost Reduction in Greater Boston, 2005-2015

<table>
<thead>
<tr>
<th>Impact</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment (Number)</td>
<td>6</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>GRP (Million Fixed 1996$)</td>
<td>0.6</td>
<td>1.1</td>
<td>1.4</td>
</tr>
<tr>
<td>Personal Income (Million Nominal$)</td>
<td>0.2</td>
<td>0.6</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Source: Simulated by author using REMI Policy Insight Model, version 6.0.100

Table 4.7 Economic Impact of Footwear Cost Reduction in Greater Boston, 2005-2015

<table>
<thead>
<tr>
<th>Impact</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment (Number)</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>GRP (Million Fixed 1996$)</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Personal Income (Million Nominal$)</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: Simulated by author using REMI Policy Insight Model, version 6.0.100

4.6 Verification

This REMI simulation suggests that FTZ #27 cannot generate business and employment at any appreciable level in the Greater Boston region. This is due to the fact that, unlike export-oriented free trade zones, FTZ #27 provides very limited locational incentives and supply-chain linkages for the regional economy. This supports the hypothesis of this study that the FTZ program has shifted its primary function from export promotion to import promotion, whereby the program has been losing its significance for regional economies.
Finally, it should be noted that the estimated impact is insignificant, but still positive, because the products imported through FTZ #27 would not be produced in the Greater Boston region anyway. Although U.S.-based manufacturers have argued about the crowding-out effect in several cases, there is no evidence for it in this case. Ironically, the Greater Boston economy is not likely to be harmed by this import promotion because this region does not have, or has already lost, the manufacturing capacity that could be crowded out.
Chapter 5

Policy Implications: Lessons from FTZ #27

In Chapter 4, I described that FTZ #27, which has recently amplified its function in import promotion, has only a minimal impact on the regional economy. Given this situation, in this chapter, I make several suggestions about how best to improve the performance of the FTZ program with respect to the generation of business and employment in regional economies and the U.S. economy as a whole.

5.1 Cost-Benefit Analysis

FTZs should be established on the basis of thorough cost-benefit analyses, not whims and political expediency. The FTZ authorities, including Massport and the FTZ Board, have not yet explained in depth how the program impacts regional economies and the U.S. economy as a whole. Today, they emphasize the economic benefits rather than the costs resulting from it. It may be true that the benefits outweigh the costs in many cases. However, import promotion may have both benefits and costs in reality, and the costs can be considerably large. Given growing import intensity, the cost-benefit analysis of FTZ projects is becoming more important than ever.

The cost-benefit analysis should involve the following three steps:

1. Financial Cost-Benefit Analysis. FTZ projects should be financially feasible from the viewpoint of zone users. The bottom line is calculated by comparing the costs of operating under FTZ procedures with the benefits such status will bring. This
financial aspect is essential to realize FTZ projects because, in practice, private firms may operate under FTZ procedures only when they expect financial gains.

2. *Regional Economic Cost-Benefit Analysis.* The economic impact should be examined at the regional level as well. Regional authorities, such as Massport, should formulate FTZ projects in the way that will make the largest contribution to the regional economies. When the projects are import-oriented, the regional economic impact depends on the following three effects:

A. *Business-Attraction Effect.* The authorities should carefully examine whether or not the financial benefits of FTZ procedures are the decisive factor for businesses to determine their locations. If so, these attracted businesses create new employment and output within the zones, which then generate further growth of the regional economy. However, authorities should be aware that the business-attraction effect is unlikely to emerge in U.S. FTZs, considering the fact that there is no such effect in the case of FTZ #27.

B. *Cost-Reduction Effect.* When there is no business attraction, the benefit is limited to cost reduction at zone users. Cost reduction in intermediate products will be transmitted to downstream sectors in the sequence of production and make the regional economy more competitive. However, authorities should notice that the cost-reduction effect may be relatively small and virtually limited to zone users, just as FTZ #27 primarily benefits BOSFUEL and Reebok.

C. *Crowding-Out Effect.* If the project invites imports that substitute for regional products, U.S.-based regional firms will lose their market share. In the case of FTZ #27, although the crowding-out effect is not observed, the total regional
impact is still insignificant because the cost-reduction effect is very limited. This means that if there were a certain level of substitution, the regional impact would be negative. Thus, what determines the success of FTZ projects is the industrial potentiality of the regional economy rather than the financial profitability of zone firms. This is what regional authorities should keep in mind before applying for FTZ licenses.

3. **National Economic Cost-Benefit Analysis.** When the applications are examined by the FTZ Board, the economic impact should be analyzed at the national level. The Board must deny or restrict authority when it determines that the zone establishment would result in negative impact on the U.S. economy. The challenge here is that this sort of analysis requires extra insights into the potentiality of the entire U.S. industry. Thus, the Board may need to collect more information both from the applicants and from sampled firms in the potentially affected sectors (Hearings, 1989).

### 5.2 Marketing and Promotion

The underutilization of FTZs is another issue of growing concern. Currently, only 149 FTZ projects out of the 241 approved by the FTZ Board are in operation (the FTZ Board, 2002).\(^{12}\) In the case of FTZ #27, despite the fact that nearly 30 years have already passed since its establishment, only four sites out of the 17 approved sites are working under FTZ procedures. This underutilization shows the isolation of the authorities from businesses.

The authorities must make more effort to market and promote FTZs. The difficulty is that U.S. FTZs, unlike most free trade zones elsewhere in the world, can benefit only

---

\(^{12}\) An FTZ project consists of a GPZ project and/or its subordinate subzone project(s).
certain types of businesses. These business models are highly complex and volatile, depending on sourcing patterns, the volume of imports and exports, and the applied tariff rates. Due to this very specific nature, FTZs are typically utilized by large-scale enterprises with certain operations and particular logistics skills.

Considering this difficulty, marketing and promotion efforts should be made strategically well ahead of the actual establishment of zones. Authorities should first conduct research on site conditions and market needs to find out the companies that may well gain from the program. It should also be worthwhile to examine whether or not other companies in the same industry are already using the program. Then, when prospective enterprises are selected, authorities must work in collaboration with them in order to tailor the FTZ project to their needs. If the enterprises are unfamiliar with the program, the authorities may need to provide their know-how to help the enterprises start and run businesses successfully. Such a public-private partnership provides the synergy needed to ensure that FTZs are fully utilized from the very beginning.

5.3 Regional Development

The underutilization is not just a matter of marketing and promotion. The case study of FTZ #27 suggests that the FTZ program has not provided decisive incentives for businesses to locate or remain in zones. In FTZ #27, the reality is that even though supported with incentives, Lawrence Textiles and Polaroid have already lost to foreign competition and technological innovation; newcomers BOSFUEL and Reebok are located within the zone for a number of reasons, not only for the incentives. Thus, there is good reason to suppose that the underutilized sites may not be revived solely by FTZ incentives.
Authorities should take a more comprehensive approach to stimulate underutilized FTZs. Free trade zones in Asia provide some helpful leads. For instance, China has implemented a policy that encourages economic cooperation between firms in Special Economic Zones (SEZs) and those in inland areas in order to diffuse technology introduced to SEZs. Moreover, China has attempted to adjust the economies of the surrounding regions to SEZs by investing in a wide range of sectors, including agriculture, services, tourism, and natural resource extraction. Even more importantly, China has a regional policy for the development of the entire Pearl River Delta, the location of three SEZs. Thus, SEZs are working as an integral element in this regional strategy. (Amirahmadi and Wu, 1994) Likewise, in the United States, some FTZs are trying to attract businesses by integrating the program using more effort in regional development. For example, the Port of Pensacola in Florida offers a 50-acre facility, which is designated not only as FTZ #249 but also as Enterprise Zone #1702. This overlap opens a number of state and local tax incentives as well as customs privileges to businesses located within the site (Port of Pensacola, http://www.portofpensacola.com). These cases may provide some lessons that regional authorities should refer to before launching FTZ projects.

5.4 Opportunities and Barriers

The FTZ program is not a regulation. The program places no restrictions on land use unless zone users choose to operate under FTZ procedures. In other words, inactive FTZs potentially can accommodate a wide range of activities, whether or not they are reliant on foreign commerce. Thus, for sites with little potential as an FTZ, authorities can redesign the future land use from various business options.
FTZ #27 is facing service-oriented business needs. The Boston economy has already undergone the transition from a manufacturing-based economy to a knowledge-based economy. In the last half century, while manufacturing sectors have lost their competitiveness in the global economy, service sectors, especially professional, health, financial, and business services, have led economic growth (Pereira, 1998). Given this structural change of the regional economy, some underutilized sites once designated as FTZs may have more potential as service-oriented areas.

It should be noted, however, that the use of land and structure can be generally restricted by other factors. In fact, the use of FTZ #27 is regulated by zoning ordinances, particularly the Boston Zoning Code. A large part of FTZ #27 is overlaid with the Maritime Economy Reserve Subdistrict, which permits only automotive sales, check cashing businesses, water freight or passenger terminal facilities, and certain accessory uses. Moreover, as already mentioned, the Boston Autoport is located in a DPA, which limits the land use to water-dependent industry. In such cases, the reorientation of FTZs may require the revision of obstructive zoning ordinances and underlying municipal development plans.
Chapter 6

Conclusion

The U.S. economy is becoming more dependent on imports. As the rate of imports increased faster than that of exports, the U.S. deficit on goods and services rose from 19.4 billion dollars in 1980 to 617.1 billion dollars in 2004 (U.S. Department of Commerce, 2004). Facing this huge trade deficit, it is increasingly argued that the U.S. government should balance exports and imports by providing export promotion programs (U.S. Department of Agriculture, 1993; U.S. General Accounting Office, 1995; and Shields, 1997).

Meanwhile, the FTZ program has shifted its primary function from export promotion to import promotion. Since the early 1980s, the export/import ratio has declined at a faster pace in FTZs than in the United States as a whole. Today, the ratio is 22% in FTZs while the national ratio is 60% (the FTZ Board, 2002). This functional shift has been led by offshoring manufacturers, which convert high-duty imported materials into low-duty finished products within FTZs. Typically, oil refineries and auto-assembly plants are operating under FTZ procedures to circumvent such inverted tariffs.

FTZ #27 is also on the path of this functional shift. Since the late 1990s, this zone has amplified its function in import promotion by accommodating several distributors, including BOSFUEL and Reebok. Under FTZ procedures, these firms can benefit considerably from duty exemption and deferral. I estimated that the cost savings reach 940,000 dollars at BOSFUEL and 1.1 million dollars at Reebok.
However, FTZ #27 has failed to generate employment both at the local and regional levels. The number of people employed in the zone has declined by 61% since 1999 because employment loss at existing manufacturers has outpaced the increase at BOSFUEL and Reebok. Also, I estimated that the import promotion of jet fuel and footwear creates only limited employment in Greater Boston. This is mostly because FTZ #27 lacks locational incentives and supply-chain linkages that would initiate regional economic growth. This case study indicates that, through the functional shift, the FTZ program is losing its economic significance for regional economies.

There are certain issues that I could not fully explore in this study. My research has relied, for the most part, on a case study of FTZ #27. This zone is different from typical FTZs in some features. The most important difference is that the major firms in this zone are distributors, not offshoring manufacturers. To draw the whole picture of the regional economic function of FTZs, the meaning of offshoring manufacturers for regional economies should be revealed next.

In conclusion, I must stress that the program has changed and expanded in function without attracting public attention and media coverage. While a few sectors are taking advantage of the functional shift, most U.S.-based sectors are left out of this process without noticing its implications for them. The program needs more public involvement in the analysis and reassessment, and I hope that this study will form the basis for such a discussion in the near future.
Appendix A. The Foreign-Trade Zones Act

19 USC CHAPTER 1A - FOREIGN-TRADE ZONES
TITLE 19 - CUSTOMS DUTIES;
CHAPTER 1A - FOREIGN-TRADE ZONES

Sec. 81a. Definitions

When used in this chapter -
(a) The term "Secretary" means the Secretary of Commerce;
(b) The term "Board" means the Board which is established to carry out the provisions of this chapter. The Board shall consist of the Secretary of Commerce, who shall be chairman and executive officer of the Board, and the Secretary of the Treasury;
(c) The term "State" includes any State, the District of Columbia, and Puerto Rico;
(d) The term "corporation" means a public corporation and a private corporation, as defined in this chapter;
(e) The term "public corporation" means a State, political subdivision thereof, a municipality, a public agency of a State, political subdivision thereof, or municipality, or a corporate municipal instrumentality of one or more States;
(f) The term "private corporation" means any corporation (other than a public corporation) which is organized for the purpose of establishing, operating, and maintaining a foreign-trade zone and which is chartered under special Act enacted after June 18, 1934, of the State or States within which it is to operate such zone;
(g) The term "applicant" means a corporation applying for the right to establish, operate, and maintain a foreign-trade zone;
(h) The term "grantee" means a corporation to which the privilege of establishing, operating, and maintaining a foreign-trade zone has been granted;
(i) The term "zone" means a "foreign-trade zone" as provided in this chapter.


AMENDMENTS

1996 - Subsec. (b). Pub. L. 104-201, Sec. 910(1), substituted "and the Secretary of the Treasury" for "the Secretary of the Treasury, and the Secretary of War".

SHORT TITLE

This chapter is popularly known as the "Foreign-Trade Zones Act".

FLOOR STOCKS TAX TREATMENT OF ARTICLES IN FOREIGN-TRADE ZONES

Notwithstanding this chapter, articles located in a Foreign-trade zone on the effective date of increases in tax under specific amendments by Pub. L. 101-508 subject to floor stocks taxes under certain circumstances, see section 11218 of Pub. L. 101-508, set out as a note under section 5001 of Title 26, Internal Revenue Code.
Sec. 81b. Establishment of zones

(a) Board authorization to grant zones

The Board is authorized, subject to the conditions and restrictions of this chapter and of the rules and regulations made thereunder, upon application as hereinafter provided, to grant to corporations the privilege of establishing, operating, and maintaining foreign-trade zones in or adjacent to ports of entry under the jurisdiction of the United States.

(b) Number of zones per port of entry

Each port of entry shall be entitled to at least one zone, but when a port of entry is located within the confines of more than one State such port of entry shall be entitled to a zone in each of such States, and when two cities separated by water are embraced in one port of entry, a zone may be authorized in each of said cities or in territory adjacent thereto. Zones in addition to those to which a port of entry is entitled shall be authorized only if the Board finds that existing or authorized zones will not adequately serve the convenience of commerce.

(c) Preference to public corporations

In granting applications preference shall be given to public corporations.

(d) Ownership of harbor facilities by State

In case of any State in which harbor facilities of any port of entry are owned and controlled by the State and in which State harbor facilities of any other port of entry are owned and controlled by a municipality, the Board shall not grant an application by any public corporation for the establishment of any zone in such State, unless such application has been authorized by an Act of the legislature of such State (enacted after June 18, 1934).

(June 18, 1934, ch. 590, Sec. 2, 48 Stat. 999.)

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 81i of this title.

Sec. 81c. Exemption from customs laws of merchandise brought into Foreign-trade zone

(a) Handling of merchandise in zone; shipment of foreign merchandise into customs territory; appraisal; reshipment to zone Foreign and domestic merchandise of every description, except such as is prohibited by law, may, without being subject to the customs laws of the United States, except as otherwise provided in this chapter, be brought into a zone and may be stored, sold, exhibited, broken up, repacked, assembled, distributed, sorted, graded, cleaned, mixed with foreign or domestic merchandise, or otherwise manipulated, or be manufactured except as otherwise provided in this chapter, and be exported, destroyed, or sent into customs territory of the United States therefrom, in the original package or otherwise; but when foreign merchandise is so sent from a zone into customs territory of the United States it shall be subject to the laws and regulations of the United States affecting imported merchandise: Provided, That whenever the privilege shall be requested and there has been no manipulation or manufacture effecting a change in tariff classification, the appropriate customs officer shall take under supervision any lot or part of a lot of foreign merchandise in a zone, cause it to be appraised and taxes determined and duties liquidated thereon. Merchandise so taken under supervision may be stored, manipulated, or manufactured under the supervision and regulations prescribed by the Secretary of the Treasury, and whether mixed or manufactured with domestic merchandise or not may, under regulations prescribed by the Secretary of the Treasury, be exported or destroyed, or may be sent into customs territory upon the payment of such liquidated duties and determined taxes thereon. If merchandise so taken under supervision has been manipulated or manufactured, such duties and taxes shall be payable on the quantity of such foreign merchandise used in the manipulation or manufacture of the entered article. Allowance shall be made for recoverable and irrecoverable waste; and if recoverable waste is sent into customs territory, it shall be dutiable and taxable in its condition and quantity and at its weight at the time of entry. Where two or more products result from the manipulation or manufacture of merchandise in a zone the liquidated duties and determined taxes shall be distributed to the several products in accordance with their relative
value at the time of separation with due allowance for waste as provided for above: Provided further, That subject to such regulations respecting identity and the safeguarding of the revenue as the Secretary of the Treasury may deem necessary, articles, the growth, product, or manufacture of the United States, on which all internal-revenue taxes have been paid, if subject thereto, and articles previously imported on which duty and/or tax has been paid, or which have been admitted free of duty and tax, may be taken into a zone from the customs territory of the United States, placed under the supervision of the appropriate customs officer, and whether or not they have been combined with or made part, while in such zone, of other articles, may be brought back thereto free of quotas, duty, or tax: Provided further, That if in the opinion of the Secretary of the Treasury their identity has been lost, such articles not entitled to free entry by reason of noncompliance with the requirements made hereunder by the Secretary of the Treasury shall be treated when they reenter customs territory of the United States as foreign merchandise under the provisions of the tariff and internal-revenue laws in force at that time: Provided further, That under the rules and regulations of the controlling Federal agencies, articles which have been taken into a zone from customs territory for the sole purpose of exportation, destruction (except destruction of distilled spirits, wines, and fermented malt liquors), or storage shall be considered to be exported for the purpose of:

(1) the draw-back, warehousing, and bonding, or any other provisions of the Tariff Act of 1930, as amended, and the regulations thereunder; and

(2) the statutes and bonds exacted for the payment of draw-back, refund, or exemption from liability for internal-revenue taxes and for the purposes of the internal-revenue laws generally and the regulations thereunder.

Such a transfer may also be considered an exportation for the purposes of other Federal laws insofar as Federal agencies charged with the enforcement of those laws deem it advisable. Such articles may not be returned to customs territory for domestic consumption except where the Foreign-Trade Zones Board deems such return to be in the public interest, in which event the articles shall be subject to the provisions of paragraph 1615(f) of section 1201 of this title: Provided further, That no operation involving any foreign or domestic merchandise brought into a zone which operation would be subject to any provision or provisions of section 1807, chapter 15, chapter 16, chapter 17, chapter 21, chapter 23, chapter 24, chapter 25, chapter 26, or chapter 32 of the Internal Revenue Code if performed in customs territory, or involving the manufacture of any article provided for in paragraphs 367 or 368 of section 1001 of this title, shall be permitted in a zone except those operations (other than rectification of distilled spirits and wines, or the manufacture or production of alcoholic products unfit for beverage purposes) which were permissible under this chapter prior to July 1, 1949: Provided further, That articles produced or manufactured in a zone and exported therefrom shall on subsequent importation into the customs territory of the United States be subject to the import laws applicable to like articles manufactured in a foreign country, except that articles produced or manufactured in a zone exclusively with the use of domestic merchandise, the identity of which has been maintained in accordance with the second proviso of this section may, on such importation, be entered as American goods returned: Provided, further, That no merchandise that consists of goods subject to NAFTA drawback, as defined in section 3333(a) of this title, that is manufactured or otherwise changed in condition shall be exported to a NAFTA country, as defined in section 3301(4) of this title, without an assessment of a duty on the merchandise in its condition and quantity, and at its weight, at the time of its exportation (or if the privilege in the first proviso to this subsection was requested, an assessment of a duty on the merchandise in its condition and quantity, and at its weight, at the time of its admission into the zone) and the payment of the assessed duty before the 61st day after the date of exportation of the article, except that upon the presentation, before such 61st day, of satisfactory evidence of the amount of any customs duties paid or owed to the NAFTA country on the article, the customs duty may be waived or reduced (subject to section 508(b)(2)(B) of the Tariff Act of 1930 (19 U.S.C. 1508(b)(2)(B))) in an amount that does not exceed the lesser of (1) the total amount of customs duties paid or owed on the merchandise on importation into the United States, or (2) the total amount of customs duties paid on the article to the NAFTA country: Provided, further, That, if Canada ceases to be a NAFTA country and the suspension of the operation of the United States-Canada Free-Trade Agreement thereafter terminates, with the exception of drawback eligible goods under section 204(a) of the United States-Canada Free-Trade Agreement Implementation Act of 1988, no article manufactured or otherwise
changed in condition (except a change by cleaning, testing or repacking) shall be exported to Canada
during the period such Agreement is in operation without the payment of a duty that shall be payable
on the article in its condition and quantity, and at its weight, at the time of its exportation to Canada
unless the privilege in the first proviso to this subsection was requested.

(FOOTNOTE 1)

(FOOTNOTE 1) So in original.

(b) Applicability to bicycle component parts

The exemption from the customs laws of the United States provided under subsection (a) of this
section shall not be available on or before December 31, 1992, to bicycle component parts unless such
parts are reexported from the United States, whether in the original package, as components of a
completely assembled bicycle, or otherwise.

(c) Articles manufactured or produced from denatured distilled spirits withdrawn free of tax from
distilled spirits plant; products unfit for beverage purposes

(1) Notwithstanding the provisions of the fifth proviso of subsection (a) of this section, any article
(within the meaning of section 5002(a)(14) of title 26) may be manufactured or produced from
denatured distilled spirits which have been withdrawn free of tax from a distilled spirits plant (within
the meaning of section 5002(a)(1) of title 26), and articles thereof, in a zone.

(2) Notwithstanding the provisions of the fifth proviso of subsection (a) of this section, distilled
spirits which have been removed from a distilled spirits plant (as defined in section 5002(a)(1) of title
26) upon payment or determination of tax may be used in the manufacture or production of medicines,
medicinal preparation, food products, flavors, or flavoring extracts, which are unfit for beverage
purposes, in a zone. Such products will be eligible for drawback under the internal revenue laws under
the same conditions applicable to similar manufacturing or production operations occurring in
customs territory.

(d) Foreign-trade zones

In regard to the calculation of relative values in the operations of petroleum refineries in a Foreign-
trade zone, the time of separation is defined as the entire manufacturing period. The price of products
required for computing relative values shall be the average per unit value of each product for the
manufacturing period. Definition and attribution of products to feedstocks for petroleum
manufacturing may be either in accordance with Industry Standards of Potential Production on a
Practical Operating Basis as verified and adopted by the Secretary of the Treasury (known as
producibility) or such other inventory control method as approved by the Secretary of the Treasury
that protects the revenue.

(e) Production equipment

(1) In general

Notwithstanding any other provision of law, if all applicable customs laws are complied with
(except as otherwise provided in this subsection), merchandise which is admitted into a Foreign-trade
zone for use within such zone as production equipment or as parts for such equipment, shall not be
subject to duty until such merchandise is completely assembled, installed, tested, and used in the
production for which it was admitted.

(2) Admission procedures

The person who admits the merchandise described in paragraph (1) into the zone shall, at the time
of such admission, certify to the Customs Service that the merchandise is admitted into the zone
pursuant to this subsection for use within the zone as production equipment or as parts for such
equipment and that the merchandise will be entered and estimated duties deposited when use of the
merchandise in production begins.

(3) Entry procedures

At the time use of the merchandise in production begins, the merchandise shall be entered, as
provided for in section 484 of the Tariff Act of 1930 (19 U.S.C. 1484), and estimated duties shall be
deposited with the Customs Service. The merchandise shall be subject to tariff classification according
to its character, condition, and quantity, and at the rate of duty applicable, at the time use of the
merchandise in production begins.

(4) Foreign-trade zone
For purposes of this subsection, the term "Foreign-trade zone" includes a subzone.


REFERENCES IN TEXT

The customs laws, referred to in text, are classified generally to this title. The Tariff Act of 1930, as amended, referred to in subsec. (a)(1), is act June 17, 1930, ch. 497, 46 Stat. 590, as amended, which is classified generally to chapter 4 (Sec. 1202 et seq.) of this title. For complete classification of this Act to the Code, see Tables. Sections 1001 and 1201 of this title, referred to in subsec. (a), which comprised the dutiable and free lists for articles imported into the United States, were repealed by Pub. L. 87-456, title I, Sec. 101(a), May 24, 1962, 76 Stat. 72, which act also revised the Tariff Schedules of the United States. The Tariff Schedules of the United States were replaced by the Harmonized Tariff Schedule of the United States which is not set out in the Code. See Publication of Harmonized Tariff Schedule note set out under section 1202 of this title. References in subsec. (a) to section and chapters of the Internal Revenue Code are references to section and chapters of the Internal Revenue Code, 1939, which was repealed by section 7851 of Title 26, I.R.C. 1954. The Internal Revenue Code of 1954 was redesignated the Internal Revenue Code of 1986 by Pub. L. 99-514, Sec. 2, Oct. 22, 1986, 100 Stat. 2095. Corresponding sections of I.R.C. 1986 to section and chapters of I.R.C. 1939 referred to in the text are set out below. For provision deeming a reference in other laws to a provision of I.R.C. 1939, also as a reference to corresponding provision of I.R.C. 1986, see section 7852(b) of Title 26, I.R.C. 1986.

<table>
<thead>
<tr>
<th>I.R.C. 1939</th>
<th>I.R.C. 1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sec. 1807</td>
<td>Omitted</td>
</tr>
<tr>
<td>Chapter 15</td>
<td>Sec. 5701 et seq.</td>
</tr>
<tr>
<td>Chapter 16</td>
<td>Sec. 4591 et seq., Sec. 4811 et seq.</td>
</tr>
<tr>
<td>Chapter 17</td>
<td>Sec. 4831 et seq.</td>
</tr>
<tr>
<td>Chapter 21</td>
<td>Omitted</td>
</tr>
<tr>
<td>Chapter 23</td>
<td>Sec. 4701 et seq.</td>
</tr>
<tr>
<td>Chapter 24</td>
<td>Sec. 4801 et seq.</td>
</tr>
<tr>
<td>Chapter 25</td>
<td>Sec. 4181, 4182, and 5811 et seq.</td>
</tr>
<tr>
<td>Chapter 26</td>
<td>Sec. 5001 et seq.</td>
</tr>
<tr>
<td>Chapter 32</td>
<td>Sec. 4501 et seq.</td>
</tr>
</tbody>
</table>

Section 204 of the United States-Canada Free-Trade Agreement Implementation Act of 1988, referred to in subsec. (a), is section 204 of Pub. L. 100-449, which is set out in a note under section 2112 of this title. The internal revenue laws, referred to in subsec. (c)(2), are classified generally to Title 26, Internal Revenue Code.

AMENDMENTS

(2), inserted second proviso relating to goods subject to NAFTA drawback, and in last proviso inserted ", if Canada ceases to be a NAFTA country and the suspension of the operation of the United States-Canada Free-Trade Agreement thereafter terminates," after "That" and substituted "during the period such Agreement is in operation" for "on or after January 1, 1994, or such later date as may be proclaimed by the President under section 204(b)(2)(B) of such Act of 1988.,"

1990 - Subsec. (b). Pub. L. 101-382, Sec. 481, substituted "on or before December 31, 1992" for "before January 1, 1991".
Subsec. (c). Pub. L. 101-382, Sec. 484F, designated existing provisions as par. (1), struck out "domestic" before "denatured distilled", inserted provisions relating to withdrawal free of tax from a distilled spirits plant, and added par. (2).

1988 - Subsec. (a). Pub. L. 100-449 inserted provision directing that, "with the exception of drawback eligible goods under section 204(a) of the United States-Canada Free-Trade Agreement Implementation Act of 1988, no article manufactured or otherwise changed in condition (except a change by cleaning, testing or repacking) shall be exported to Canada on or after January 1, 1994, or such later date as may be proclaimed by the President under section 204(b)(2)(B) of such Act of 1988, without the payment of a duty that shall be payable on the article in its condition and quantity, and at its weight, at the time of its exportation to Canada unless the privilege in the first proviso to this subsection was requested."
1984 - Subsec. (a). Pub. L. 98-573 designated existing provisions as subsec. (a), redesignated former pars. (a) and (b) as pars. (1) and (2), respectively, of subsec. (a), and added subsec. (b).
1970 - Pub. L. 91-271 substituted references to the appropriate customs officers for references to the collector of customs wherever appearing.
1950 - Act June 17, 1950, amended section generally to remove the prohibition against, and to authorize specifically, manufacture and exhibition within a zone.

EFFECTIVE DATE OF 1996 AMENDMENT

Section 31(b) of Pub. L. 104-295 provided that: "The amendment made by this section (amending this section) shall apply with respect to merchandise admitted into a Foreign-trade zone after the date that is 15 days after the date of the enactment of this Act (Oct. 11, 1996)."

EFFECTIVE DATE OF 1993 AMENDMENT

Amendment by Pub. L. 103-182 applicable (1) with respect to exports from the United States to Canada on Jan. 1, 1996, if Canada is a NAFTA country on that date and after such date for so long as Canada continues to be a NAFTA country and (2) with respect to exports from the United States to Mexico on Jan. 1, 2001, if Mexico is a NAFTA country on that date and after such date for so long as Mexico continues to be a NAFTA country, see section 213(c) of Pub. L. 103-182, set out as an Effective Date note under section 3331 of this title.

EFFECTIVE DATE OF 1990 AMENDMENT

Section 485(a) of title III (Sec. 301-485) of Pub. L. 101-382 provided that: "Except as otherwise provided in this title, the amendments made by this title (amending this section and sections 1309, 1313, 1466, and 1553 of this title and enacting provisions set out as notes under sections 1309, 1466, and 1553 of this title), shall apply with respect to articles entered, or withdrawn from warehouse for consumption, on or after October 1, 1990."

EFFECTIVE AND TERMINATION DATES OF 1988 AMENDMENTS
Amendment by Pub. L. 100-449 effective on date the United States-Canada Free-Trade Agreement enters into force (Jan. 1, 1989), and to cease to have effect on date Agreement ceases to be in force, see section 501(a), (c) of Pub. L. 100-449, set out in a note under section 2112 of this title.

Amendment by section 1783(f) of Pub. L. 100-418 applicable with respect to articles entered or withdrawn from warehouse for consumption, after Sept. 30, 1988, pursuant to section 1831(a) of Pub. L. 100-418.

EFFECTIVE DATE OF 1984 AMENDMENT

Section 231(a)(3) of Pub. L. 98-573 provided that: "The amendments made by paragraph (2) (amending this section) shall take effect on the fifteenth day after the date of the enactment of this Act (Oct. 30, 1984)."

EFFECTIVE DATE OF 1970 AMENDMENT

Amendment by Pub. L. 91-271 effective with respect to articles entered, or withdrawn from warehouse for consumption, on or after Oct. 1, 1970, and such other articles entered or withdrawn from warehouse for consumption prior to such date, or with respect to which a protest has not been disallowed in whole or in part before Oct. 1, 1970, see section 203 of Pub. L. 91-271, set out as a note under section 1500 of this title.

TRANSFER OF FUNCTIONS

All offices of collector of customs, comptroller of customs, surveyor of customs, and appraiser of merchandise in Bureau of Customs of Department of the Treasury to which appointments were required to be made by President with advice and consent of Senate ordered abolished with such offices to be terminated not later than December 31, 1966, by Reorg. Plan No. 1 of 1965, eff. May 25, 1965, 30 F.R. 7035, 79 Stat. 1317, set out as a note under section 1 of this title. All functions of offices eliminated were already vested in Secretary of the Treasury by Reorg. Plan No. 26 of 1950, eff. July 31, 1950, 15 F.R. 4935, 64 Stat. 1280, set out in the Appendix to Title 5, Government Organization and Employees.

FLOOR STOCKS TAX TREATMENT OF ARTICLES IN FOREIGN-TRADE ZONES

Notwithstanding this chapter, articles located in a Foreign-trade zone on the effective date of increases in tax under specific amendments by Pub. L. 101-508 subject to floor stocks taxes under certain circumstances, see section 11218 of Pub. L. 101-508, set out as a note under section 5001 of Title 26, Internal Revenue Code.

PLAN AMENDMENTS NOT REQUIRED UNTIL JANUARY 1, 1989

For provisions directing that if any amendments made by subtitle A or subtitle C of title XI (Sec. 1101-1147 and 1171-1177) or title XVIII (Sec. 1801-1899A) of Pub. L. 99-514 require an amendment to any plan, such plan amendment shall not be required to be made before the first plan year beginning on or after Jan. 1, 1989, see section 1140 of Pub. L. 99-514, as amended, set out as a note under section 401 of Title 26, Internal Revenue Code.

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 58c, 1508 of this title; title 26 sections 5003, 5214.

Sec. 81d. Customs officers and guards
The Secretary of the Treasury shall assign to the zone the necessary customs officers and guards to protect the revenue and to provide for the admission of foreign merchandise into customs territory.

TRANSFER OF FUNCTIONS

Functions of all officers of Department of the Treasury and functions of all agencies and employees of such Department transferred, with certain exceptions, to Secretary of the Treasury, with power vested in him to authorize their performance or performance of any of his functions, by any of such officers, agencies, and employees, by Reorg. Plan No. 26 of 1950, Sec. 1, 2, eff. July 31, 1950, 15 F.R. 4935, 64 Stat. 1280, set out in the Appendix to Title 5, Government Organization and Employees.

Sec. 81e. Vessels entering or leaving zone; coastwise trade

Vessels entering or leaving a zone shall be subject to the operation of all the laws of the United States, except as otherwise provided in this chapter, and vessels leaving a zone and arriving in customs territory of the United States shall be subject to such regulations to protect the revenue as may be prescribed by the Secretary of the Treasury. Nothing in this chapter shall be construed in any manner so as to permit vessels under foreign flags to carry goods or merchandise shipped from one Foreign-trade zone to another zone or port in the protected coastwise trade of the United States.

(June 18, 1934, ch. 590, Sec. 5, 48 Stat. 1000.)

Sec. 81f. Application for establishment and expansion of zone

(a) Application for establishment; requirements

Each application shall state in detail—

(1) The location and qualifications of the area in which it is proposed to establish a zone, showing (A) the land and water or land or water area or land area alone if the application is for its establishment in or adjacent to an interior port; (B) the means of segregation from customs territory; (C) the fitness of the area for a zone; and (D) the possibilities of expansion of the zone area;

(2) The facilities and appurtenances which it is proposed to provide and the preliminary plans and estimate of the cost thereof, and the existing facilities and appurtenances which it is proposed to utilize;

(3) The time within which the applicant proposes to commence and complete the construction of the zone and facilities and appurtenances;

(4) The methods proposed to finance the undertaking;

(5) Such other information as the Board may require.

(b) Amendment of application; expansion of zone

The Board may upon its own initiative or upon request permit the amendment of the application. Any expansion of the area of an established zone shall be made and approved in the same manner as an original application.

(June 18, 1934, ch. 590, Sec. 6, 48 Stat. 1000.)

Sec. 81g. Granting of application

If the Board finds that the proposed plans and location are suitable for the accomplishment of the purpose of a Foreign-trade zone under this chapter, and that the facilities and appurtenances which it is proposed to provide are sufficient it shall make the grant.

(June 18, 1934, ch. 590, Sec. 7, 48 Stat. 1000.)

Sec. 81h. Rules and regulations
The Board shall prescribe such rules and regulations not inconsistent with the provisions of this chapter or the rules and regulations of the Secretary of the Treasury made hereunder and as may be necessary to carry out this chapter.

(June 18, 1934, ch. 590, Sec. 8, 48 Stat. 1000.)

Sec. 81i. Cooperation of Board with other agencies

The Board shall cooperate with the State, subdivision, and municipality in which the zone is located in the exercise of their police, sanitary, and other powers in and in connection with the free zone. It shall also cooperate with the United States Customs Service, the United States Postal Service, the Public Health Service, the Immigration and Naturalization Service, and such other Federal agencies as have jurisdiction in ports of entry described in section 81b of this title.

(Ex. Ord. No. 6166, Sec. 14, June 10, 1933; June 18, 1934, ch. 590, Sec. 9, 48 Stat. 1000; Aug. 12, 1970, Pub. L. 91-375, Sec. 4(a), 6(o), 84 Stat. 773, 783.)

CHANGE OF NAME

"United States Postal Service" substituted in text for "Post Office Department" pursuant to Pub. L. 91-375, Sec. 4(a), 6(o), Aug. 12, 1970, 84 Stat. 773, 783, which are set out as notes preceding section 101 of Title 39, Postal Service, and under section 201 of Title 39, respectively, which abolished Post Office Department, transferred its functions to United States Postal Service, and provided that references in other laws to Post Office Department shall be considered a reference to United States Postal Service.

TRANSFER OF FUNCTIONS

Functions of Public Health Service, Surgeon General of Public Health Service, and of all other officers and employees of Public Health Service, and functions of all agencies of or in Public Health Service transferred to Secretary of Health, Education, and Welfare by Reorg. Plan No. 3 of 1966, 31 F.R. 8855, 80 Stat. 1610, effective June 25, 1966, set out in the Appendix to Title 5, Government Organization and Employees. Secretary of Health, Education, and Welfare redesignated Secretary of Health and Human Services by section 509(b) of Pub. L. 96-88, title V, Oct. 17, 1979, 93 Stat. 695, which is classified to section 3508(b) of Title 20, Education.

Functions of all other officers of Department of Justice and functions of all agencies and employees of such Department transferred, with a few exceptions, to Attorney General, with power vested in him to authorize their performance or performance of any of his functions by any of such officers, agencies, and employees, by former sections 1 and 2 of Reorg. Plan No. 2 of 1950, eff. May 24, 1950, 15 F.R. 3173, 64 Stat. 1261, set out in the Appendix to Title 5. The Immigration and Naturalization Service, referred to in this section, is in Department of Justice.

Functions of all other officers of Department of the Treasury and functions of all agencies and employees of such Department transferred, with certain exceptions, to Secretary of the Treasury, with power vested in him to authorize their performance or performance of any of his functions, by any of such officers, agencies, and employees, by Reorg. Plan No. 26 of 1950, Sec. 1, 2, eff. July 31, 1950, 15 F.R. 4935, 64 Stat. 1280, set out in the Appendix to Title 5. Customs Service is under Department of the Treasury.

Bureaus of Immigration and Naturalization consolidated as an Immigration and Naturalization Service by Ex. Ord. No. 6166, set out as a note under section 901 of Title 5.

Sec. 81j. Cooperation of other agencies with Board

For the purpose of facilitating the investigations of the Board and its work in the granting of the privilege, in the establishment, operation, and maintenance of a zone, the President may direct the
executive departments and other establishments of the Government to cooperate with the Board, and for such purpose each of the several departments and establishments is authorized, upon direction of the President, to furnish to the Board such records, papers, and information in their possession as may be required by him, and temporarily to detail to the service of the Board such officers, experts, or engineers as may be necessary.

(June 18, 1934, ch. 590, Sec. 10, 48 Stat. 1001.)

**Sec. 81k. Agreements as to use of property**

If the title to or right of user of any of the property to be included in a zone is in the United States, an agreement to use such property for zone purposes may be entered into between the grantee and the department or officer of the United States having control of the same, under such conditions, approved by the Board and such department or officer, as may be agreed upon.

(June 18, 1934, ch. 590, Sec. 11, 48 Stat. 1001.)

**Sec. 81l. Facilities to be provided and maintained**

Each grantee shall provide and maintain in connection with the zone -

(a) Adequate slips, docks, wharves, warehouses, loading and unloading and mooring facilities where the zone is adjacent to water; or, in the case of an inland zone, adequate loading, unloading, and warehouse facilities;

(b) Adequate transportation connections with the surrounding territory and with all parts of the United States, so arranged as to permit of proper guarding and inspection for the protection of the revenue;

(c) Adequate facilities for coal or other fuel and for light and power;

(d) Adequate water and sewer mains;

(e) Adequate quarters and facilities for the officers and employees of the United States, State, and municipality whose duties may require their presence within the zone;

(f) Adequate enclosures to segregate the zone from customs territory for protection of the revenue, together with suitable provisions for ingress and egress of persons, conveyances, vessels, and merchandise;

(g) Such other facilities as may be required by the Board.

(June 18, 1934, ch. 590, Sec. 12, 48 Stat. 1001.)

**Sec. 81m. Permission to others to use zone**

The grantee may, with the approval of the Board, and under reasonable and uniform regulations for like conditions and circumstances to be prescribed by it, permit other persons, firms, corporations, or associations to erect such buildings and other structures within the zone as will meet their particular requirements: Provided, That such permission shall not constitute a vested right as against the United States, nor interfere with the regulation of the grantee or the permittee by the United States, nor interfere with or complicate the revocation of the grant by the United States: And provided further, That in the event of the United States or the grantee desiring to acquire the property of the permittee no good will shall be considered as accruing from the privilege granted to the zone: And provided further, That such permits shall not be granted on terms that conflict with the public use of the zone as set forth in this chapter.

(June 18, 1934, ch. 590, Sec. 13, 48 Stat. 1001.)

**Sec. 81n. Operation of zone as public utility; cost of customs service**

Each zone shall be operated as a public utility, and all rates and charges for all services or privileges within the zone shall be fair and reasonable, and the grantee shall afford to all who may apply for the
use of the zone and its facilities and appurtenances uniform treatment under like conditions, subject to such treaties or commercial conventions as are now in force or may hereafter be made from time to time by the United States with foreign governments and the cost of maintaining the additional customs service required under this chapter shall be paid by the operator of the zone.

(June 18, 1934, ch. 590, Sec. 14, 48 Stat. 1001.)

Sec. 81o. Residents of zone

(a) Persons allowed to reside in zone
No person shall be allowed to reside within the zone except Federal, State, or municipal officers or agents whose resident presence is deemed necessary by the Board.

(b) Rules and regulations for employees entering and leaving zone
The Board shall prescribe rules and regulations regarding employees and other persons entering and leaving the zone. All rules and regulations concerning the protection of the revenue shall be approved by the Secretary of the Treasury.

(c) Exclusion from zone of goods or process of treatment
The Board may at any time order the exclusion from the zone of any goods or process of treatment that in its judgment is detrimental to the public interest, health, or safety.

(d) Retail trade within zone
No retail trade shall be conducted within the zone except under permits issued by the grantee and approved by the Board. Such permittees shall sell no goods except such domestic or duty-paid or duty-free goods as are brought into the zone from customs territory.

(e) Exemption from State and local ad valorem taxation of tangible personal property
Tangible personal property imported from outside the United States and held in a zone for the purpose of storage, sale, exhibition, repackaging, assembly, distribution, sorting, grading, cleaning, mixing, display, manufacturing, or processing, and tangible personal property produced in the United States and held in a zone for exportation, either in its original form or as altered by any of the above processes, shall be exempt from State and local ad valorem taxation.


AMENDMENTS


EFFECTIVE DATE OF 1984 AMENDMENT

Section 231(b)(2) of Pub. L. 98-573 provided that: "The amendment made by paragraph (1) (amending this section) shall take effect on January 1, 1983."

Sec. 81p. Accounts and recordkeeping

(a) Manner of keeping accounts
The form and manner of keeping the accounts of each zone shall be prescribed by the Board.

(b) Annual report by grantee
Each grantee shall make to the Board annually, and at such other times as it may prescribe, reports on zone operations.

(c) Report to Congress
The Board shall make a report to Congress annually containing a summary of zone operations.

AMENDMENTS

1986 - Subsec. (b). Pub. L. 99-386, Sec. 203(b)(1), substituted "reports on zone operations" for "reports containing a full statement of all the operations, receipts, and expenditures, and such other information as the Board may require".

Subsec. (c). Pub. L. 99-386, Sec. 203(b)(2), added subsec. (c) and struck out former subsec. (c) which required the Board to make an annual report to Congress containing a summary of the operation and fiscal condition of each zone, and transmit copies of the annual report of each grantee.

1980 - Subsec. (c). Pub. L. 96-609 substituted "by April 1 of each year" for "on the first day of each regular session".

Sec. 81q. Transfer of grant

The grant shall not be sold, conveyed, transferred, set over, or assigned.

(June 18, 1934, ch. 590, Sec. 17, 48 Stat. 1002.)

Sec. 81r. Revocation of grants

(a) Procedure for revocation

In the event of repeated willful violations of any of the provisions of this chapter by the grantee, the Board may revoke the grant after four months' notice to the grantee and affording it an opportunity to be heard. The testimony taken before the Board shall be reduced to writing and filed in the records of the Board together with the decision reached thereon.

(b) Attendance of witnesses and production of evidence

In the conduct of any proceeding under this section for the revocation of a grant the Board may compel the attendance of witnesses and the giving of testimony and the production of documentary evidence, and for such purpose may invoke the aid of the district courts of the United States.

(c) Nature of order of revocation; appeal

An order under the provisions of this section revoking the grant issued by the Board shall be final and conclusive, unless within ninety days after its service the grantee appeals to the court of appeals for the circuit in which the zone is located by filing with the clerk of said court a written petition praying that the order of the Board be set aside. Such order shall be stayed pending the disposition of appellate proceedings by the court. The clerk of the court in which such a petition is filed shall immediately cause a copy thereof to be delivered to the Board and it shall thereupon file in the court the record in the proceedings held before it under this section, as provided in section 2112 of title 28. The testimony and evidence taken or submitted before the Board, duly certified and filed as a part of the record, shall be considered by the court as the evidence in the case.

(June 18, 1934, ch. 590, Sec. 18, 48 Stat. 1002; June 25, 1948, ch. 646, Sec. 32(a), 62 Stat. 991; May 24, 1949, ch. 139, Sec. 127, 63 Stat. 107; Aug. 28, 1958, Pub. L. 85-791, Sec. 11, 72 Stat. 945.)

AMENDMENTS

1958 - Subsec. (c). Pub. L. 85-791 substituted "thereupon file in the court" for "forthwith prepare, certify, and file in the court a full and accurate transcript of" and "as provided in section 2112 of title 28" for "the charges, the evidence, and the order revoking the grant" in third sentence.

CHANGE OF NAME

Sec. 81s. Offenses

In case of a violation of this chapter, or any regulation under this chapter, by the grantee, any officer, agent or employee thereof responsible for or permitting any such violation shall be subject to a fine of not more than $1,000. Each day during which a violation continues shall constitute a separate offense.

(June 18, 1934, ch. 590, Sec. 19, 48 Stat. 1003.)

Sec. 81t. Separability

If any provision of this chapter or the application of such provision to certain circumstances be held invalid, the remainder of this chapter and the application of such provisions to circumstances other than those as to which it is held invalid shall not be affected thereby.

(June 18, 1934, ch. 590, Sec. 20, 48 Stat. 1003.)

Sec. 81u. Right to alter, amend, or repeal chapter

The right to alter, amend, or repeal this chapter is reserved.

(June 18, 1934, ch. 590, Sec. 21, 48 Stat. 1003.)
Appendix B. FTZ Board Orders to FTZ #27

<table>
<thead>
<tr>
<th>Date</th>
<th>Order No.</th>
<th>Order Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/5/77</td>
<td>116</td>
<td>Zone establishment</td>
</tr>
<tr>
<td>3/23/79</td>
<td>144</td>
<td>Zone expansion</td>
</tr>
<tr>
<td>6/20/80</td>
<td>160</td>
<td>Subzone 27A establishment, Sterlingwale (apparel)</td>
</tr>
<tr>
<td>9/13/83</td>
<td>224</td>
<td>Zone expansion, airport (Mass Tech Center)</td>
</tr>
<tr>
<td>12/2/83</td>
<td>234</td>
<td>Subzone 27B: Establishment for General Dynamics Shipyard</td>
</tr>
<tr>
<td>1/5/84</td>
<td>239</td>
<td>Subzone 27C: Establishment for Lawrence Textile at Lawrence</td>
</tr>
<tr>
<td>9/25/87</td>
<td>364</td>
<td>Subzone 27D: Establishment for GM at Framingham</td>
</tr>
<tr>
<td>1/19/89</td>
<td>421</td>
<td>Subzone 27A: Voluntary termination</td>
</tr>
<tr>
<td>1/19/89</td>
<td>422</td>
<td>Subzone 27B: Voluntary termination</td>
</tr>
<tr>
<td>1/14/91</td>
<td>505</td>
<td>Subzones 27E - K: Establishment for Polaroid at Norwood, Needham, New Bedford,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Waltham, Freetown, Boston, Cambridge</td>
</tr>
<tr>
<td>12/12/95</td>
<td>796</td>
<td>Reissuance of Subzone 27G: grant of authority to FTZ 28 - Subzone 28D</td>
</tr>
<tr>
<td>2/10/97</td>
<td>868</td>
<td>Zone expansion</td>
</tr>
<tr>
<td>4/28/98</td>
<td>977</td>
<td>Subzone 27B: Establishment for Massachusetts Heavy Industries at Quincy (foreign</td>
</tr>
<tr>
<td></td>
<td></td>
<td>steel mill products shall be subject to customs duties)</td>
</tr>
<tr>
<td>9/25/01</td>
<td>1186</td>
<td>Subzone 27L: Establishment for AstraZeneca LP at Westborough</td>
</tr>
<tr>
<td>9/30/02</td>
<td>1248</td>
<td>Subzone 27M: Establishment for Reebok International at Lancaster/Stoughton/Norwood</td>
</tr>
</tbody>
</table>

Bibliography


Boston Redevelopment Authority, 1996. Port of Boston Economic Development Plan


Da Ponte, John J., Jr., 1991. “Updated Rules for Foreign-Trade Zones Reflect Big Increase in Zone Activity” in Plants, Sites and Parks


Foreign-Trade Zones Board. http://ia.ita.doc.gov/ftzpage/

Hearing before a subcommittee of the Committee on Ways and Means on H.R. 3657, “Foreign-Trade Zones,” 73rd Congress, 2d Session, 1934

Hearings before the Commerce, Consumer, and Monetary Affairs Subcommittee of the Committee on Government Operations, “Foreign-Trade Zones (FTZ’s),” 1989


Jones, Greg, 2002. *The Foreign-Trade Zones Program*

Massachusetts Port Authority, *Massport’s Foreign Trade Zone: Your Import/Export Advantage*

Massachusetts Port Authority, 1976. *Application for Authority to Establish a Foreign Trade Zone in the Port of Boston Massachusetts*

Massachusetts Port Authority. *Annual Report to the Foreign-Trade Zones Board for 1980-2002*


Massachusetts Port Authority. http://www.massport.com


National Association of Foreign-Trade Zones, 2004. *The Impact of Foreign-Trade Zones on the 50 States and Puerto Rico*


Port of Pensacola, http://www.portofpensacola.com

Ryu, Yoshiaki, 1987. *The Use of Foreign Trade Zone in the United States of America*


Shields, Janice C., 1997. “Export Promotion Programs,” in *Foreign Policy in Focus Volume 2*


U.S. Census Bureau. http://censtats.census.gov/cgi-bin/cbpnaic/cbpsel.pl


