IMPACT ASSESSMENT OF EXPORT PROCESSING ZONE ON THAILAND'S GEM AND JEWELRY INDUSTRY CASE STUDY: GEMOPOLIS FREE ZONE

BY

MR. PRUTTI VASIKASIN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS (ASIA PACIFIC STUDIES) COLLEGE OF INTERDISCIPLINARY STUDIES THAMMASAT UNIVERSITY ACADEMIC YEAR 2016

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ENTITLED

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was approved as partial fulfillment of the requirements for
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ABSTRACT

The gem and jewelry industry has been ranked as one of Thailand's top ten export categories every year since 1970, and is indeed considered to be export oriented. However, as the industry relies on imported materials, the export processing zone (EPZ) plays a significant role in increasing industry competitiveness. In this work, the motivation for choosing the location for a gem and jewelry exporter in Thailand was investigated, as well as how the Gemopolis Free Zone (GPZ) helps gem and jewelry exporters. The role of the GPZ is not to compensate for the anti-export bias created by the import-substitution industrialization policy scheme because, in Thailand, gem and jewelry products, except for finished products, are already free from import tariffs. Comparison of the benefits between the Board of Investment of Thailand (BOI) and the GPZ reveal the competitiveness of firms inside and outside the Free Zone to be almost identical, unless the firm is outsourcing its jewelry business. Thus, exporter firms benefitting from privileges from the BOI are usually do not receive such privileges from the BOI choose to locate in the GPZ. Therefore, in the Thailand's gem and jewelry industry, most exporters do not have to solely rely on the EPZ, with only a specific group of exporters actually benefitting from the EPZ.

Keywords: Export processing zone, Gemopolis Free Zone, Thailand's Gem and Jewelry Industry

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LIST OF ABBREVIATIONS

Symbols/Abbreviations	Terms
AGOA	African Growth and Opportunity Act
ASCM	Agreement on Subsidies and Countervailing Measures
BOI	Board of Investment of Thailand
EPZ	Export Processing Zone
ETDZ	Economic and Technology Development Zones
FDI	Foreign Direct Investment
GFZ	Gemopolis Free Zone
GIO	Gross Industrial Output
I-EA-T	Industrial Estate Authority of Thailand
ISI	Import-Substitution Industrialization
LNDC	Lesotho National Development Corporation
PPF	Product Possibilities Frontier
SME	Small and Medium Enterprise
TRIMs	Agreement on Trade Related Investment Measures
UTCC	University of Thai Chamber of Commerce
VAT	Value Added Tax
WTO	World Trade Organization

CHAPTER 1
INTRODUCTION

1.1 Introduction

Thailand's gem and jewelry industry has and continues to play a significant role in the world jewelry market. The country has long held a reputation as a major colored gemstone manufacturing center and sourcing hub (BOI, 2014). Prior to such mining becoming almost exhausted, Thailand used to be a major source of colored stones, particularly, rubies and sapphires. Now, however, Thailand relies heavily on imported materials and has subsequently developed itself as a global trading hub. The Thai gems and jewelry industry is labor-intensive and relies on skilled craftsmanship, beautiful designs and modern technology to produce jewelry that is competitive in international markets. Thai craftsmanship is widely recognized for its proficiency and precision in terms of cutting and polishing. Moreover, Thailand is the only place in the world that utilizes the heat treatment method to improve the color and clarity of color gemstones. Being a global trading hub has enabled the expansion of the production base of the jewelry industry due to the availability of a variety of inputs used in jewelry making within the country. Consequently, Thailand rank as one of the most important handmade jewelry production bases.

Exports from gem and jewelry contribute great deal to the national economy. The gem and jewelry industry has ranked in Thailand's top ten export markets every year since 1970. In 2015, the export value of gem and jewelry industry totaled 10,993.35 million USD – the third most important product with a 5.13% share of the country's gross exports. In terms of the industry's contribution to employment, a University of Thai Chamber of Commerce (UTCC) survey revealed that there were 865,656 direct employees working within the industry in 2010. Furthermore, 80% of the products from this sector are exported, while only 20% is sold in the domestic market (GIT, 2015).

The Export Processing Zone (EPZ) is a fenced-in industrial estate specializing in manufacturing for exports that offers firms free trade conditions and a liberal regulatory environment (Madani, 1999). The Thai government created the EPZ

scheme to improve the competitiveness of Thailand-based manufacturers and encourage the exports of various industries by removing tariffs for parts, materials, machines or components imported for use in the manufacturing process. Thailand's EPZ, currently known as "Free Zone", is in charge of the Industrial Estate Authority of Thailand (I-EA-T). Specifically for the gem and jewelry industry, the Thai government authorized the establishment of the Gemopolis Industrial Estate in 1990 to function as a cluster of this industry. The Gemopolis was granted the status of "Free Zone" in 2008.

Since the gem and jewelry industry in Thailand is characteristically export oriented and relies heavily on imported materials, the industry should benefit from the privilege of tax exemptions on imported materials granted by the Gemopolis Free Zone (GFZ). Therefore, it is expected that most gem and jewelry manufacturing factories would opt for locations inside the GFZ. The questions the author of this paper addresses are why some factories prefer to be located *outside* of the GFZ, and how they can compete without the privilege of import duties exemption.

1.2 Objectives

The aims of this study are to compare the privileges related to export manufacturing between gem and jewelry firms inside and outside of the GFZ and to study whether or not GFZ privileges affect the manufacturers' decisions regarding factory location.

1.3 Methodology

The research method used in this study is that of qualitative methodology. The qualitative approach provides in-depth information for answering the objective through analysis of the motives and reasoning of gem and jewelry firms. Why some choose to locate the factory inside Gemopolis and some don't cannot be answered by quantitative methodology.

This study applied the semi-structured interview method with the key persons in charge. This method collects information using a conversational style, thereby establishing a relaxed atmosphere conducive for both the interviewer and

interviewee to freely express their opinions in detail. Furthermore, it helps ensure that all key issues are not neglected. To obtain accurate information for the study, the participants for interviews must be those who control or in charge of the company or senior managers such as the CEO or owner. This is because these participants have the ability to provide in-depth information because of their knowledge of and influence within the firms. The selected firms for this study are both key players and non-key players because their behaviors differ, that is, key players may have greater capacity for certain actions that non-key player do not possess.

CHAPTER 2
LITERATURE REVIEW ON EXPORT PROCESSING ZONE

2.1 Definition of Export Processing Zone (EPZ)

The Export Processing Zone (EPZ) is a specific kind of free trade zone (FTZ) that aims to promote trade and export, and to attach foreign direct investment (FDI) to the host economy as well. The zone is usually located in a "geographical area" or "fenced in area" isolated from the domestic economy and specializing in export manufacturing. Also, the zone offers "free trade conditions" and a better business climate (Bank, 1992; Madani, 1999; Jayanthakumaran, 2003). In general, EPZs are not allowed to sell their products to the host market economy and are strictly regulated by customs to prevent smuggling (Engman et al., 2007: Madani, 1999). However, some countries allow a certain percentage of EPZ production to be sold on the domestic market; however, tariffs must be paid on the imported input before such sales. For example, Mexico allows 20-40% of the EPZ's products (Madani, 1999), while Cuba allows the EPZ to sell up to 25% of production output to the domestic market (Larry, 2000).

EPZs have different names depending on the host country, *e.g.* in Ireland the zone is called an "industrial free zone" and "export free zone" and in Mexico it is "maquiladora" (Engman et al., 2007). In Thailand the zone comes under the authority of the Industrial Estate Authority of Thailand (I-EA-T) and is known as an I-EA-T free zone. However, despite their different names, these zones share the following similar characteristics: economic enclaves, free trade conditions and specialization in export-oriented manufacturing. The common definitions of EPZ are:

- *International Labor Organization (ILO)* defines the EPZ as "an industrial zone with special incentives to attract foreign investment, in which imported materials undergo some degree of processing before being exported again." (ILO, 2003)
- *The World Bank* defines the EPZ as "an industrial estate, usually a fenced-in area of 10 to 300 hectares, that specializes in manufacturing for export. It offers firms free trade conditions and a liberal regulatory environment." (World Bank, 1992:7)

- *Engman et al.*(2007) define EPZ in their paper work as "a government policy to promote exports of goods and/or services by offering a more competitive business environment through provision of special incentives including in particular tariff exemptions to inputs either in a geographically defined area or through a specification process."

2.2 Background and Overview

The first EPZ – the Shannon Free Zone – was established in Ireland in 1958. The objective of Shannon Free Zone was to save jobs for Shannon airport employers. This was because the then flight technology had improved enabling airplanes to travel greater distances than before, and so Shannon airport was no longer needed for refueling (Shoesmith, 1986). Thus, the Irish government converted the airport into a duty free production zone. The result exceeded government expectations, and Shanon Free Zone created almost 440 jobs within its first year, and soon after – in 1966 – the number had reached nearly 4,000. In Asia the first export processing zone was Kandla EPZ and was established in India in 1965. The following year Taiwan started their own EPZ at Kaohsiung with Korea following suit with Masan EPZ in 1970. Other EPZs in Asia, including Thailand, were also established during this period, following the drastic shift from import-substitution industrialization (ISI) to export oriented manufacturing (Amirahmadi and Wu, 1995). In 1975, 25 countries had adopted an EPZ policy, and this increased to 130 countries with a total number of 3500 EPZs in 2006 (Boyenge, 2007 cited in Gibbon et al. 2008).

Table 2.1 Estimates of the Development of Export Processing Zones

	1975	1986	1997	2002	2006
Number of countries with EPZs	25	47	93	116	130
Number of EPZs	79	176	845	3000	3500
Employment (millions)	N/A	N/A	22.5	43	66
- of which China	N/A	N/A	18	30	40
- of which other countries with available figures	0.8	1.9	4.5	13	26

Source: ILO (2003)

The concept of the EPZ is to stimulate export, generate employment, increase foreign exchange and to improve economic growth by attracting foreign direct investment (FDI) to the zone. To attract FDI host countries usually provide a number of incentives to enhance the FDI's decision to invest in the host economy. Common incentives in EPZ policies are:

- Better infrastructure inside the zone if compared to the rest of the host economy and also access to better logistic networks, better communications networks and utility services. Some zones also provide a zone for residential, office space and services institution such as hospitals, banks or schools.
- Better and faster administrative services, such as one-stop shop services, faster custom services, simplified procedures for import and export, and shortening the time or abolishing approval for licenses.
- Fiscal incentives, for instance, exemption from import duties on raw materials, intermediate inputs and capital used in manufacturing products. Exemption from export duties, tax holidays, tax rebate or reduced tax rates on corporate income or profits.
- Lessening government red tape inside the zone such as foreign ownership, greater flexibility with labor regulations and less restrictive regarding foreign exchange regimes.
- Direct subsidies, such as supply of water and electricity cost below market rate. Indirect subsidies, like special grants for education and training for workers (Engman et al., 2007; Madani, 1999).

There is an overall consensus on the primary objectives of an EPZ: i) to increase the foreign exchange circulating in the host economic system, ii) to generate employment, iii) to promote export growth, and iv) to attract FDI together with the hope that technology transfer, knowledge spill-over and demonstration effects will accompany FDI in helping improve domestic firms. According to Madani (1999), an EPZ has a specific lifespan with the significant of EPZ should gradually decrease as countries implement more liberalization in trade. Various EPZs have additional objectives other than these four primary objectives, depending on the host economy, *e.g*. to promote linkage with domestic economies, the needs of technology transfer and promoting new industrialization strategies. For example, in Singapore, EPZs were

set up as part of an incentive package intending to attract investment to the specific located economy with Singapore being already free of import and export regulations. In Thailand, apart from the main objectives, the Thai government also has the additional aim of decentralizing industries from Bangkok to other parts of the country in order to solve the problems of overpopulation and pollution (Jayanthakumaran, 2003).

2.3 Theory on EPZ: Neo-Classical Theory

Neo-classical theory emphasizes economic growth based on economic freedom and individual development with the help of the government to create a suitable economic environment. The theory explains the success of East Asian development due to less government interference in the market economy, and governments also provide free market environments which have helped drive the economies towards the optimal point in the production possibilities frontier (PPF) (Chen, 1979). It also explains why developing countries have to use export oriented economies over import substitution. In the neo-classical comparative advantage framework, developing countries usually lack the resources and capital but have an abundance of unskilled labor, which suits manufacturing activities. In addition, the limited domestic market cannot provide opportunities for further import substitution, and therefore, industrial expansion has to rely on exporting instead (Balassa, 1985; Krueger, 1985 cited in Zhu, 1992).

In terms of EPZs, neo-classicists argue that they constitute a second best policy for use to improve developing economy after liberalization of the whole economy, due to the EPZ offering free trade conditions to the firms inside the area. The logic behind the use of EPZs is the creation of an area which uses different policies than domestic policies to improve the competitiveness of the host economy in terms of export. The benefits granted by government policies are designed to help individual firms make profit from investments on the basis of the country's comparative advantage (Wall, 1976). According to this theory, the EPZ may bring about positive or negative effects depending on the parameters adopted for the model and the hypothesis retained (Cling and Letilly, 2001). By complying with the

Hecksher-Ohlin model to study the effect of EPZs, Hamada (1974) asserts that the zones have a negative welfare effect upon the host country by distorting production and leading to specializations that are not the real comparative advantage of that country (Cling and Letilly, 2001; Madani 1999). However, Spinanger (1984 cited in Cling and Letilly, 2001) argues that Hamada's argument is based on an assumption of full employment; however, in reality most developing countries are experiencing a state of underemployment. Devereux and Chen (1995 cited in Madani, 1999) also argue that EPZs are likely to improve the welfare of host countries if adding a greater volume of trade as well as the factor terms of trade effects.

Peter Warr (1989) questioned the neoclassical assumption and conclusions after developing an cost-benefit analysis to examine the effect of EPZs. His study shows that some of the EPZs' earnings did not include the cost of investment when establishing the zone. If the cost were included some zones might receive negative returns such as the Bataan zone in the Philippines. Jayantakumaran (2003) extended the study from Peter Warr by using a cost-benefit framework. The results reveal a positive impact of EPZ upon the citizens of a host country with returns generated well above the estimated opportunity cost. Additionally, the study demonstrated the role of EPZs as important sources of employment.

However, Johansson (1994) argued that both neo-classical and cost-benefit analysis failed to take the external effect from EPZs into account, such as the demonstration effect, human capital development that can transit to the rest of the economy. Johansson states that the FDI from an EPZ can fill the gaps of technical, marketing and managerial know-how for domestic firms with a spillover effect of FDI to the domestic economy.

2.4 Role of EPZ Policy

Many developing countries from the end of World War II until the 1970s were using import-substitution industrialization (ISI) to promote the domestic manufacturing sector and economic growth. Import substitution industrialization is an economic policy whereby the government tries to replace imported products through domestic production. High tariffs are applied on imported products to protect the

domestic firms until such firms are ready to compete in the world market. In reality import substitution industrialization reduces competitiveness because high tariffs increase the costs of production. Infant industries have to import intermediate goods, machinery and capital from foreign countries. The ISI scheme also discourages exports, by protecting import-substituting industries, countries drawing resources away from the actual or potential resource sectors, and thus creating a foreign exchange shortage in the host economy. The failure of the ISI strategy forced many countries to change their trade policy and embrace further liberalization from the mid-1980s onwards (Krugman *et al*., 2012). With an EPZ, the host economy can enjoy the benefits from FDI and increases in foreign exchange without the need to liberalize the whole economy. The EPZ grants access to inputs used at the prices of the global market for manufacturing products, thus increasing competitiveness in the global market (ILO,1998; Jayanthakumaran, 2003).

EPZs are used to compensate for an anti-export bias created by the import substitution industrial policy regime (Aggarwal,2005), The host economy can still attain their ISI policy because ISI in many countries is closely linked to powerful political groups (Krugman *et al*., 2012). According to a World Bank discussion paper (1992), " A successful EPZ may just easily conserve an inward oriented industrial structure in the host country if it generates enough export earnings and creates employment, thus prolonging the time period in which country can pursue a protectionist policy."

2.5 World Trade Organization (WTO) Agreement and EPZs

Under the agreement of the WTO, even though there is no official definition of an EPZ and rules that refer to such zones, some related issues such as the advantages of infrastructure, tax exemption and lower tax rates contrast with the principles of WTO agreements especially with the WTO Agreement on Subsidies and Countervailing Measures (ASCM agreement). The ASCM only applies to subsidies that are specific. WTO members can grant subsidies that do not meet one or more of the elements of the two provisions (Baere & Du Parc, 2009).

The rules contained in the ASCM agreement apply only to subsidies as defined within the agreement. Article 1 defines a subsidy as "*the financial contribution by government or any public body within the territory of a Member where: (i) government practice involves a direct transfer fund such as grants, loans and equity infusion, (ii) government revenue that is foregone or not collected such as tax credit which the government provides as fiscal inventive, (iii) a government provide goods or services other than general infrastructure, or purchase goods, (iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments*."

In other words, "subsidy" as mentioned in the ASCM agreement is a financial contribution granted by government or any public body which also confers benefit. For example, transactions made between state and private companies on terms more favorable than those available to other private companies in the market are considered subsidies because the recipient private company obtains an advantage unobtainable in the market place.

Indirect taxes which include taxes on value added (VAT), sales, turnover, franchise, stamp transfer, inventory, personal property etc., could be subject to rebate without constituting subsidies. However if the company does receive a rebate greater than the indirect tax it paid, the excess is a subsidy.

However, incentive grants for EPZs on the duty free imports of raw materials and intermediate inputs used in the production of goods for exports are exempted from the definition of subsidies as provided in the footnotes. Footnote 1 to Article 1.1 of the SCM agreement states that *"the exemption of an exported product from duties or taxes borne by the like product when destined for domestic consumption, or the remission of such duties or taxes in amounts not in excess of those which have accrued, shall not be deemed to be a subsidy"*.

Nevertheless, the subsidy alone is not subject to the agreement, unless that measure provides the said subsidy specifically to an enterprise or industry or group of enterprises or industries (WTO, 2016). For example, if a government grants a subsidy to the semiconductor industry, it is a specific subsidy. However, if a government

grants a subsidy to every company that employs one engineer for every ten workers, it is not considered a specific subsidy (Baere and Du Parc, 2009). There are four types of "specificity" within the meaning of the ASCM agreement.

- Enterprise-specificity. A government grants a subsidy to a particular company or companies.
- Industry-specificity. A government grants a subsidy to a particular sector or sectors.
- Regional specificity. A government grants a subsidy to specific parts of its territory.
- Prohibited subsidies. A government targets export goods or goods using domestic inputs.

2.5.1 Agreement on Trade Related Investment Measures (TRIMs)

The agreement recognizes that certain investment measures restricting and distorting trade inconsistent with Article III (national treatment) and XI (prohibition of quantitative restrictions) of the GATT are prohibited and shall not be applied. The list comprises four measures:

1) Measures requiring the use or purchase of a particular level of domestic or local products by an enterprise ("local content requirement").

2) Measures restricting the volume or value of imports to an amount related to the volume or value of local products that it exports (trade balancing requirement).

3) Measures restricting enterprise importation such as parts and other goods or ability to access foreign exchange to an amount related to the foreign exchange inflows attributable to the enterprise (foreign exchange restrictions).

4) Measures restricting the exportation or sale for export by an enterprise of products, whether specified in the terms of particular products, in the terms of volume or value of products, or in the terms of a proportion of volume or value of its local production (export restriction or domestic sale requirements).

Even though there is no specific reference to the EPZ in the TRIMs agreement, the main objectives of the EPZ – both to attract FDI and promote exports – fall under the definition of investment and trade related measures. Therefore, any

measures or requirements made by an EPZ that fall into the four measures listed by TRIMs would violate a TRIMs agreement (Engman *et al*.2007).

2.6 EPZs in Thailand

Thailand is considered to have one of the fastest growing economies among developing countries. Previously, the Thai government has implemented various instruments to stimulate economic growth. During the 1960s, after the first National Economic and Social Development plan was implemented in 1961 by the Sarit government, Thailand adopted an ISI strategy as the main instrument through which to promote economic growth. The plan was to reduce dependence on foreign goods and to promote and protect local industries by imposing high tariffs against import products, export taxes and provide production subsidies to domestic producers (Virgill, 2009). However, Thailand faced the problem of a trade deficit of the increase in imports of capital and intermediate goods. In order to resolve these issues, the government then enacted the third National Economic and Social Development plan. Its objective was to reduce the national trade deficit by promoting manufacturing exports as an industrial strategy through the Investment Promotion Act and Export Promotion Act, by having tax exemption on imported inputs for manufacturing export production, no business taxes on export products, and refunds for all taxes on the promotion process (Komin, 1989, cited in Zhu 1992). Other than this, the Thai government established an industry estate in 1969. Furthermore, to improve the management of industrial estates, the government set up the Industrial Estate Authority of Thailand (I-EA-T) in 1972. The I-EA-T is in charge of the establishment of industrial estates throughout the country. Moreover, the government declared its intention to set up EPZs inside the industrial estates to improve the competitiveness of export goods. The first EPZ in Thailand was established in 1982 at the Lat Krabang Industrial Estate (BIAP, 1982 cited in Zhu 1992). Up until now, Thailand is an export reliant country with 65% of its GDP coming from international trade activities (MOC, Thailand 2016).

In 2007, Thailand changed the name (as well as regulations) of the EPZ to the Industrial Estate Authority of Thailand (I-EA-T) Free Zone due to the adoption of

the ASCM and to be in accordance with the TRIMs agreement at the conclusion of the WTO Uruguay round (Gibbon *et al*., 2008). According to the Customs Department of Thailand, the Free Zone scheme is intended to improve the competitiveness of Thailand-based manufacturers and encourage exports by removing tariffs for parts, materials, machinery or components imported for use in the manufacturing process. At the same time, Thailand can benefit from the use of Thai labor, services and inputs.

2.7 Performance of EPZs in Various Countries

EPZs have made impacts and contributions in many countries throughout the world, with many case studies indicating the positive effect of having an EPZ within the host country. For example, in China the combined area of the Economic and Technology Development Zones (ETDZ) is only 584 square kilometers, yet the zone contributes 3.8% of China's GDP, 8% of China's gross industrial output (GIO) and 7% of industrial value added (IVA) in 2005. Before 2000, the ETDZs had a stable share of China's FDI inflows – at about 8% – which further doubled in growth to 16.7 per cent in 2005. In terms of exports, the share of the ETDZs' exports also doubled from 6.85% in 1995 to 12.49% in 2005. Furthermore, the ETDZs along coastal areas mostly engage in labor-intensive export activities which creates a large amount of employment. The ETDZs also greatly contribute to FDI inflows and trade (Fu and Gao, 2007).

Regarding EPZs in Mexico, the maquila has been successful in creating employment. Most workers are unskilled laborers as production in the EPZs mostly consists of the assembly type. It has been less successful in terms of pulling foreign exchange because of import composition and only a minimal use of domestic input with the trend not appearing to change much. The total percentage of import production during the 1990-1999 period was around 75-85%. The net exports of maquila industries grew as the years passed – from 4.1 billion USD in 1991 to 17.8 billion USD in 2000, a total of 400% in 10 years (De Armas and Jallab, 2007).

Table 2.2 Net Exports of the Maquila Industry (billion USD)

	Net Exports	Exports	Index NE	Index Exports
1991	4.1	15.8	100.0	100.0
1992	4.7	18.7	117.1	118.0
1993	5.4	21.9	133.6	138.0
1994	5.8	26.3	143.3	165.9
1995	4.9	31.1	121.6	196.4
1996	6.4	36.9	158.4	233.2
1997	8.8	45.2	218.1	285.3
1998	10.5	53.1	259.9	335.3
1999	13.4	63.9	331.9	403.3
2000	17.8	79.5	438.4	501.9

Source: INEGI

Dussell (2000, cited in De Armas and Jallab, 2007) argues that high import composition was the main reason behind the crisis in 1994-1995 and that it is likely to cause another distortion if the trend persists. As concerns FDI, the share of FDI increased almost every year from 6 % in 1994 to 23% in 2000. The least impact of EPZs in Mexico has been its role as an engine for growth of the industrial sector and modernization. Knowledge spillover is low because EPZs involve an assembly type of production and also there is no labor mobility from EPZs to the local economy.

In Africa, Madagascar's EPZ – the *Zone Franche* – was established in 1990 from the structural adjustment policies supporting an export-led strategy. The *Zone Franche* has been the driving force of employment and export growth in the past 10 years, and the zone has also helped economic recovery following the long recession of 1995. There are 3 main factors that have led to the success of the zone. The first is the low wage labor. Cadot and Nasir (2001, cited in Cling, Razafindrakoto and Roubaud, 2005) report that the monthly wage for an unskilled textile industry machine operator compared to the same position in Mauritius is less than one-third.

This is around half if compared to China, and if compared to the average wage in India it is only around 60%. The result is unit production costs that are among the lowest in the world. The second factor is the incentive for foreign investment. *Zone Franche* companies are exempt from all duties and taxes on exports. Import companies have to pay value-added tax (VAT), but this can be refunded later after proof of export. Those companies inside *Zone Franche* are also granted special access to foreign currency and total freedom as concerns capital transfers. The last factor is the trade preference granted by the European Union and United States of America. Under the African Growth and Opportunity Act (AGOA) clothing products from *Zone Franche* are granted duty-free access to the U.S. market and can also use input from other countries. Further to this, the European market also provides tax-free access to Madagascar under the terms of the Cotonou Agreement signed between the EU and the ACP (Africa– Caribbean–Pacific) States (Cling, Razafindrakoto and Roubaud, 2005).

In Kenya the EPZ program was initiated in 1990 as a tool in an export-led growth strategy. The zone offered many incentives to investors for example a 10-year corporate tax holiday, exemption from license requirements, non-restricted foreign borrowing and capital. Firms operating inside the zone are not allowed to sell products to the domestic market and must be export manufacturing, export-related services or export commercial activities. In terms of their performance, from 1999 to 2012 EPZ exports grew from 3,020 Million Kenyan shilling (Ksh) to 39,962 Million Ksh. The zone contributed to 2.75% of GDP in 2012 and accounted for a 7.72% share of total exports. Employment within the EPZs rose from 1,594 in 1993 to 35,929 in 2012. Employment from the zone seems impressive; however, when compared to the rest of the economy, the zone only contributed 0.28% of total employment. Research also compared domestic manufacturing firms in Kenya with EPZs, revealing that domestic firms mainly sell their goods on the local market or export to neighboring countries. This finding implies that domestic firms are not competitive with EPZ firms exporting to developed countries, such as Europe and US (Vastveit, 2013).

Another case study is that of Lesotho, one of the smallest countries in the world. The Lesotho National Development Corporation (LNDC) was established in 1967 and is fully owned by the government. The corporation goals are to attract

foreign and domestic investment and to encourage public-private partnerships. In 2010 there were 7 industrial estates under the LNDC, with 139 factories. The zone successfully contributed to exports; manufacturing exports from the zone constituted 90% of total exports, mainly consisting of textile and apparel products. Concerning employment generation, the zone employment rose from 18,500 workers in 2000 to 40,861 in 2011. Comparison to total employment reveals that the zone made a significant contribution to employment creation (Vastveit, 2013).

CHAPTER 3
THAILAND'S GEM AND JEWELRY INDUSTRY

3.1 Background and Importance of the Gem and Jewelry Industry

Thailand's gem and jewelry industry has a long history. Its origins lie in Chantaburi as a trading hub of colored stones and polishing colored stones. In 1977 the government acknowledged the strength and potential of the industry as a high value added industry. At that time, Thailand had the natural resources for precious stones – deep red rubies from Chantaburi and blue sapphires from Kanchanaburi (BOI, 2014). Moreover, Thai craftsmanship is noted for its skills, proficiency and precision in terms of cutting and polishing. Notably, Thailand is the only place in the world that employs the heat treatment method to improve the color and clarity of colored gemstones. From these origins in the gem and jewelry industry and polishing of colored stones Thailand later expanded into jewelry making and the diamond polishing industry(Chiang Mai University, 2002).

Although most of the raw materials have been exhausted, the country continues to maintain its reputation as a major colored gemstone manufacturing center and sourcing hub due to its reliance on a large amount of imported materials. In addition to the gemstones industry, Thailand has become established as the world leader of silver jewelry exports, with a total export value exceeding both China and India since 2010. Indeed, Bangkok has been given the title World Capital for Silver Jewelry (GIT, 2014).

The structure of the Thailand gem and jewelry industry can be divided by the value added chain of the production process into the following 3 categories:

1) The upstream industry: the process of searching for raw materials such as mining. Thailand lacks an upstream industry because the domestic natural mines are almost exhausted; therefore, in Thailand the upstream industry is the process of procurement.

2) The midstream industry: the process of increasing the value added to raw materials such as the heat treatment process of colored stones to improve color

and clarity. This process is a well-known and unique skill of Thai artisans adding to the competitiveness of the Thai industry.

3) The downstream industry: the process involved with using intermediate goods to increase value consisting of design and the use of machine tools to create molds. The downstream industry also includes other related industries such as jewel case products, the insurance and logistic business, and public and private organizations.

In terms of employment, the gem and jewelry industry is a labor intensive industry which involves the use of skill, expertise and precision in the production process – this is especially true of the polished colored stones industry which cannot be replaced by machines. Thus, this industry generates a great deal of employment. An employment survey in 2010 by the University of Thai Chamber of Commerce (UTCC) showed that there were 1.3 million employees working within the industry, 865,656 of whom were direct employees to the industry. Of the workers, 350,938 (40.5%) belonged to the upstream industry, 306,008 workers (35.3%) to the midstream industry and 208,710 to the downstream industry (24.2%) (Thammaruaksa, Saneha, & Apirajkamol, 2010).

3.2 Characteristics of Thai Gem and Jewelry Enterprises

This industry consists of small and medium enterprises (SMEs). The Office of Small and Medium Enterprise Promotion defines small manufacturing enterprises as enterprises with less than 50 employees or enterprises with fixed assets worth less than 1.45 million USD, while medium-sized manufacturing enterprises are enterprises of between 50 and 200 employees or enterprises with fixed assets worth between 1.45 million USD and 5.80 million USD.

In 2010, the total number of enterprises in this industry stood at 15,777. Of this, 97.59% (15,397 enterprises) were SMEs, whereas only 2.41% (380 enterprises) were large. The number of medium-sized enterprises was 2,615 and that of small enterprises was 5,425, while 7,357 of SMEs were non-specific sized enterprises. It is assumed that these non-specific sized enterprise were small manufacturing enterprises lacking proper established business organization. Other

than SMEs, there were 7,749 household gem and jewelry businesses. These household businesses are small entrepreneurs and are not included in the database system of the government. Even though most gem and jewelry businesses in Thailand are SMEs, in terms of employment in 2010, the SMEs sector accounted for a 53% share (approximately 689,000 workers), while large enterprises hired an estimated 610,000 workers (Leopairote and Thamsatitdej, 2010). Export value from Thailand's gem and jewelry SMEs have ranked first for all SMEs export products since 2010. In 2015, the export value of SMEs alone stood at 8206.53 million USD with a 74% share of total export value.

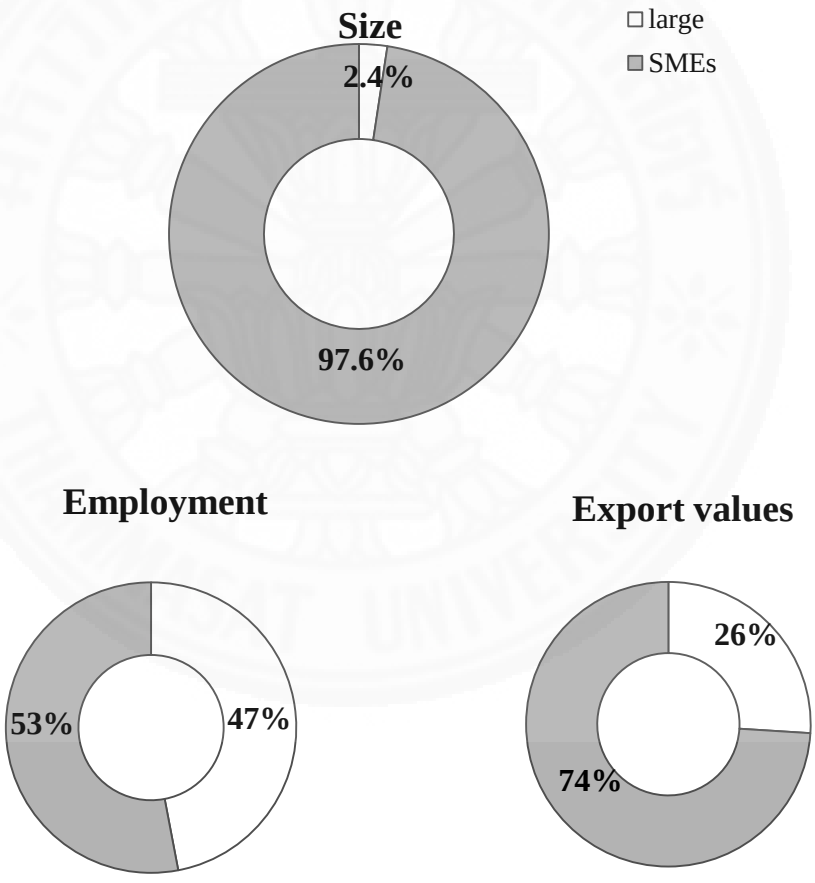

Figure 3.1 Comparison of the Number of Enterprises, Employment and Export Values between SMEs and Large Enterprises.

3.3 Domestic Market

The domestic market for the gem and jewelry sector accounted for 20% of total production with gradual growth of at least 10-15% per year. In 2014, the total value of the domestic market was 108 million USD. Most domestic consumers are individuals with mid and high incomes with the necessary high purchasing power. These include business owners, private sector employees as well as tourists.

Popular jewelry in the domestic market are gemstone jewelry, and gold and silver jewelry. However, diamond jewelry is increasingly popular among consumers. Jewelry design depends on customer taste and satisfaction, and thus there are many designs and patterns for sale in the domestic market.

Domestic entrepreneurs in Thailand usually have their own retail outlet and most of them are located in department stores or tourist spots such as Silom, Bangrak or near colored stone trading markets in places such as Chantaburi, Trad and Chaing Rai. Another increasingly expanding means of selling directly to the customer, is through e-commerce, the internet or television (Kasikorn, 2015).

3.4 Export Market

The gem and jewelry industry in Thailand has continually expanded over the last three decades. The industry draws large amounts of foreign exchange to the country and as such is very important to the Thai economy. Industry exports have grown from 3,667.92 million USD in 2006 to 10,993.35 million USD with a total share of 3.7 % of the world's export value in 2015 (Kasikorn, 2015; GIT, 2015).

Export products account for 80% of total products. It was also ranked the third most important export product following car and computer components accounting for 5.13% of the country's gross exports. The industry acquired a trade surplus in 2015 with a value of 1,081.09 million USD as shown in Figure 2 (GIT, 2015). The top five important markets for the gem and jewelry industry are Hong Kong, Switzerland, U.S.A, Cambodia and Germany. The highest export value in 2015 was that of unwrought or semi-manufactured gold with a 34.63% share of the gem and jewelry gross export value. The second was jewelry with a share of 33.63%.

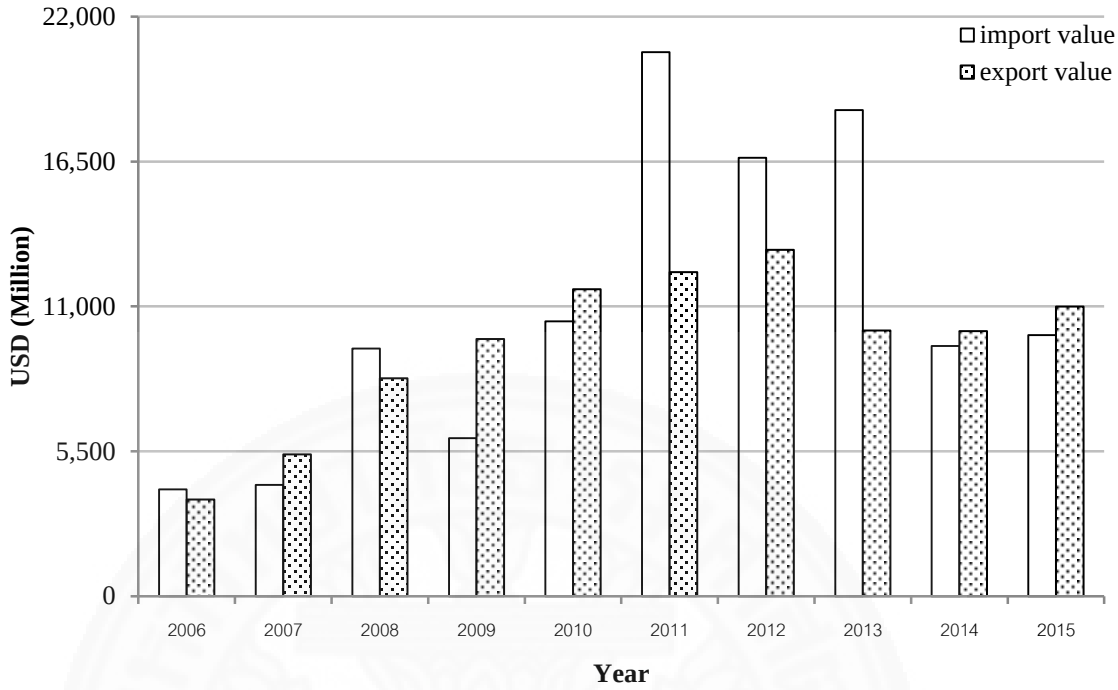

Figure 3.2 Thailand's Gem and Jewelry Import and Export Value 2006-2015

Source: Ministry of Commerce, data calculated by the Gem and Jewelry Institute of Thailand.

Table 3.1 Top 5 Thailand's Gem and Jewelry Export Market

Value (Million USD)

Year	Hong Kong	Switzerland	USA	Cambodia	Germany
2011	2,484	4,055	1,341	19	286
2012	2,848	4,513	1,277	111	432
2013	2,639	931	1,319	282	530
2014	2,497	1,310	1,360	463	611
2015	2,318	1,929	1,288	879	618

Source: UN Comtrade Database https://comtrade.un.org/

The gem and jewelry export market with the highest export value for Thailand in 2015 was Hong Kong worth 2,318 million USD and a 21.39% share. Thailand ranked 13th in Hong Kong's gem and jewelry imports with a 1.9% share of

the market. The key value products in the Hong Kong market are polished diamonds, gold jewelry, polished precious stones and polished semi-precious stones.

Switzerland was the second most important export market with a value of 1,929 million USD and a 16.59% share. The market grew 57.33% between 2011 and 2015 due to the export value of unwrought or semi-manufactured gold being the key product with an almost 88% share (growth of 74.16%). Thailand ranked 13th in Switzerland's import gem and jewelry products with a market share of 1.9 percent.

The United States was the third most important export market for gems and jewelry with an 11.92% share with a total value of 1,288 million USD. The major export product to the market was jewelry with a 75% share. The United States is the largest market for silver jewelry exports.

Cambodia was the fourth most important export market with an 8.12% share and a value of 879 million USD. The market has undergone dramatic growth within the 2011-2015 period of almost 100%. The dominant product in the market was unwrought or semi-manufactured gold with a soaring growth rate of 93.40%.

Thailand's fifth most important export market for gem and jewelry was Germany with a 5.72% share worth a value of 618 million USD. The dominant product in the German market was silver jewelry.

3.5 Structure of the Gem and Jewelry Industry in Each Sector

3.5.1 The Colored Stone Industry

Thailand's colored stone industry is well known in the world market. The country used to have important and good quality gem mines. Despite these mines having become almost exhausted, Thailand is still one of the most important colored stones manufacturing centers and sourcing hubs because of the needs of imported raw materials causing the gemstones trade market in the country to expand and develop into a trading hub. Moreover, Thailand's skilled craftsmanship and use of heat treatment to improve the quality and color of gemstones are unique and localized.

3.5.1.1 Polishing Colored Stone Industry

The industry in polishing colored stones in Thailand mostly comprises small family households which but employ skilled labor and less complicated tools more than complicated machinery. Most entrepreneurs in the colored stone industry are located around areas that used to have mines in the past such as Chantaburi, Trad, Kanchanaburi and Chiang Rai. However, entrepreneurs are now moving toward using more advanced and complicated machinery.

Import materials for polished color stones are sourced from many places around the world depending on the type of colored stones. For example:

- Rubies: imported from Myanmar, Madagascar, USA, India, Switzerland and Australia
- Sapphires: imported from Hong Kong, India, Australia, Switzerland, Japan and Sri Lanka
- Emeralds: imported from India, Israel, USA, Columbia, Brazil, Russia

Table 3.2 Thailand's Colored Stone Export Value 2007-2015

Value (million USD)

Product	2007	2008	2009	2010	2011	2012	2013	2014	2015
Polished Precious Stones	173.98	254.89	178.74	229.74	326.69	362.65	476.91	566.14	628.33
Polished Semi-Precious Stones	169.52	244.70	201.76	225.29	247.59	216.60	243.27	295.79	367.84
Rough Stones	27.79	19.72	16.44	19.97	23.33	31.43	36.76	54.76	45.52
Total	371.29	519.31	396.94	475.00	597.61	610.68	756.94	916.69	1,041.69

Source: Ministry of Commerce, data calculated by The Gem and Jewelry Institute of Thailand (Public Organization)

Polished colored stone are sold through agents or direct sale to jewelry manufacturers to be made into jewelry. In 2015, the net export value of colored stone was 1,041.69 million USD with the top three markets for colored stones being Hong Kong, USA and China (GIT, 2015)

Table 3.3 Thailand's Polished Precious Stone Export Markets 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Hong Kong	215.56	264.22	303.12
2. USA	64.44	77.00	90.97
3. China	16.48	40.43	45.63
4. Switzerland	35.55	44.96	42.98
5. India	21.79	22.05	21.75

Exports from selected countries.

3.5.1.2 Polished semi-precious stones

Semi-precious stones include gemstones of different color and vary in price; thus, semi-precious stones are gaining in popularity. Thailand's export value of polished semi-precious stones had consistently increased and reached 367.84 million USD in 2015. The largest importer of Thai polished semi-precious stones was Hong Kong, which repeatedly acquired a share of more than 50%. Currently, Hong Kong has a share of over 63% of Thailand's total export value with growth of 35.72% compared with the preceding year. Following Hong Kong were USA and China with 8.48 and 25.68% growth respectively. The markets with favorable growth in 2015 were the UAE and Sri Lanka with growth greater than 1.46 times and 10.45 times respectively. The surge in the export value to Sri Lanka was because the main export product was polished semi-precious stones, which had been imported to Thailand to be cut and polished by Thai cutters before being exported back to Sri Lanka.

Table 3.4 Thailand's Polished Semi-Precious Stone Export Markets 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Hong Kong	136.92	171.03	232.12
2. USA	24.70	33.34	36.17
3. China	13.94	17.33	21.78
4. Switzerland	12.21	17.51	13.69
5. India	7.41	9.81	9.04

Exports from selected countries.

3.5.1.3 Market Share of Thai Colored Stones in Key Markets

The world's top three colored stone importers are China, the United States and India. With a combined share of 67% of the world's total import value of colored stones, they are prominent import sources of polished precious stone and polished semi-precious stones and play important roles in the global market.

China

China is a substantial market with consistent growth in the potential for colored stone consumption as the purchasing power of middle-class consumers grows. Moreover, Chinese consumers enjoy buying luxury items, including high-end brand products when they earn higher incomes. They also readily purchase items that convey social status like gemstones and jewelry products. Hence, demand for colored stones has steadily grown. In 2015, China earned more than a 37% share of the global colored stone import value as the country's import value reached 4,380.63 million USD. Polished semi-precious stones was the dominant import product with more than a 70% share. Its import value was 3,098.74 million USD. Polished precious stones and rough stones follow in second and third place with a 27% and 2% share, respectively. Thailand is the most prominent import source of polished precious stones with a 95% share followed by Myanmar and India ranked second and third, respectively.

Table 3.5 China's Polished Precious Stone Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Thailand	*40.42*	*187.27*	*1,121.40*
2. Myanmar	0.71	1.81	20.85
3. India	56.15	283.16	19.68
4. Sri Lanka	1.19	0.68	8.18
5. South Africa	6.01	5.28	7.17

Imports from selected countries.

As for semi-precious stones, Myanmar is the primary source import of China, accounting for over 61% followed by Hong Kong and South Africa. Thailand is the fifth most important source with the value declining from 612.18 to 41.55 million USD. The decline has resulted from the slowdown in middle-class Chinese consumerism and the increase in the use of Chinese cutters with satisfying cutting and polishing skills for semi-precious stones at average labor costs.

Table 3.6 China's Polished Semi-Precious Stone Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Myanmar	247.08	11,108.51	1,894.38
2. Hong Kong	9.43	827.56	836.00
3. South Africa	35.85	74.34	95.22
4. Brazil	308.03	342.34	89.74
5. Thailand	*130.11*	*612.18*	*41.55*

Imports from selected countries.

The United States

In 2015, the USA's import value of polished precious stones was 1,147.15 million USD with a share of over 15 percent of the global colored stone import value. Polished precious stone contributed to a near 65% share of colored stone imports. After the products come polished semi-precious stones and rough stones with a share of 33% and 2%, respectively. Many sources of imported polished precious stones decreased except for Hong Kong. Hong Kong is the world's important gemstone trading base, with international trade fairs being regularly held. Colored stone traders and manufacturers from across the world, including Thailand, export their products to be traded or showcased in the fairs. After receiving orders from importers/buyers during the fairs, polished colored stones are generally exported from Hong Kong to other countries, including the USA. Thailand ranked third for the USA's polished precious stone import sources after Hong Kong and Colombia.

The USA's import value of semi-precious stones rose by 33.90%. This led to the growth in Thailand's semi-precious stone exports which overtook Brazil, the world's key producer of semi-precious stones.

Table 3.7 USA's Polished Precious Stone Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Hong Kong	56.73	84.98	204.31
2. Colombia	177.59	285.49	203.64
3. Thailand	*212.52*	*185.22*	*147.67*
4. Switzerland	74.90	99.75	131.64
5. India	120.11	174.55	124.07

Imports from selected countries.

Table 3.8 USA's Polished Semi-Precious Stone Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. India	98.05	121.98	109.14
2. Hong Kong	49.17	60.33	96.37
3. Thailand	*33.58*	*34.01*	*92.92*
4. Brazil	38.38	47.95	53.19
5. Switzerland	13.97	14.80	40.88

Imports from selected countries.

India

India is the world's third largest import market for colored stones with almost 14% of the world's total colored stone import value. It surpassed Hong Kong, which fell to fourth place. Polished precious stones accounted for more than 75% of the colored stone import value. Rough stone and polished semi-precious stones came in second and third with a share of 22% and 3%, respectively.

The total value of India's import value of polished precious stone was 1,194 million USD. The most important source was Hong Kong, which accounted for almost 75%. The UAE and Thailand were in second and third with 11% and 3%.

Table 3.9 India's Polished Precious Stone Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Hong Kong	279.82	494.04	890.96
2. UAE	333.54	104.71	125.41
3. Thailand	*23.93*	*32.96*	*35.37*
4. USA	7.88	13.59	17.83
5. Sri Lanka	0.76	2.64	1.10

Imports from selected countries.

The import value of semi-precious stones in India is constantly declining as a result of Indian cutters' skill in semi-precious stone cutting and polishing being relatively high. The top three contributors of the products in 2015 were Hong Kong, USA and Thailand accounting for 79% share of total imports.

Table 3.10 India's Polished Semi-Precious Stone Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Hong Kong	48.69	27.23	20.95
2. USA	11.73	7.93	7.13
3. Thailand	*4.55*	*5.30*	*3.86*
4. China	1.06	1.00	1.24
5.UAE	0.55	2.59	1.04

Imports from selected countries.

3.5.2 The Diamond industry

The polished diamond industry in Thailand arose following the relocations of production bases from countries that used to be well known for polishing diamonds such as Israel, Belgium and England. Thailand is ideal because of the low wages and meticulous labor. The polished diamond industry is a capital intensive industry as it relies on high-tech machinery and tools which need to be imported. Therefore, most manufacturers in this sector are foreign-owned or jointly owned by foreigners and Thais; indeed, only a handful are Thai-owned. The majority of manufacturers are located around Bangkok or in the central region of Thailand. Notable diamond manufacturers are as follows:

• Bangkok: General Diamond Cutting Works, Gem Siam Manufacturing, Gold Master, I.G.S, Kimberly Diamond, Master Diamond, N&A Cutting Works, Sunrise Diamond Manufacturing, Royal Diamond Polishing Works, T P Diamond (Thailand) etc.

• Patum Thani : Bangkok Cut Diamond, B.V. Diamond Polishing Works

- Nakornrachasrima: Thai Diamond Syndicate
- Phitsanulok: Rosi Blue Diamond (Belgium's manufacturer)
- Lamphun: Octagon Diamond

Thailand is well known for its diamond cutting expertise in small diamonds below 1 carat (Bangkok cut or Thai cut), ranked fifth in the world after Belgium, Israel, India and USA. Thailand is recognized as one of the 23 diamond trading centers in the world by the World Federation of Diamond Bourse (GIT, 2014)

Similar to the colored stone industry, the diamond industry in Thailand has to rely on imported raw materials. The import markets for the diamond industry are mainly Israel, Belgium and Botswana. At the same time, the jewelry industry in Thailand imports polished diamonds from other places to be crafted into jewelry. Important sources of polished diamonds are India, Hong Kong, Belgium, Israel, USA and UAE.

In terms of export, the export value of diamond industry was worth 1,777.42 million USD in 2015. The top five export markets for polished diamonds were Hong Kong, Belgium, India, Israel and The United States (GIT, 2015). The total of the top three accounted for around 73%.

Table 3.11 Thailand's Diamond Export Value 2007-2015

Value (million USD)

Product	2007	2008	2009	2010	2011	2012	2013	2014	2015
Rough Diamonds	261.04	264.13	112.09	189.56	206.52	152.30	130.44	175.83	158.97
Polished Diamonds	685.73	839.11	704.92	907.94	1,254.79	1,399.99	1,537.68	1,641.51	1,616.48
Industrial Diamonds	3.84	0.40	1.35	0.30	0.34	0.34	7.26	19.08	1.97
Total	950.61	1,103.64	818.36	1,097.80	1,461.65	1,492.62	1,675.38	1,836.42	1,777.42

Source: Thai Customs Department, data calculated by The Gem and Jewelry Institute of Thailand (Public Organization)

Table 3.12 Thailand's Polished Diamond Export Markets 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Hong Kong	611.65	659.19	753.73
2. Belgium	324.71	350.54	303.24
3. India	216.64	223.20	138.47
4. USA	81.74	113.89	108.67
5. Israel	96.78	92.24	78.32

Exports from selected countries.

3.5.2.1 Market Share of the Thai Diamond Industry in Key Markets

The world's top three diamond importers are the United States, Hong Kong and India with a total share of 56% of the world's total import value of diamonds.

United States

During recent years, the US has replaced India as the world's largest consumer of diamonds. This may be due to the gradual recovery of the US economy. In 2015, the US's import value of diamond was 23,432.15 million USD. Polished diamonds were the dominant commodity with an import value of 23,095.07 million USD.

The USA's top three sources for polished diamonds were Israel, India and Belgium. The sources' export value to the US decreased 10.09% , 2.89% and 6.46%, respectively. Thailand, ranked 17th, attained the import value of 46.54 million USD, a 57.23% jump. Although Thailand merely earned a 0.20% share of the US market, it is likely to increase in the future.

Table 3.13 USA's Polished Diamond Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Israel	8,787.14	9,250.97	8,317.39
2. India	7,400.73	7,589.67	7,370.35
3. Belgium	4,047.23	3,942.99	3,688.40
4. Hong Kong	287.80	351.44	1,151.47
5. Switzerland	399.17	469.70	548.46
17. Thailand	*41.88*	*29.60*	*46.54*

Imports from selected countries.

Hong Kong

After the USA, Hong Kong was the second largest diamond importer in 2015. Hong Kong's diamond import value stood at 19,080.48 million USD, a 12.98% drop from the previous year. This fall was influenced by the lull in global demand. With a 92% share, polished diamonds constituted the dominant product. Its import value was at 17,612.92 million USD, a decline of 10.65%.

Half of the imported diamonds came from India with an import value of 10,133.72 million USD (an 8.48% fall). Imports from Israel and Belgium, the second and third most important sources decreased 11.93% (2,997.94 million USD) and 11.32% (1,698.60 million USD) respectively. Thailand moved up to eighth place with an import value of around 103 million USD, a 6.79% rise from the previous year.

Table 3.14 Hong Kong's Polished Diamond Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. India	10,441.05	11,072.24	10,133.72
2. Israel	3,037.98	3,404.17	2,997.94
3. Belgium	1,734.03	1,915.44	1,698.60
4. China	739.40	933.85	934.51
5. USA	755.21	752.53	603.66
8. Thailand	*69.13*	*96.47*	*103.02*

Imports from selected countries.

India

The world's third largest importer in 2015 was India. Not only that, it has also remained among the world's top diamond manufacturing and trading hubs. In 2015, India's import value of diamonds was 16,440.63 million USD, a 24% plunge. Rough diamond was the major import product with an 82% share, a decrease of 21.96% (13,592.54 million USD). The rest was polished diamonds with a 32.82% slump (2,826.71 million USD).

In 2015, India's imports of polished diamonds from nearly every source declined. The top three sources were Hong Kong, the UAE and the US with a 24.68%, 37.28% and 20.52% share, respectively. The sources contributed to an 82% share. Thailand was in seventh with the import value of 13.98 million USD, a 29.60% drop. Most of the exports from Thailand were made by Indian companies with manufacturing bases in Thailand. The companies exported polished diamonds back to their parent companies in India to be sold domestically for jewelry manufacturing as well as exported overseas.

Table 3.15 India's Polished Diamond Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Hong Kong	2,375.73	1,740.56	1,311.05
2. UAE	3,502.66	955.53	599.35
3. USA	572.08	539.79	429.04
4. Belgium	297.74	374.59	246.84
5. Israel	144.90	154.10	102.58
7. Thailand	*129.00*	*19.85*	*13.98*

Imports from selected countries.

3.5.3 The Jewelry Industry

The jewelry industry can be classified into 2 categories: fine jewelry and costume jewelry. The Thai jewelry industry is labor intensive starting from the design, grading and jewelry making by hand which relies on the skill of the craftsmen. Like the diamond industry, jewelry export manufacturers mostly consist of large-scale

and medium-scale factories because of the need to use advanced tools and machinery as well as a large sum of capital needed for intermediate goods. Therefore, most of the large-scale owners are foreigners. There is only one fully-integrated and complete jewelry company in Thailand which is Pranda Jewelry Co, Ltd. Pranda operate business in all production lines from upstream to downstream (GIT, 2013).

The jewelry businesses in Thailand are mostly original equipment manufacturers (OEM) which means that entrepreneurs make the jewelry from orders from their customers or by adapting popular designs. Not many entrepreneurs design their own styles and do their own branding (GIT, 2013).

3.5.3.1 Fine Jewelry

Fine jewelry is jewelry made from both precious metal (gold, silver and platinum) and precious stones (rubies, sapphires, diamonds and emeralds). Fine jewelry can be plain or gem set jewelry. Net export value in 2015 for jewelry was 3,697.42 million USD which was the highest export earner among other industries producing finished goods under the gem and jewelry category with a 33.63% share in 2015 (GIT, 2015). Export markets for jewelry differ between gold and silver, for gold jewelry the top three markets are Hong Kong, U.S.A and U.A.E while for silver jewelry these are U.S.A, Germany and Australia. For import sources Thailand was the top import source for jewelry as most of the imports were sent back following the attendance of Thai entrepreneurs at the international trade fair (GIT, 2015).

Table 3.16 Thailand's Jewelry Export Value 2007-2015

Value (million USD)

Product	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gold Jewelry	1,214.41	1,838.34	1,388.69	1,620.21	1,968.96	2,066.88	1,937.06	1,899.16	1,848.60
Silver Jewelry	786.59	860.64	956.29	1,304.83	1,540.35	1,519.45	1,603.54	1,696.64	1,585.62
Platinum Jewelry	12.70	30.71	26.02	41.97	55.70	68.88	90.74	109.93	116.34
Others	93.02	119.11	121.06	155.23	127.68	112.00	93.62	149.62	146.85
Total	2,106.72	2,848.80	2,492.06	3,122.24	3,692.69	3,767.20	3,724.95	3,852.35	3,697.42

Source: Ministry of Commerce, data calculated by The Gem and Jewelry Institute of Thailand (Public Organization)

Gold jewelry was the dominant export product of jewelry with a 50 % share of jewelry's total export value due to the high value of gold in the world market. Hong Kong maintains its position as the most important market followed by the United States and United Arab Emirates. The top three export markets contributed to nearly 60% of Thailand's gold jewelry export value.

Table 3.17 Thailand's Gold Jewelry Export Value 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Hong Kong	478.14	499.23	540.42
2. USA	346.08	382.00	389.24
3. UAE	285.66	169.03	170.63
4. UK	135.94	124.64	107.35
5. Switzerland	97.45	120.65	86.01

Exports from selected countries.

Silver jewelry accounted for a 42.88% share of jewelry's total export value. The United States is the most important market for Thai silver jewelry with a value of 573.39 million USD and a 36.16% share. Germany is the second most important market with a 27.48% share. Third is Australia with the value of 95.81 million USD and a 6.04% share.

Table 3.18 Thailand's Silver Jewelry Export Value 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. USA	692.07	641.26	573.39
2. Germany	357.96	422.62	435.69
3. Australia	85.56	95.47	95.81
4. Hong Kong	60.33	63.37	72.22
5. UK	55.03	56.87	51.60

Exports from selected countries.

3.5.3.2 Market Share of Thai Fine Jewelry Industry in the World's Key Markets

In 2015, the world's aggregate import value of jewelry was 52,217.39 million USD. The top five world markets for jewelry were Hong Kong, Switzerland, the United States, France and Singapore respectively. The combined import value from these sources was over 80% of the world's total import value.

Hong Kong

Hong Kong has been the world's largest importer since 2011 after overtaking the United States. Hong Kong has imported over 10,000 million USD of jewelry annually for the past 5 years. In 2015 Hong Kong's import value was 10,889.75 million USD accounting for 20.85% share of global jewelry imports. The dominant commodity in Hong Kong's jewelry import was gold jewelry. The import value of gold jewelry stood at 9,223.15 million USD which accounted for an 84.70% share, followed by silver jewelry with an import value of USD 1,654.97 million USD and a 25.68% share.

China has always been the most important import source of gold jewelry for Hong Kong even though the value decreased from 2014. The US and India were in second and third place, while Thailand came in thirteenth with an export value of around 97.87 million USD.

Table 3.19 Hong Kong's Gold Jewelry Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Hong Kong	2,375.73	1,740.56	1,311.05
2. UAE	3,502.66	955.53	599.35
3. USA	572.08	539.79	429.04
4. Belgium	297.74	374.59	246.84
5. Israel	144.90	154.10	102.58
7. Thailand	*129.00*	*19.85*	*13.98*

Imports from selected countries.

Regarding silver jewelry, the most prominent source for Hong Kong was India with an export value of 1,132.99 million USD and a share of 68.46%. Second and third were China and the United States. Thailand came in fifth with and export value of 33.73 million USD.

Table 3.20 Hong Kong's Silver Jewelry Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. India	362.45	725.38	1,132.99
2. China	406.13	382.55	365.80
3. USA	90.84	92.98	42.50
4. Italy	39.34	41.96	36.60
5. Thailand	*30.43*	*24.09*	*33.73*

Imports from selected countries.

Switzerland

Switzerland's import value of jewelry in 2015 was 9,828.93 million USD, accounting for 18.82% of the world's jewelry import value. Gold jewelry was the outstanding import product in jewelry accounting for a 99% share of total import jewelry.

France was the most important source of gold jewelry for Switzerland with an export value of 2,582.75 million USD. The second and third ranks were UK and Italy with export values of 1,260.20 million USD and 1,154.75 million USD, respectively. Thailand came in 23rd with an export value of 18.59 million USD, accounting for 0.19% of the market.

Table 3.21 Switzerland's Gold Jewelry Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. France	2,082.96	2,641.62	2,582.75
2. UK	898.77	977.03	1,260.20
3. Italy	1,271.40	1,314.00	1,154.75
4. USA	472.33	717.11	995.87
5. Hong Kong	707.00	1,056.55	645.38
23. Thailand	*20.70*	*40.26*	*18.59*

Imports from selected countries.

Germany was the largest exporter with an export value of 26.13 million USD. Italy was second with an export value of 23.70 million USD. In third was Thailand with an export value of 15.76 million USD.

Table 3.22 Switzerland's Silver Jewelry Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. India	362.45	725.38	1,132.99
2. China	406.13	382.55	365.80
3. USA	90.84	92.98	42.50
4. Italy	39.34	41.96	36.60
5. Thailand	*30.43*	*24.09*	*33.73*

Imports from selected countries.

The United States

The USA's import value of jewelry in 2015 reached 7,935.09 million USD, which accounted for 15.20% of world jewelry import value. The dominant product was gold jewelry with a total value of 5,743.28 million USD and a 72.38% share. Silver jewelry constituted 27.25%. Its import value totaled 2,162.04 million USD.

For over a decade India has been the United States' largest import source. In 2015 India acquired a 22.79% share of the gold jewelry market with a value of 1,309.02 million USD. China and France followed in second and third. Thailand was the fifth largest import source with a value of 313.66 million USD.

Table 3.23 USA's Gold Jewelry Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. India	1,158.82	1,195.46	1,309.02
2. China	804.56	810.06	803.02
3. France	601.74	741.79	652.62
4. Italy	407.38	491.14	485.54
5. Thailand	*280.34*	*292.94*	*313.66*

Imports from selected countries.

Regarding the United States' silver jewelry imports in 2015, Thailand remained dominant with an export value of 989.10 million USD accounting for a 44.36% market share. Thailand's import value increased by 9.22% while almost other competitors experienced decline. This was clear evidence of Thailand's competitiveness in the market. Following Thailand were China, India, Italy and Indonesia in second to fifth.

Table 3.24 USA's Silver Jewelry Import Sources 2013-2015

Value (Million USD)

Country	2013	2014	2015
1. Thailand	*865.33*	*878.16*	*959.10*
2. China	439.05	405.08	420.49
3. India	357.63	350.89	344.03
4. Italy	183.31	166.81	146.46
5. Indonesia	54.79	46.72	41.13

Imports from selected countries.

3.5.3.3 Costume Jewelry

As the name suggests, costume or imitation jewelry, is made from metals other than precious such as copper, brass, stainless steel and then coated with gold or silver. For gem set costume jewelry, the gemstones used in this process are imitation or synthetic gems created in the laboratory.

At first, the costume jewelry industry targeted domestic consumers but later with technological and advanced techniques changed production to produce for export. Many brandname cloth stores such as H&M and Zara also sell costume jewelry that matches their products so as to entice the customer to purchase both clothing and jewelry. Costume jewelry export value in 2015 was 390.91 million USD. The important markets for costume jewelry were Liechtenstein, the U.S.A, French, Germany and Singapore (GIT, 2013; GIT, 2015).

CHAPTER 4
GOVERNMENT POLICY

4.1 Government Policy

Since 1976, the Thai government has provided various methods to develop and promote the gem and jewelry business in Thailand. With support from the Board of Investment (B.O.I.), Thailand's gem and jewelry industry has been promoted to increase its potential and international competitiveness by offering attractive benefits to investors. As previously mentioned in Section 2.6, I-EA-T is responsible for industrial estates and Free Zones. For the gem and jewelry business, the government approved the construction of Gemopolis to act as a cluster of manufacturing, trade and exports of gems and jewelry. Later on, in 2008, Gemopolis was granted Free Zone status by I-EA-T and has been supported by three key government agencies, including B.O.I, I-EA-T and Thai Customs (The Thailand Board of Investment, 2008).

The government also established a gem and jewelry development institute under the control of the Department of Industrial Promotion (DIP) on 12 September 1989 to act as a center of skill development for highly skilled labor, especially for goldsmiths and jewelers, to develop the gem and jewelry industry by suggesting policies and regulations, and also to function as a bridge organization between the government and private organizations.

The Bangkok Gems and Jewelry Fair (BGJF) is another approach to promoting the gem and jewelry industry. BGJF was first held in 1985 and was co-organized by the Ministry of Commerce, Department of International Trade Promotion (DITP) along with the Jeweler's Association. BGJF is the biggest gem and jewelry exhibition in ASEAN and the fifth largest gem and jewelry fairs in the world. BGJF is held twice a year, usually around February and September, at Impact Arena in Bangkok.

4.2 Trade Protection Policy

Starting from 1977, the government removed import tariffs on rough diamonds and rough colored stones (unpolished) to increase the employment of polishers and help develop the polished diamond industry. Later on, in 1980, the Thai government removed import tariffs and business taxes on polished diamonds and colored stones to expand the jewelry setting industry and promote Thailand as a world trade hub of gems and diamonds. In 1994, the government removed import tariffs on gold, as it is regarded a currency, and reduced import tariffs on silver and platinum to 1%. Import tariffs on both silver and platinum were later removed in 1999 (Chiang Mai University, 2002). Currently, only products falling into the category of finished products are being taxed by import tariffs (Appendix B).

Other than reducing and removing import tariffs on gem and jewelry products, the Thai government allows VAT exemption on diamonds and gemstones, including imitations of these gemstones used in export manufacturing by Royal Decree No. 331, with 3 conditions: i) the VAT registrant must be members of the Thai Gem & Jewelry Traders Association, the Thai Chamber of Commerce, the Board of Trade of Thailand, or the Federation of Thai Industries, ii) the VAT registrant's business is constant and trustworthy, iii) the VAT registrant informed the Director-General of his or her corporation.

In 1997, and later on in 2000, unwrought gold, silver and platinum also received VAT exemption by Royal Decree No. 367. Similar to VAT exemption in Royal Decree No. 331 exemption came with 3 conditions: i) the VAT registrant informed the Director-General of his or her corporation, ii) the VAT registrant is a gold importer or seller. The gold must be gold that has not yet been formed into accessories, and its weight must not be lower than 96.5%, iii) proof: for importer, proof of import and proof from the foreign seller confirming that the VAT registrant is a gold importer, and for the exporter, proof of membership of the organizations relevant to gold or jewel trading associations (Chiang Mai university, 2002).

4.3 Board of Investment of Thailand (BOI)

The Board of Investment of Thailand (BOI) has the authority and duties to promote investment. It was established in 1960 under the Act of the Promotion of Industrial Investment. At first, the BOI was known by the title "the Board of Industrial Investment", but this was changed in 1972 to its current name together with a new role covering other sectors such as agriculture and services. The BOI offers both tax and non-tax incentives under the Investment Promotion Act, B.E. 2520 (1977 A.D.). However, in order to obtain investment promotion, the BOI applicant must follow the conditions prescribed by the Board of Investment as specified in the BOI promotion certificate in which the following incentives are granted: (BOI, 2015).

Table 4.1 Privileges from BOI

Tax Incentives	Non-Tax Incentives
- Exemption/reduction of import duties on machinery (Section 28/29) - Reduction of import duties for raw or essential material (Section 30) - Exemption of corporate income tax and juristic person income tax. (Section 31 and 34) - A 50% reduction in corporate income tax (Section 35(1)) - Double reduction from the costs of transportation, electricity and water supply (Section 35(2)) - An additional 25% deduction of the cost of installation or construction of facilities (Section 35 (3)) - Exemption of import duty on raw or essential materials imported for use in production for export (Section 36)	- Permit for foreign nationals to enter the Kingdom for the purpose of studying investment opportunities. (Section 24) - Permit to bring into the Kingdom skilled workers and experts to work in investment promoted activities (Section 25 and 26) - Permit to own land. (Section 27) - Permit to take out or remit money abroad (Section 37)

Source: A Guide to the Board of Investment 2016

4.3.1 Criteria for Project Approval

1. In order to develop competitiveness in the agricultural, industrial and service sectors, projects submitted for BOI promotion must have the following qualifications:

1.1 The value-added of the project must not be less than 20% of revenues, except for projects in agriculture and agricultural products, electronic products and parts, and coil centers, all of which must have value-added of at least 10% of revenues.

1.2 Modern production processes must be used.

1.3 New machinery must be used. In case of imported used machinery, the criteria for consideration will be classified into 3 cases, as follows:

1.4 Projects that have investment capital of 10 million baht or more (excluding cost of land and working capital) must obtain ISO 9000 or ISO 14000 certification or similar international standard certification within 2 years from the full operation start-up date, otherwise the corporate income tax exemption shall be reduced by one year.

1.5 For a concession project and the privatization of a state enterprise project, the Board's criteria shall be based on the Cabinet's decisions dated May 25, 1998 and November 30, 2004.

2. Environmental protection

2.1 Adequate and efficient guidelines and measures to protect environmental quality and to reduce environmental impact must be installed. The Board will give special consideration to the location and pollution treatment of a project with potential environmental impact.

2.2 Projects or activities with type and size that are required to submit environmental impact assessment reports must comply with related environmental laws and regulations or Cabinet resolutions.

2.3 Projects located in Rayong must comply with Office of the Board of Investment Announcement No. Por 1/2554 dated May 2, 2011, on Industrial Promotion Policy in Rayong Area.

3. Minimum capital investment and project feasibility

3.1 The minimum capital investment requirement of each project is 1 million baht (excluding cost of land and working capital) unless specified otherwise on the list of activities eligible for investment promotion that is attached to this announcement. As for knowledge-based services, the minimum capital investment requirement is based on the minimum annual salaries expense specified in the list of activities eligible for investment promotion.

3.2 For newly established projects, the debt-to-equity ratio must not exceed 3 to 1. Expansion projects shall be considered on a case-by-case basis.

3.3 For projects with an investment value over 750 million baht (excluding cost of land and working capital) the project's feasibility study must be submitted with details as specified by the Board (Thailand Board of Investment, 2016).

4.4 Industrial Estate Authority of Thailand (I-EA-T)

The Industrial Estate Authority of Thailand operates under the Ministry of Industry. It is responsible for the development and establishment of industrial estates, where factories for various industries are well-organized and clustered together. There are 2 types of industrial estate zones: General Industrial Zone and I-EA-T Free Zone. General Industrial Zones offer only non-tax privileges such as the right to own land in an industrial estate, the right to bring in foreign workers and families and the right to remit money abroad. The I-EA-T Free Zone receives non-tax privileges similar to the General Industrial Zone with the following additional tax privileges:

1. The right to receive exemptions on import duty and value-added tax (VAT); as well as excise tax on machinery, equipment, raw materials and supplies used in production

2. The right to receive exemptions of export duty and value-added tax (VAT); as well as excise tax on imported materials for use in production or for commercial operation

3. The right to receive exemptions of export duty and value-added tax (VAT); as well as excise tax on raw materials, products and by-products

Only export manufacturing firms or reprocessing/assembling for export firms are eligible for establishment inside I-EA-T Free Zones. (I-EA-T, 2016).

4.5 Gemopolis Industrial Estate

The Gemopolis industrial zone was established in 1990 with the objective of being Thailand's gem and jewelry cluster. It was granted the status of "Free Zone" by the I-EA-T in 2008. Product categories permitted operations in the Gemopolis Free Zones are gems, jewelry, watches, lenses, eye glasses, spectacles, medical equipment, telecommunication accessories, IT, computers, electric & electronic accessories, sports equipment, stationery & toys. Gemopolis offers prime facilities and infrastructure. It is located west of Suvarnabhumi Airport, 4 kilometers from the airport terminal, thus reducing logistic costs for exporters ("Gemopolis Industrial Estate :::::: I.G.S. PCL.", 2009).

To receive the full benefits offered from the GFZ, firms are required to submit petitions to both BOI and I-EA-T. BOI can only grant the privilege of exemption of corporate income tax, while I-EA-T can grant the rest of the privileges. Incentives for firms operating inside the GFZ are as follows:

1. Exemption of corporate income tax for 4 or 7 years for manufacturing activities.
2. Exemption of income tax on dividend incomes for 4 or 7 years
3. Exemption of import duty and VAT for raw materials, semi-product, essential materials, and components, machinery, tooling & equipment, finished products & merchandises, etc.
4. Exemption of VAT on purchasing from domestic suppliers for item 3 above
5. Open-ended period for storage of items 3) & 4)
6. Production formula list not required
7. 100% share ownership for foreign investors
8. Foreign investors entitled to own land and property in Gemopolis
9. Foreign investors entitled to own land and property for executives' residences, experts, and workers outside Gemopolis
10. Expedited permission to bring in experts and family
11. Permission to remit foreign currency out of the country

CHAPTER 5
ANALYSIS EFFECT OF EPZ

As previously mentioned in Section 3.2, the statistics show that SMEs are very important to the gem and jewelry industry, accounting for more than 90% of total enterprises. Regarding the fieldwork interviews, the firms located inside GFZ are all SMEs with no large firms. Thus, this analysis is divided into 3 categories: first, SME firms located inside the GFZ; second, SME firms located outside the GFZ; and lastly, large enterprises.

Based on the fieldwork interviews, Thailand's gems and jewelry industry is supported by either the BOI or I-EA-T. The BOI can grant privileges to exporters not located in the Free Zone, whereas the privileges of exporters in the GFZ mostly derive from the I-EA-T except for income tax exemption. Benefits granted by BOI are fairly similar to GFZ. However, there are a small number of differences between them as follows (Table 5.1):

1. The duration of exemption from corporate income tax granted by BOI is 3 years for the gem and jewelry industry or 6 years if the firm is located in the 20 provinces with the lowest per capita income (Thailand Board of Investment, 2015). IHowever, in the GFZ, the duration is 4 years or 7 years for relocation of a factory ("Gemopolis Industrial Estate :::::: I.G.S. PCL.", 2009).

2. The BOI does not offer VAT exemption when purchasing raw material, semi-manufactured products, essential materials, components, machinery, tools and equipment, and finished products when purchasing said items from a domestic supplier.

3. The firms inside the GFZ are not required to list production formulas.

4. The BOI does not offer VAT exemption when purchasing raw material, semi-manufactured products, essential materials, components, machinery, tools and equipment, and finished products when purchasing said items from a domestic supplier.

5. There is no duration for the exemption of import duty for machinery from the GFZ as long as the firm is located inside the zone, while from the BOI the duration is 5 or 8 years.

Table 5.1 Benefits from BOI compared with GFZ

Benefit	BOI	GFZ
1. Exemption from corporate income tax	For 3 or 6 years	For 4 or 7 years
2. Exemption from income tax on dividend income	Yes	For 4 or 7 years
3. Exemption from import duty and VAT for - Raw materials, semi-manufactured products, essential materials, and components - Machinery, tools & equipment - Finished products & merchandise, etc.	Yes but excludes finished products	Yes
4. Exemption from VAT on purchasing from domestic suppliers from 3.	No	Yes
5. Open-ended period for storage of items	No	Yes
6. Production formula list not required	No	Yes
7. 100% share ownership for foreign investors	Yes	Yes
8. Foreign investors entitled to own land and property	Yes	Yes
9. Expedited permission to bring in experts and families	Yes	Yes
11. Permission to remit foreign currency out of the country	Yes	Yes
12. Double deduction from the costs of transportation, electricity and water supply	Yes	No
13. Exemption from export duty	Yes	Yes

5.1 SMEs inside the GFZ

From the fieldwork interviews, it was found out that there are no gem or diamond polishing firms inside the GFZ at all. Most of the firms are jewelry manufacturing or jewelry outsourcing businesses. This is because rough stones and rough diamonds are not subject to import tariffs, but for jewelry manufacturing some materials used in the processing process are (see Appendix B). According to Table 5.1, the GFZ is the only place that can grant the benefit of import duty exemption on

finished products, and therefore, it makes sense outsourcing firms establish themselves inside the GFZ. All firms inside the GFZ export 100% of their products. The method of export transportation is by plane, and the GFZ provides the suitable conditions for this. The firms inside the GFZ are considered newly established because the GFZ was granted the status of "Free Zone" in 2008; thus, the firms are all less than 10 years old. The main reason for the firms to decide to locate their factories inside the GFZ is the benefits from the exemption from materials and finished products of the Free Zone. Another reason is the cluster characteristic of the GFZ makes it easier for firms to gain access to materials. According to Alfred Marshall (cited in Krugman *et al*., 2012), geographical concentrations of industry or external economies of scale may be more efficient than individual firms in isolation because a cluster supports specialized suppliers, allowance of market pooling and knowledge spillover. Foreign firm owners assert that they choose the GFZ because the zone allows them to have a 100% shareholding, land and property ownership. Most of the firms in the interviews did not request the benefits from the BOI, stating that the process of getting privileges from the BOI is difficult and complicated.

5.2 Firms outside the GFZ

In this study, the criteria of the firms outside the GFZ must be matched and comparable with the firms inside. The conditions are: i) the selected firms must be jewelry manufacturing or outsourcing businesses, and ii) they must export 100% of their products.

5.2.1 SME Firms

SMEs outside of the GFZ are considered old-established firms, at least beforeFree Zone status was granted to the GFZ in 2008. They receive an exemption of tax for imported materials used in manufacturing from the BOI, as shown in Table 5.1. SME firms outside of the GFZ usually operate in their own cluster area, such as Jewelry Trade Center, Silom, Bangrak, Surawong, or clustered around gemstone mining places, namely Kanchanaburi, Trad and Chantaburi (Kasikorn, 2015). Even though firms cannot receive VAT exemption when

purchasing material from domestic suppliers from the GFZ, they can get VAT exemption as stated in Chapter 4 from Royal Decrees No. 331 and No. 367. In addition, since they have been long established, the benefit of exemptions of corporate income tax and import duty and VAT on machinery are not relevant to them. Furthermore, the benefit of being long-established is that it is easier to gain approval from the BOI. However, not all SME firms can get approval from the BOI. As seen in Section 3.2 many SMEs and household gem and jewelry businesses in Thailand are not registered and do business outside of the government system. Although the GFZ can grant exemption from corporate income tax for 7 years for relocating firms, SME firms choose to stay outside of the GFZ. The owners of these firms stated that it is not cost effective for them to relocate.

5.2.2 Large Firms

Large gem and jewelry firms in Thailand are usually located outside of the GFZ. They receive import duty exemption from the BOI as well as VAT exemption from Royal Decrees No. 331 and No. 367. The advantage for the large firm is the credibility that comes with their capital in aiding them to get approval from the BOI. However, although easier, it is still not all easy. As ascertained from the field work interviews, some large firms have separate divisions to specifically deal with BOI agents. Large firms usually have a division of labor, and consequently employ a large number of workers (see Figure 3.1). The division of labor acts as an internal economy; therefore, large firms do not rely on external economies or clusters. As a result, large firms can locate anywhere.

CHAPTER 6
CONCLUSIONS

Thailand's gem and jewelry industry started a long time ago and is recognized as one of the world's major exporters of gems and jewelry. The competitiveness of the nation's gem and jewelry industry lies in the high degree of skill of Thai craftsmen. This is further consolidated by knowledge of the heat treatment method used to improve the color and clarity of gemstones. Furthermore, Thailand is the world's trading hub of gemstones and diamonds. In the past, Thailand used to be the source of corundum gemstones, namely rubies and sapphires. Unfortunately, the country's gemstone mines are now almost exhausted and the industry has to rely heavily on import material. Thus, Thailand has developed itself to be one of the world's trading hubs by eliminating import tariffs on gemstones. This has aided the expansion of the production base of the jewelry industry because the variety of inputs used in jewelry making can all be found within the country. The result has been Thailand becoming one of the most important handmade jewelry production bases in the world. This industry involves major export products and has generated substantial foreign exchange for the Thai economy. Indeed, the industry has been in Thailand's top ten export markets every year since 1970. In this sector 80% of production is for export, whereas only 20% is for sale in the domestic market.

To help enhance its competitiveness, the Thai government has provided various measures to develop and promote the gem and jewelry industry. Since 1977, the government has removed import tariffs on rough diamonds and rough colored stones (unpolished) to increase employment among polishers and help develop the polished diamond industry. Later on, in 1980, the Thai government removed import tariffs and business taxes on polished diamonds and colored stones to expand the jewelry setting industry and promote Thailand as a global trade hub of gems and diamonds. In 1994, the government removed import tariffs on gold, due to it being considered currency, and reduced import tariffs on silver and platinum to 1%. Five years later, import tariffs on both silver and platinum were removed. Other than reducing and removing import tariffs on gem and jewelry products, the Thai government allows VAT exemption on diamonds and gemstones, including imitations of those gemstones used in export manufacturing by Royal Decree No. 331. In 1997, and later on in 2000, unwrought gold, silver and platinum were also granted VAT

exemption by Royal Decree No. 367. Another channel that the Thai government has used to improve and promote the gem and jewelry industry is that of the BOI. The BOI grants both tax and non-tax incentives to entrepreneur but its incentives come with strict conditions as prescribed in the BOI promotion certificate. The government also approved the construction of the Gemopolis industrial estate zone in 1990 with the objective to be the cluster for the gem and jewelry industry. Later on, in 2008, the zone was granted the status of Free Zone by the I-EA-T. The GFZ is under the supervision of both I-EA-T and BOI and offers tax and non-tax incentives similar to the BOI. However, in order get the full privileges from establishing a factory in the GFZ the entrepreneur is required to submit a petition to both the BOI and I-EA-T.

One of the main characteristics of this industry is that it consists of small and medium enterprises (SMEs), which account for 98% of total enterprises. SMEs in the gem and jewelry industry have to rely on the benefit of external economies of scale and usually operate in their own cluster area, such as Jewelry Trade Center, Silom, Bangrak, Surawong, or clusters around gemstone mining regions, namely Kanchanaburi, Trad and Chantaburi. This is because they can mutually benefit from being together. For large firms, these employ a large number of workers and form a division of labor, which acts as an internal economy of scale. With the benefit of this latter factor firms do not have to rely on clusters and can locate anywhere. Therefore, the firms located inside the GFZ are all SMEs with no large firms present. In this study, the firms can be divided into 3 categories based on size and location:

1) *SME firms inside the GFZ* are usually newly established because the GFZ was granted the Free Zone status in 2008; thus, the firms are all less than 10 years old. The main reason for firms deciding to locate their factories inside the GFZ is the incentives from the exemption of import duty and VAT from materials and finished products from the Free Zone, instead of obtaining the benefits from the BOI which involves a more difficult and complicated process. In addition, the GFZ also provides the benefit of an external economy of scale to the firms.

2) *SME firms outside of the GFZ* were mostly established long before Free Zone status was granted to the GFZ. These companies are eligible for tax and non-tax incentives from the BOI and VAT exemption from Royal Decrees No. 331 and No. 367. They are granted such privileges due to their being long-established. Even though the GFZ offers benefits for SMEs to relocate from outside, these

businesses choose to stay outside of the GFZ due to the high costs inherent in relocation.

3) *Large firms* can locate their premises anywhere because they have their own internal economies of scale forming divisions of labor. Like SMEs located outside of the GFZ, large firms can get tax and non-tax incentives from the BOI. Additionally, they can receive VAT exemption from Royal Decrees No. 331 and No. 367. Notably, it is easier for large firms than SMEs to be granted such privileges from the BOI because of the credibility that comes with their capital.

In Thailand's gem and jewelry industry, most rough gemstones and diamonds are not subject to import duty; as a consequence, no polishing firms operate within the GFZ. For jewelry manufacturing firms and outsourcing firms, these companies need to find ways to gain access to global market prices because the materials they use are still subject to import duties. The GFZ can grant the privilege of getting materials at the global market price for jewelry manufacturing and jewelry outsourcing firms. However, import duty exemption is not solely granted by the GFZ, but also the BOI on the condition that the firm is not engaged in the outsourcing business. Yet the GFZ is the only place that can grant exemption from import duty on finished products. This, however, only benefits a small group of firms. For newly established firms that cannot get the above-mentioned privileges from the BOI, the GFZ is an alternative means to improve their competitiveness. This is due to the GFZ providing both the benefits of exemption from import duty and of being a cluster. Also, it should be noted that firms that cannot receive such benefits from the BOI and which are not located in the GFZ might choose not to register with the government system and conduct their businesses illegally. Well-established firms and large firms already benefit from clusters as networks of such firms are usually located together in Bangkok or old mining areas such as Kanchanaburi, Trad and Chantaburi. Since large firms have their own internal economies of scale, there is no additional advantage to be gained from the clustering provided by the GFZ. Moreover, the incentives that come with the GFZ in terms of relocating the factory are not significant enough to attract them to do so as the related costs are higher than the benefit.

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APPENDICES

APPENDIX A
QUESTIONNAIRE

1. What kind of business do you operate?
2. In your opinion, how is Thailand's gem and jewelry industry competitive?
3. What is your method of transportation for exports?
4. What is the destination country of your customers?
5. Do you create your own designs or are you an OEM?
6. Who are your competitors?
7. Are you satisfied with the support from government policy?
8. Do you request the privileges from the BOI?
9. What are the reasons behind your choice of location for your factory?

APPENDIX B

HARMONIZED TARIFF SCHEDULE (CHAPTER 71)

OF THAILAND

Tariff No.	Description of Goods	MFN Applied (%)
7101	PEARLS, NATURAL OR CULTURED, WHETHER OR NOT WORKED OR GRADED BUT NOT STRUNG, MOUNTED OR SET; PEARLS, NATURAL OR CULTURED, TEMPORARILY STRUNG FOR CONVENIENCE OF TRANSPORT:	
7101.10.00.000	- Natural pearls	Free
	- Cultured pearls:	
7101.21.00.000	- - Unworked	Free
7101.22.00.000	- - Worked	Free
7102	DIAMONDS, WHETHER OR NOT WORKED, BUT NOT MOUNTED OR SET:	
7102.10.00.000	- Unsorted	Free
	- Industrial:	
7102.21.00.000	- - Unworked or simply sawn, cleaved or bruted	Free
7102.29.00.000	- - Other	Free
	- Non-industrial:	
7102.31.00.000	- - Unworked or simply sawn, cleaved or bruted	Free
7102.39.00.000	- - Other	Free
7103	PRECIOUS STONES (OTHER THAN DIAMONDS) AND SEMI-PRECIOUS STONES, WHETHER OR NOT WORKED OR GRADED BUT NOT STRUNG, MOUNTED OR SET; UNGRADED PRECIOUS STONES (OTHER THAN DIAMONDS) AND SEMI-PRECIOUS STONES, TEMPORARILY STRUNG FOR CONVENIENCE OF TRANSPORT:	
	- Unworked or simply sawn or roughly shaped:	
7103.10.10.000	- - Rubies	Free
7103.10.20.000	- - Jade (nephrite and jadeite)	Free
	- - Other:	

Tariff No.	Description of Goods	MFN Applied (%)
7103.10.90.001	- - - Opals	Free
7103.10.90.002	- - - Topaze	Free
7103.10.90.003	- - - Zircons	Free
7103.10.90.004	- - - Garnets	Free
7103.10.90.005	- - - Sapphires	Free
7103.10.90.006	- - - Emeralds	Free
7103.10.90.090	- - - Other	Free
	- Otherwise worked:	
	- - Rubies, sapphires and emeralds:	
7103.91.10.000	- - - Rubies	Free
	- - - Other:	
7103.91.90.001	- - - - Sapphires	Free
7103.91.90.002	- - - - Emeralds	Free
	- - Other:	
7103.99.00.001	- - - Garnets	Free
7103.99.00.090	- - - Other	Free
7104	SYNTHETIC OR RECONSTRUCTED PRECIOUS OR SEMI-PRECIOUS STONES, WHETHER OR NOT WORKED OR GRADED BUT NOT STRUNG, MOUNTED OR SET; UNGRADED SYNTHETIC OR RECONSTRUCTED PRECIOUS OR SEMI-PRECIOUS STONES, TEMPORARILY STRUNG FOR CONVENIENCE OF TRANSPORT:	
	- Piezo-electric quartz:	
7104.10.10.000	- - Unworked	Free
7104.10.20.000	- - Worked	Free
	- Other, unworked or simply sawn or roughly shaped:	
7104.20.00.001	- - Zirconia	Free
7104.20.00.090	- - Other	Free
	- Other:	
7104.90.00.001	- - Zirconia	Free
7104.90.00.090	- - Other	Free

Tariff No.	Description of Goods	MFN Applied (%)
7105	DUST AND POWDER OF NATURAL OR SYNTHETIC PRECIOUS OR SEMI-PRECIOUS STONES:	
7105.10.00.000	- Of diamonds	Free
7105.90.00.000	- Other	Free
7106	SILVER (INCLUDING SILVER PLATED WITH GOLD OR PLATINUM), UNWROUGHT OR IN SEMI-MANUFACTURED FORMS, OR IN POWDER FORM:	
7106.10.00.000	- Powder	Free
	- Other:	
	- - Unwrought:	
7106.91.00.001	- - - Silver	Free
7106.91.00.002	- - - Silver alloys	Free
	- - Semi-manufactured:	
7106.92.00.001	- - - Silver alloys	Free
7106.92.00.002	- - - Other semi-manufactured	Free
7107	BASE METALS CLAD WITH SILVER, NOT FURTHER WORKED THAN SEMI-MANUFACTURED	
7107.00.00.000	- Base metals clad with silver, not further worked than semi-manufactured	Free
7108	GOLD (INCLUDING GOLD PLATED WITH PLATINUM) UNWROUGHT OR IN SEMI-MANUFACTURED FORMS, OR IN POWDER FORM:	
	- Non-monetary:	
7108.11.00.000	- - Powder	Free
7108.12.00.000	- - Other unwrought forms	Free
7108.13.00.000	- - Other semi-manufactured forms	Free
7108.20.00.000	- Monetary	Free
7109	BASE METALS OR SILVER, CLAD WITH GOLD, NOT FURTHER WORKED THAN SEMI-MANUFACTURED	
7109.00.00.000	- Base metals or silver, clad with gold, not further worked than semi-manufactured	Free

Tariff No.	Description of Goods	MFN Applied (%)
7110	PLATINUM, UNWROUGHT OR IN SEMI-MANUFACTURED FORMS, OR IN POWDER FORM:	
	- Platinum:	
7110.11.00.000	- - Unwrought or in powder form	Free
7110.19.00.000	- - Other	Free
	- Palladium:	
7110.21.00.000	- - Unwrought or in powder form	Free
7110.29.00.000	- - Other	Free
	- Rhodium:	
7110.31.00.000	- - Unwrought or in powder form	Free
7110.39.00.000	- - Other	Free
	- Iridium, osmium and ruthenium:	
7110.41.00.000	- - Unwrought or in powder form	Free
7110.49.00.000	- - Other	Free
7111	BASE METALS, SILVER OR GOLD, CLAD WITH PLATINUM, NOT FURTHER WORKED THAN SEMI-MANUFACTURED:	
7111.00.10.000	- Silver or gold, clad with platinum	Free
7111.00.90.000	- Other	Free
7112	WASTE AND SCRAP OF PRECIOUS METAL OR OF METAL CLAD WITH PRECIOUS METAL; OTHER WASTE AND SCRAP CONTAINING PRECIOUS METAL OR PRECIOUS METAL COMPOUNDS, OF A KIND USED PRINCIPALLY FOR THE RECOVERY OF PRECIOUS METAL:	
7112.30.00.000	- Ash containing precious metal or precious metal compounds	Free
	- Other:	
7112.91.00.000	- - Of gold, including metal clad with gold but excluding sweepings containing other precious metals	Free
7112.92.00.000	- - Of platinum, including metal clad with platinum but excluding sweepings containing other precious metals	Free
	- - Other:	

Tariff No.	Description of Goods	MFN Applied (%)
7112.99.10.000	- - - Of silver, including metal clad with gold but excluding sweepings containing other precious metals	Free
7112.99.90.000	- - - Other	Free
7113	ARTICLES OF JEWELRY AND PARTS THEREOF, OF PRECIOUS METAL OR OF METAL CLAD WITH PRECIOUS METAL:	
	- Of precious metal whether or not plated or clad with precious metal:	
	- - Of silver, whether or not plated or clad with other precious metal:	
7113.11.10.000	- - - Parts	Free
7113.11.90.000	- - - Other	20
	- - Of other precious metal, whether or not plated or clad with precious metal:	
7113.19.10.000	- - - Parts	Free
	- - - Other:	
7113.19.90.001	- - - - Of gold	20
7113.19.90.002	- - - - Of gold alloys	20
7113.19.90.003	- - - - Of platinum	20
7113.19.90.090	- - - - Of other precious metals	20
	- Of base metal clad with precious metal:	
7113.20.10.000	- - Parts	20
7113.20.90.000	- - Other	20
7114	ARTICLES OF GOLDSMITHS' OR SILVERSMITHS' WARES AND PARTS THEREOF, OF PRECIOUS METAL OR OF METAL OR OF METAL CLAD WITH PRECIOUS METAL:	
	- Of precious metal whether or not plated or clad with precious metal:	
7114.11.00.000	- - Of silver, whether or not plated or clad with other precious metal	20
	- - Of other precious metal, whether or not plated or clad with precious metal:	
7114.19.00.001	- - - Of gold	20

Tariff No.	Description of Goods	MFN Applied (%)
7114.19.00.002	- - - Of gold alloys	20
7114.19.00.090	- - - Of other precious metals	20
7114.20.00.000	- Of base metal clad with precious metal	20
7115	OTHER ARTICLES OF PRECIOUS METAL OR OF METAL CLAD WITH PRECIOUS METAL:	
7115.10.00.000	- Catalysts in the form of wire cloth or grill, of platinum	20
	- Other:	
7115.90.10.000	- - Of gold or silver	20
7115.90.20.000	- - Of metal clad with gold or silver	20
	- - Other:	
7115.90.90.001	- - - Retorts, dishes and other apparatus of platinum for use in laboratory	5
7115.90.90.090	- - - Other	20
7116	ARTICLES OF NATURAL OR CULTURED PEARLS, PRECIOUS OR SEMI-PRECIOUS STONES (NATURAL, SYNTHETIC OR RECONSTRUCTED):	
7116.10.00.000	- Of natural or cultured pearls	20
7116.20.00.000	- Of precious or semi-precious stones (natural, synthetic or reconstructed)	20
7117	IMITATION JEWELRY:	
	- Of base metal, whether or not plated with precious metal:	
	- - Cuff links and studs:	
7117.11.10.000	- - - Parts	20
7117.11.90.000	- - - Other	20
	- - Other:	
7117.19.10.000	- - - Bangles	20
7117.19.20.000	- - - Other imitation jewelry	20
7117.19.90.000	- - - Parts	20
	- Other:	
	- - Bangles:	

Tariff No.	Description of Goods	MFN Applied (%)
7117.90.11.000	- - - Wholly of plastics or glass	20
7117.90.12.000	- - - Wholly of wood, worked tortoise shell, ivory, bone, horn, coral, mother of pearl and other animal carving material, worked vegetable carving material or worked mineral carving material	20
7117.90.13.000	- - - Wholly of porcelain or china	20
7117.90.19.000	- - - Other	20
	- - Other imitation jewelry:	
7117.90.21.000	- - - Wholly of plastics or glass	20
7117.90.22.000	- - - Wholly of wood, worked tortoise shell, ivory, bone, horn, coral, mother of pearl and other animal carving material, worked vegetable carving material or worked mineral carving material	20
7117.90.23.000	- - - Wholly of porcelain or china	20
7117.90.29.000	- - - Other	20
	- - Parts:	20
7117.90.91.000	- - - Wholly of plastics or glass	20
7117.90.92.000	- - - Wholly of wood, worked tortoise shell, ivory, bone, horn, coral, mother of pearl and other animal carving material, worked vegetable carving material or worked mineral carving material	20
7117.90.93.000	- - - Wholly of porcelain or china	20
7117.90.99.000	- - - Other	20
7118	COIN:	
	- Coin (other than gold coin), not being legal tender:	
7118.10.10.000	- - Silver coin	20
7118.10.90.000	- - Other	20
	- Other:	
7118.90.10.000	- - Gold coin, whether or not legal tender	Free
7118.90.20.000	- - Silver coin, being legal tender	Free
7118.90.90.000	- - Other	Free

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