



## Growing Through Manufacturing: Myanmar's Industrial Transformation



Masato Abe

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# Growing Through Manufacturing: Myanmar's Industrial Transformation

Masato Abe<sup>\*</sup>

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**Abstract:** Recent reforms in Myanmar have already shown some positive impacts on the manufacturing sector, which must play a key role in the industrial transformation, including increased investment flows domestically and internationally and the development of fundamental infrastructure for the sector. Government promotion of the development of industrial zones and special economic zones is one of the main development activities for further trade and investment promotion in the manufacturing sector. Also presented are the results of the recently completed country-wide business survey with over 1000 manufacturers in Myanmar, particularly concerning the business climate in the manufacturing sector and the crucial issues for the development of the sector

**JEL classification:** O14, O20, O53

**Keywords:** Foreign direct investment, industrialization, development policy, Myanmar

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## **Introduction**

The transformation from an agrarian to an industrial nation is one of the crucial development goals that many developing countries have aimed for. Such an economic transformation must be attained through the enhancement of access to markets and resources as well as the improvement of the productivity of the manufacturing sector, combined with the development or adoption of new technologies. The Government of Myanmar has been undergoing a process of political and economic reform since 2011 and has also been particularly focused on developing its still-nascent manufacturing sector, following the export- and foreign direct investment (FDI)-led development strategy which a number of Myanmar's neighbours have undertaken in the past decades.

The recent reforms in Myanmar have already shown some positive impacts on the manufacturing sector, which must play a key role in the industrial transformation, including increased investment flows domestically and internationally and the development of fundamental infrastructure for the sector. The Government of Myanmar has also implemented new investment laws and made plans to develop other key legal frameworks such as SME and industry laws and intellectual property laws. Additionally, the Government is promoting the development of industrial zones and special economic zones as one of the main development activities for further trade and investment promotion in the manufacturing sector.

Against this background, this study reviews the present status and challenges of industrialization in Myanmar, focusing on the ongoing development of its manufacturing sector. First, this study presents the key factors driving the growth of manufacturers. Then, the present status of the Myanmar's manufacturers and the industrialization strategies of a country are investigated. This study pays particular attention to reviewing the development of regional industrial zones and special economic zones as well as other infrastructure development. It also presents the results of the recently completed country-wide business survey with over 1000 manufacturers in Myanmar, particularly concerning the business climate in the manufacturing sector and the crucial issues for the development of the sector (cf., Abe and Molnar, 2014). Before concluding, a set of policy options is presented.



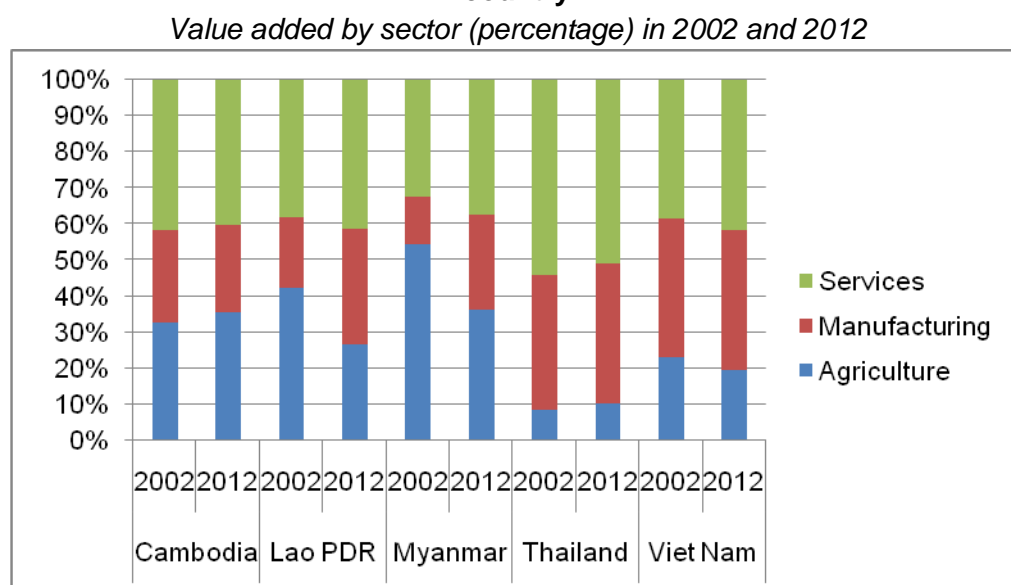
## Manufacturing in Myanmar

This part presents a snapshot of the manufacturing sector in Myanmar, while also covering its recent development. It reviews the contribution of the manufacturing sector to the Burmese economy in comparison with Myanmar's neighbours and examines Myanmar's exports and imports of manufactured goods. The unique characteristics of manufacturing firms and state-owned enterprises (SOEs) are discussed, followed by the recent developments regarding investments into the manufacturing sector.

### *Contribution to GDP*

Although the value added from the manufacturing sector over the last decade has steadily increased, Myanmar still is an agrarian country, even compared with its neighbouring countries, namely Cambodia, Lao People's Democratic Republic, Thailand and Viet Nam. Figure 1 presents the changes to sectoral value addition as a share of GDP of Myanmar and its neighbours from 2002 to 2012. Similar to Lao People's Democratic Republic, Myanmar has increased the outputs of its manufacturing sector significantly in the last decade; however, its share in agriculture remains the highest, and its share in manufacturing the lowest, among the five countries. This suggests that further industrial transformation is expected to happen, with a large movement of labour from the rural agricultural sectors to urban industrialized sectors in the next decade if the Government properly oversees the present economic reforms.

**Figure 1: Myanmar has increased manufacturing activities but still is an agricultural country**



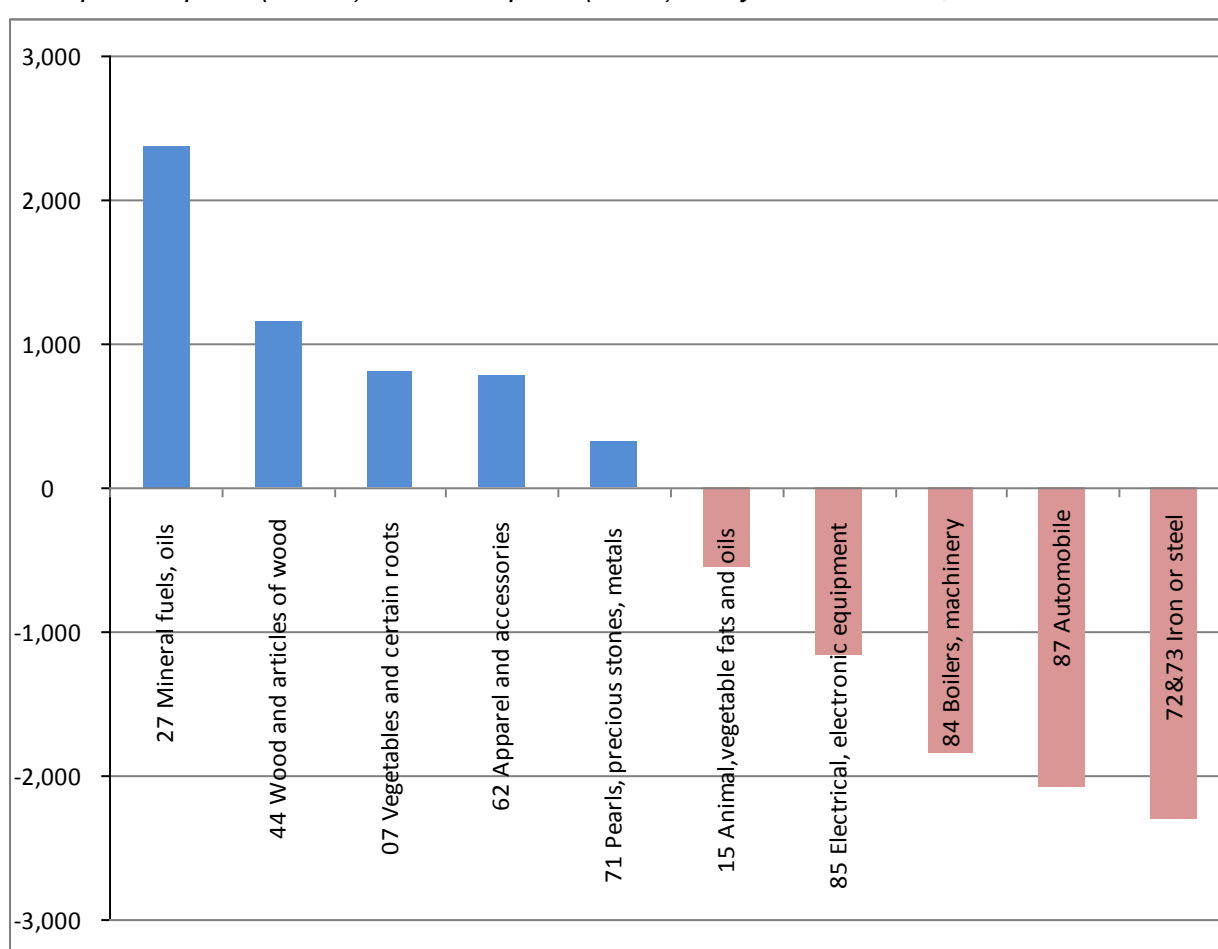
*Source: Compiled by the author based on the data of UNESCAP (2014).*

### Exports and imports of the manufacturing sector

As expected based on its present development stage, Myanmar is a net importer of various manufactured goods and a net exporter of natural resources and agricultural products. Figure 2 presents the top five net exports and imports in 2012. While the net exports are dominated by natural gas, teak and agro-products, Myanmar imported large amounts of industrial goods such as iron and steel, automobiles, machinery and electronic products. The data also reflect the competitive advantage that Myanmar currently has in a labour-intensive industry, garment and apparel, as shown by the industry's positive net export figure.

**Figure 2: Myanmar is a net importer of manufactured goods**

*Top net exports (in blue) and net imports (in red) of Myanmar in 2012, in USD millions*



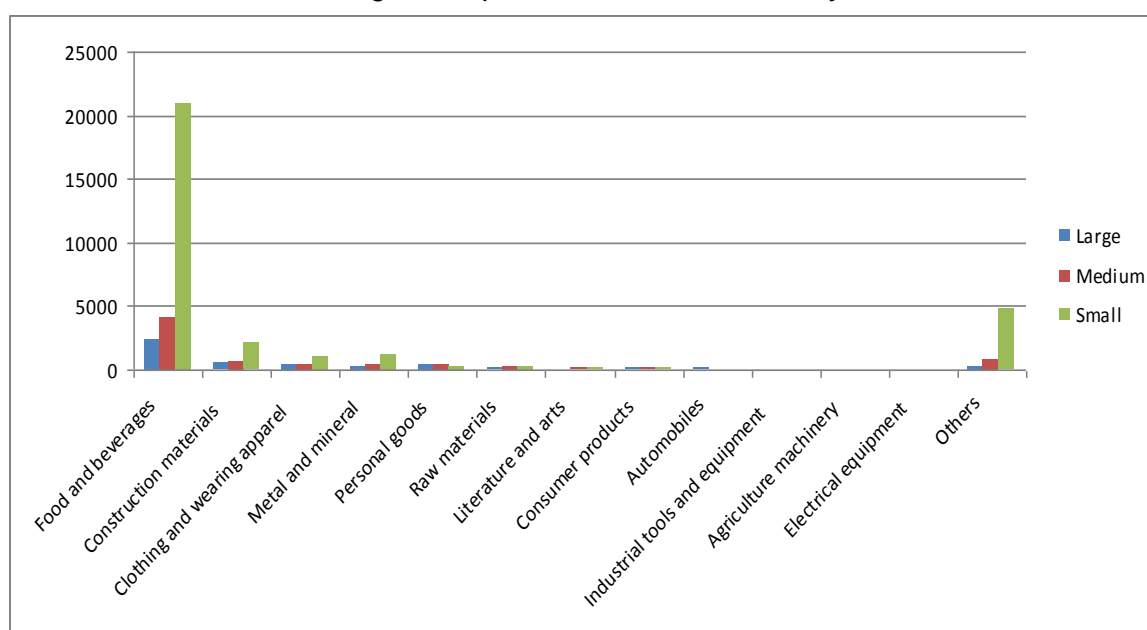
Source: Compiled by the author based on the data of ITC (2014).

Note: The first two-digit number of every item indicates the two-digit HS codes. The figures in the table were estimated as the differences between export and import amounts of the same two-digit HS codes.

## Manufacturing enterprises

In Myanmar, two line ministries chiefly supervise manufacturers of various sizes, sub-sectors and ownership structures as well as legal status. The Ministry of Industry assists private manufacturers of small, medium and large sizes as well as manufacturing SOEs, while the Ministry of Cooperatives fosters micro manufactures, or cottage industries, and manufacturing cooperatives. While there exists no single nor complete list of manufacturers in Myanmar, it can be roughly estimated that nearly sixty thousand registered manufacturers operate in Myanmar, plus a number of small or micro players in the informal sector (cf., OECD, 2013).<sup>2</sup> In 2011, the share in value added by ownership in the manufacturing sector was 73 per cent by private enterprises, 26 per cent by SOEs and one per cent by cooperatives (Interconsulting, undated). Although their numbers have been declining rapidly, SOEs have still played a large role in various sub-sectors (as detailed in the next section). SMEs<sup>3</sup> dominate the private manufacturing sector in Myanmar, in particular the food and beverage sector, followed by the construction materials, garment/apparel and metal/mineral sectors (see Figure 3).

**Figure 3: Smaller food and beverage firms dominate manufacturing in Myanmar**  
*The number of registered private manufacturers in Myanmar, 2010-11*



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urce: Compiled by the author based on the data of CSO (2013).

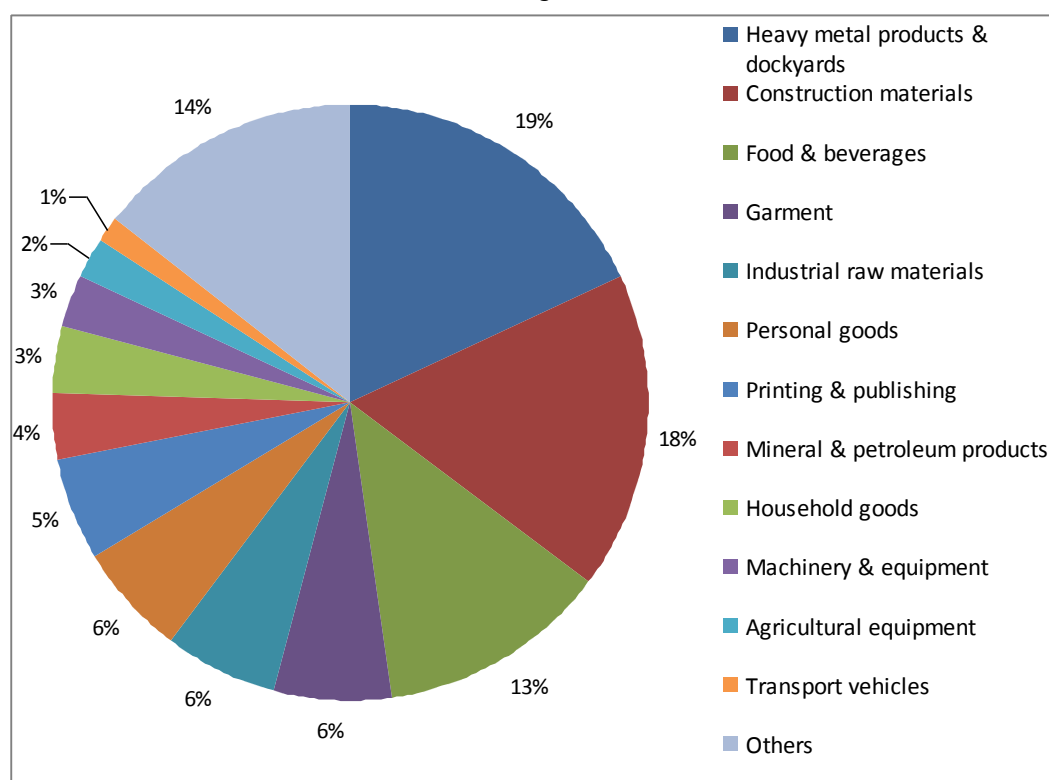
<sup>2</sup> It is also estimated that more than 80 per cent of businesses are operating in the informal sector in Myanmar. Find more details of manufacturing enterprises in OECD (2013, p. 107).

<sup>3</sup> While the Government of Myanmar has been developing a new SME definition under the new SME Law, the Ministries of Industry and Cooperatives have defined micro, small, medium and large manufacturers with less than 10, 10-50, 51-100 and over 100 workers, respectively (OECD, 2013).

## Manufacturing SOEs

According to the Central Statistical Organization (CSO), 639 SOEs that operate in the manufacturing sector existed at the end of fiscal year 2011 (CSO, 2013). Those manufacturing SOEs work in a number of sub-sectors covering almost all key manufacturing classifications.<sup>4</sup> The major sub-sectors include heavy metal products, construction materials, food and beverages, garment, industrial raw materials, personal goods, and printing and publishing (Figure 4).

**Figure 4: Manufacturing SOEs operate in various sectors**  
*SOEs' manufacturing activities, 2010-11*



Source: Compiled by the author based on the data of CSO (2013).

The number of manufacturing SOEs has gradually declined since the middle of the 2000s (see Figure 5) in line with the Government's privatization scheme for unprofitable SOEs and promotion of the private sector that began in 1995.<sup>5</sup> The Government, mainly the Ministry of Industry, has privatized SOEs primarily through auctioning, leasing or establishing joint ventures with local and foreign investors. Direct sales are also conducted occasionally for the privatization of relatively small factories and facilities (Ministry of Industry, undated).

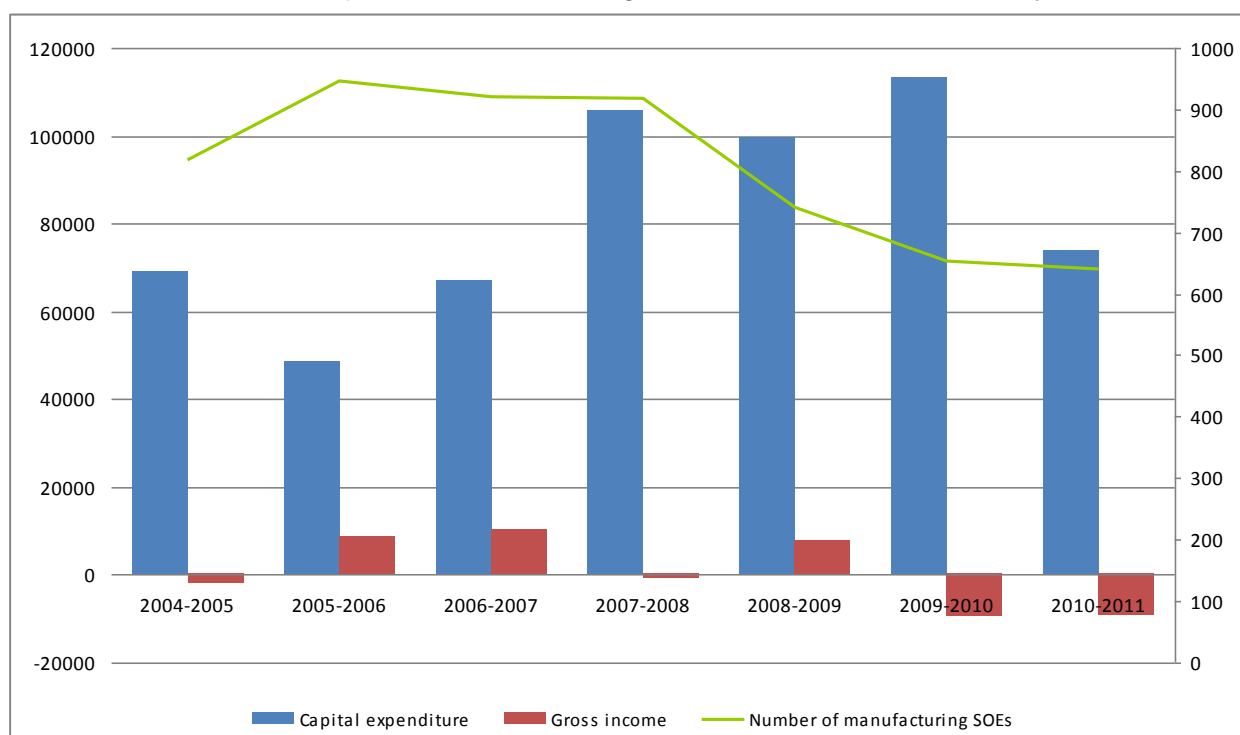
<sup>4</sup> See those detailed classifications of manufacturing activities at <https://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27>.

<sup>5</sup> According to the author's interviews with a few officials of the Ministry of Industry at various points in the year 2013, this trend has been accelerated and the Ministry aims to reduce the number of manufacturing SOEs to less than 50 during 2014, only maintaining some key strategic manufactures as state owned.

Additionally, Figure 5 indicates that manufacturing SOEs have had unstable profit structures while investing in facilities and operations, with large year-by-year fluctuations. This type of instability or fluctuation in terms of profits and investments is unusual for a well-managed business, and strongly suggests the unsustainability of such public-led manufacturing operations for the long-term, unless the Government heavily subsidizes their deficits. This situation also reflects the fundamental issues manufacturing SOEs face, which include low productivity, high cost structures or poor management, and even large political interventions (cf., Kubo, 2013).

**Figure 5: SOEs have recorded unstable performances over years**

*Number, investment and profit of manufacturing SOEs from 2004 to 2011, in Kyat millions.*



*Source: Compiled by the author based on the data of CSO (2013).*

#### *Domestic investment and FDI to the manufacturing sector*

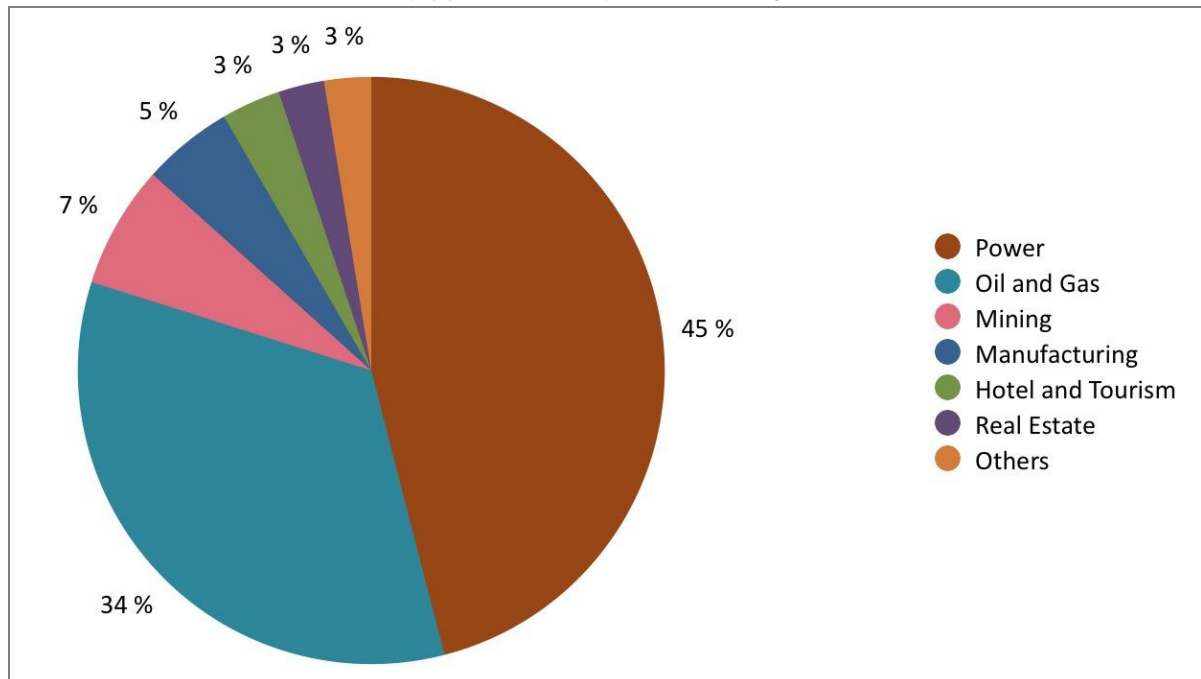
Both domestic and foreign investors have drastically changed their attitudes and behaviour toward business opportunities in Myanmar after the present reform process was imposed. The clear evidence is the recent changes of domestic investment and FDI in the economic activities in Myanmar.

In the pre-reform era, FDI predominantly went to the extractive industry, namely power, oil and gas and mining sectors. During the period, manufacturing was ranked in fourth place for FDI, followed by hotels and tourism and real estate (see Figure 6). For domestic investment, manufacturing ranked in second place, with hotels and tourism in seventh position. Note that the figures are based on approved investment proposals by the Myanmar Investment

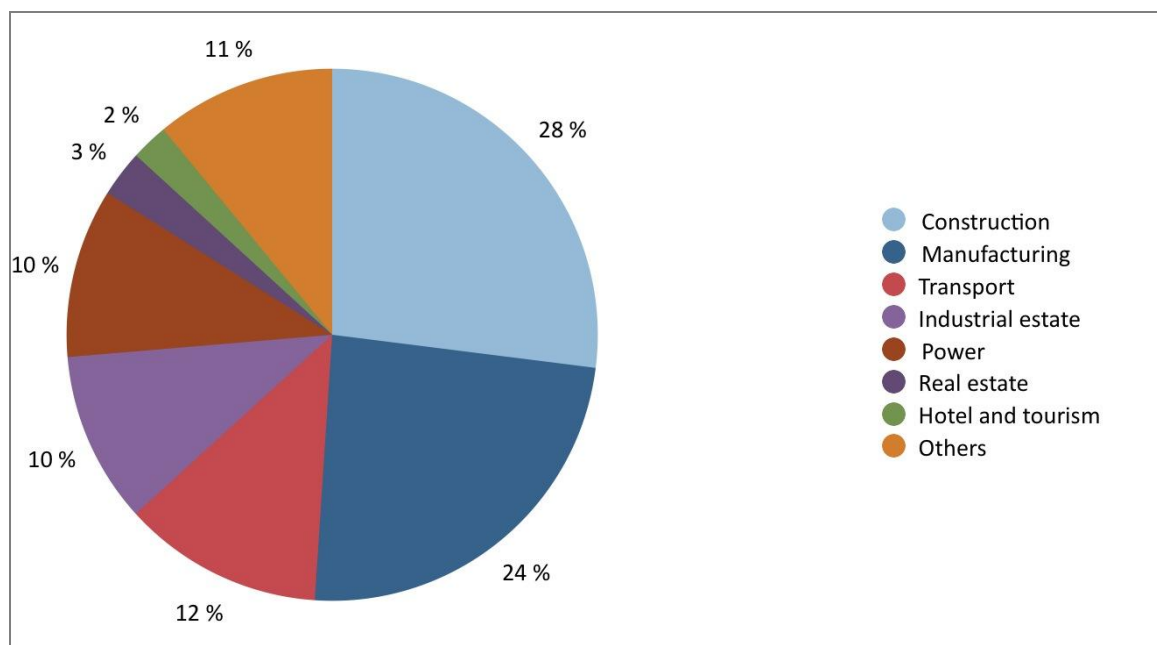
Commission and may not reflect the actual investment flows in Myanmar although it can properly present the trends of business investments in Myanmar.

**Figure 6: Extractive industry dominated FDI before the reform, while manufacturing ranked in second.**

*FDI (approval basis) until January 2013*



Domestic investment (approval basis) until January 2013

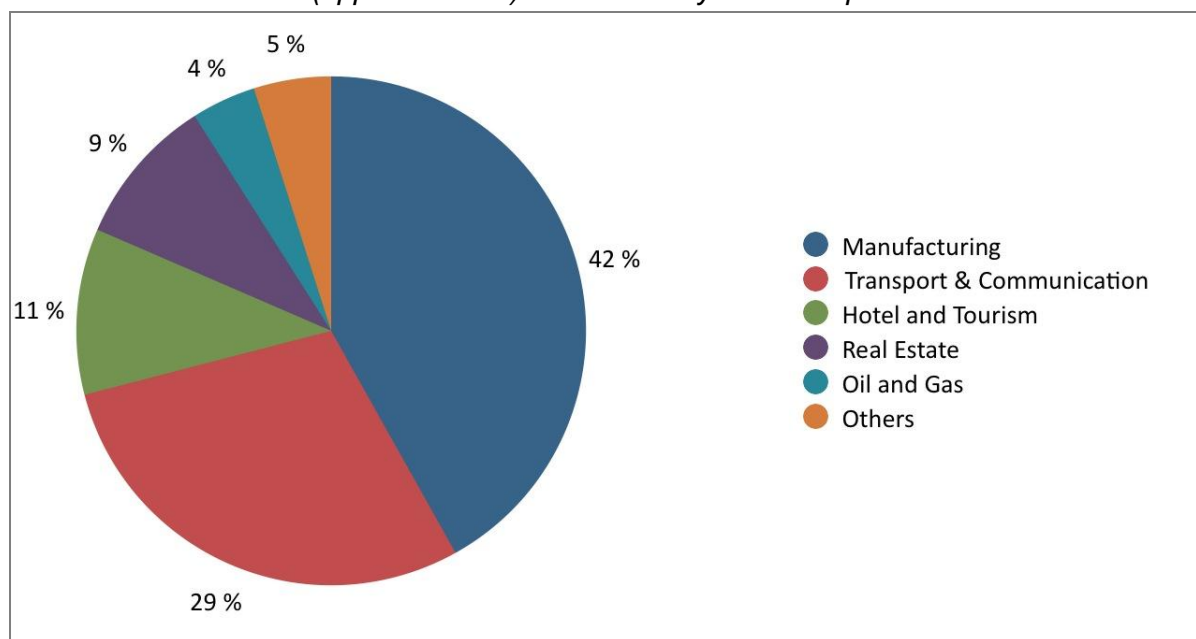


*Source: Compiled by the author based on the data of DICA (2014).*

Figure 7 presents the shares of economic activities that attracted both FDI and domestic investment during the period from February 2013 to April 2014 (i.e., over 15 months). Some

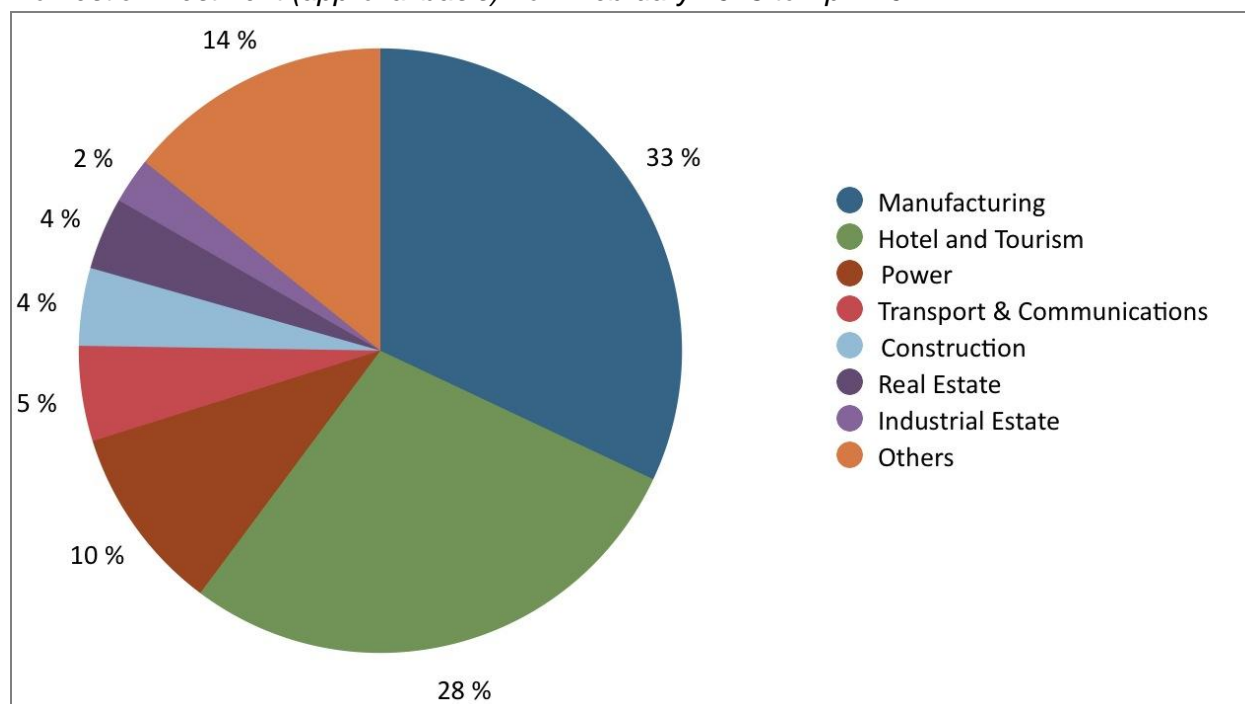
drastic changes compared with the earlier period are observed as both types of investments to Myanmar drastically shifted to the manufacturing sector, which is the top-ranked sector among all economic activities (followed by hotels and tourism and then transport and communications and power). It is apparent that investors expect large business opportunities in the manufacturing sector in Myanmar. Although there are no official statistics on investments in sub-manufacturing sectors, a number of news and magazine articles suggest that some key sub-sectors, such as automobiles, electronics, garment/apparel and processed food, have attracted such investments.<sup>6</sup>

**Figure 7: Both domestic investment and FDI then shifted to the manufacturing sector**  
*FDI (approval basis) from February 2013 to April 2014*



<sup>6</sup> Visit the following websites for more information: [www.mmtimes.com/](http://www.mmtimes.com/); and [www.elevenmyanmar.com/](http://www.elevenmyanmar.com/).

### *Domestic investment (approval basis) from February 2013 to April 2014*



Source: Compiled by the author based on the data of DICA (2014).

### **Institutional and regulatory frameworks for industrial development**

Since Myanmar abandoned its long-standing socialist policy in 1988, the Government has implemented several development strategies to foster the manufacturing sector in Myanmar. While the Government encouraged the private sector's involvement in the development of the sector by opening up markets where SOEs dominated before, the Government also encouraged SOEs to collaborate with domestic and foreign investors through joint ventures and partnerships (Kubo, 2013). This strategy aimed to enhance SOEs' productivity through knowledge and technology transfer from the private sector and to provide room for the private manufacturers to flourish. It also developed and enforced both foreign and domestic investment laws to provide a level playing field for business investors.

To foster the private sector in the manufacturing sector, the Ministry of Industry and the Ministry of Cooperatives directly worked with manufacturers, dividing their responsibilities based on the size and ownership of manufacturing entities. The Ministry of Industry supervises manufacturing SOEs, many of which have been privatized or are currently undergoing the privatization process. It also works with sub-national governments at the state and regional levels to develop industrial zones in areas where a number of manufacturing SMEs have been relocated since the early 1990s (Abe and Dutta, 2014). In



2012, the Ministry also established the SME Development Centre in Yangon, which provides business development services as well as training for supply-side capacity building. The Ministry of Cooperatives oversees micro-sized manufacturers and manufacturing cooperatives through two competing departments, providing business development services and capacity building training. It also works for micro-financing schemes in collaboration with the Ministry of Finance and Revenue and international development agencies such as UNDP. Both Ministries have developed regulatory and policy frameworks for the development of manufacturers in Myanmar.

Other economic ministries are also involved in the development of the manufacturing sector. The Ministry of National Planning and Economic Development (MNPED) works for business registries through single service offices and investment promotion, including its secretariat services to the Myanmar Investment Commission. The Ministry is also responsible for the development of select special economic zones (SEZs) in order to promote FDI inflows and exports. While its main responsibility is trade promotion and facilitation for manufactured goods, the Ministry of Commerce supervises various business associations, including their apex body, the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI), which provides business development services and capacity building training to member SME manufacturers.

Table 1 summarizes the major legal and regulatory frameworks in the post-socialist era relevant to the development of the manufacturing sector. Those related laws and regulations are broadly divided into two phases: the first phase from 1988 to 1996; and the second phase from 2011 to the present.

**Table 1: The reform process began its second phase in 2011, in the post-socialist era**

Phases	Laws and regulations	Year enacted	Responsible authorities
First phase (1988 to 1996)	Foreign Investment Law	1988	DICA, MNPED
	State-owned Economic Enterprises Law	1989	DICA, MNPED
	Private Industrial Enterprise Law	1990	Ministry of Industry
	Promotion of Cottage Industries Law	1991	Ministry of Cooperatives
	Cooperative Society Law	1992	Ministry of Cooperatives
	Myanmar Citizens Investment Law	1994	DICA, MNPED
Second phase (2011 to the present)	Law Amending the Promotion of Cottage Industries Law	2011	Ministry of Cooperatives
	SEZ Law and Dawei SEZ Law	2011	MNPED
	New Foreign Investment Law	2012	DICA, MNPED
	Revised SEZ Law	2013	MNPED
	New Myanmar Citizens Investment law	2013	DICA, MNPED
	SME Law	Expected in 2014	Ministry of Industry

*Source: Compiled by the author from various sources.*

The first phase, from 1988 to 1996, focused on the development of local manufacturing SMEs which were at the nascent stage after the three decades under the socialist regime, and encouraged domestic investment in the sector while opening up the economy and privatizing a number of SOEs. During this phase, the Government also tried to achieve balanced industrial development among the major provinces of Myanmar by developing a number of industrial zones at the regional level, except in those areas plagued by security uncertainties.

While the first phase of reform achieved at least limited economic growth initially, from 1997 to 2010, the reform process stagnated due to various reasons such as the still-dominant roles of SOEs in business, negative sentiment towards foreign investments, the international economic sanctions imposed by the Western nations and frequent civil wars with ethnic minorities. During this period, however, the Government maintained its national accounts mainly with positive cash flows from its rich natural resources such as minerals, natural gas and hydroelectricity and lucrative border trade (CSO, 2013).

The second and current phase of reform, ongoing since 2011, has promoted export- and FDI-led development strategies while trying to create a positive business environment for investors, mainly through the development of special economic zones and the enforcement of new business laws. The present phase also emphasizes the development of necessary infrastructure and utilities, such as road upgrading, power plant building and opening deep sea ports, particularly for fostering cross-border production networks. It is apparent that Myanmar aims to follow the success of its neighbouring countries through export and FDI-driven development, and such a direction has already borne some fruit, as reviewed in the previous sections. The present reform also aims to bring more regionally-balanced development to the nation.

In addition, the Ministry of Industry has submitted a new SME Law to the Parliament, which is expected to be endorsed within 2014. Both the Private Industrial Enterprises Law and the Myanmar Company Act<sup>7</sup> also are expected to be revised within a couple of years, while other business-related laws, such as legislation on intellectual property and on arbitration, has also been drafted in cooperation with international donor agencies, for the laws' prompt implementation (Myanmar Legal Services, 2014).

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<sup>7</sup> This oldest business law in Myanmar was enacted in 1914 based on the Indian Company Act, while Myanmar (then Burma) was occupied by the United Kingdom.

## Regional industrial zones and special economic zones

The Government of Myanmar has built industrial zones and special economic zones as two of the primary strategies for the manufacturing sector's development. The two related but different concepts, both of which enhance production agglomeration and foster industrial clusters,<sup>8</sup> will be reviewed in turn.

Industrial zones that incorporate various relocated manufacturers enhance production agglomeration and develop industrial clusters, allowing participating firms to achieve internal and external cost reduction. They can foster synergies which offer important advantages to manufacturers since they can assist each other to achieve dynamic competitiveness collectively, rather than as individual firms do, through, for example, joint actions for procurement, marketing and training. Specific benefits include knowledge spill-over, labour market pooling, input sharing and lower product shipping costs (Rosenthal and Strange, 2001). In summary, industrial zones could provide benefits from: (a) collective efficiency gains due to the availability of a specialized labour force and specialized machinery and input suppliers; (b) the collective pull of traders and buyers; and (c) a positive industrial atmosphere where information and knowledge are easily shared (Bellandi, 2002).

While sharing a number of the characteristics of industrial zones, SEZs, also known as free trade zones (FTZs) or export processing zones (EPZs), aim to attract FDI to the nations by promoting multinationals' exporting operations as well as enhancing their access to the domestic market. As a result, they allow host governments to develop and diversify exports while maintaining protective barriers, creating employment and incorporating new policies (ESCAP, 2012). In a number of developing countries in the world (e.g., China and India), SEZs have succeeded in promoting FDI inflows and enhancing the export business. The principles incorporated in the basic concept of SEZs include: (a) a geographically delimited area (usually physically secured); (b) a single administration; (c) eligibility for benefits based upon physical location within the zone and a separate customs area (duty-free benefits); (d) streamlined procedures often under separate special laws and regulations; and (e) incentives from investment promotion agencies (FIAS, 2008; UNESCAP, 2012).

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<sup>8</sup> The agglomeration strategy refers to the geographical concentration of production facilities and activities (Healey and Ilbery, 1990). Firms in the same industry tend to locate themselves close to one another, leading to geographical concentration of the industry. The producers of substitutable products locate in close proximity to each other so as to reduce transaction costs. As a result of production agglomeration of firms in the supply chains, there emerge industrial clusters in specific geographic areas. Industrial clusters are often established and developed in coastal areas, river basins or logistical hubs in order to be close to transportation and logistics facilities, thus further reducing the costs of distribution links.

Before 1988, manufacturers in Myanmar, mostly SMEs, were spread all over the country; but since 1990, the State Law and Order Restoration Council (SLORC) has relocated SMEs to newly established industrial zones around towns and cities in order to facilitate effective industry agglomeration (Thein, 2012). At present, 18 industrial zones exist, with another 10 in the pipeline (Figure 8). Major SMEs and large manufacturers are located in the industrial zones, while micro-sized manufacturers or “cottage industries” are located outside of industrial zones. In order to spur industrial development and attract foreign investment, three special economic zones (SEZs) are being developed: (a) Dawei SEZ, located in Tanintharyi Region; (b) Kyauk Phyu SEZ, located in Rakhine State; and (c) Thilawa SEZ, located 20km south of Yangon. Two more SEZs are being planned to be built in Patheingyi, Ayeyarwady Region, and Myawaddy, Kayah State (see Figure 8 again).

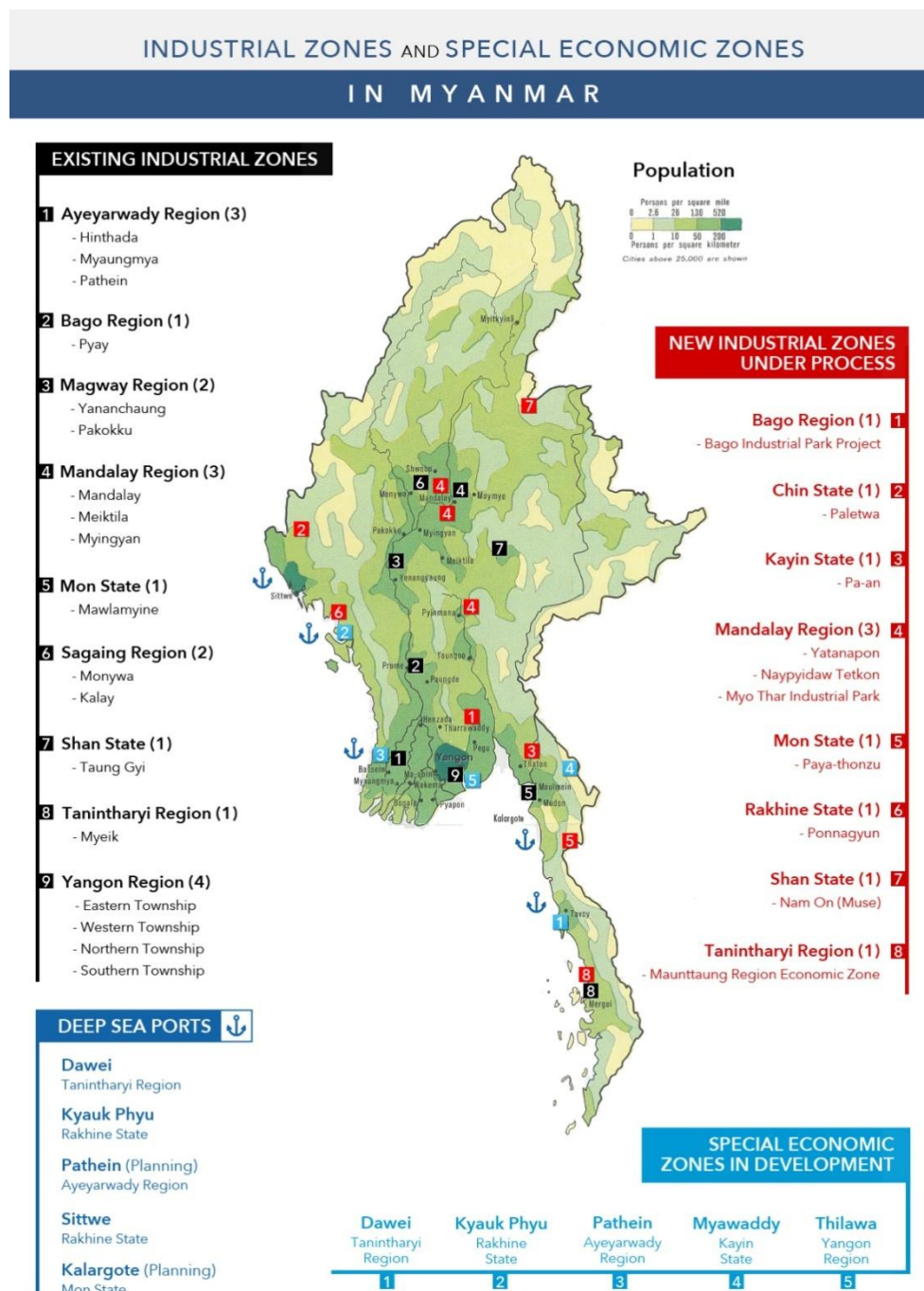
### *Regional industrial zones*

The main objectives of industrial zones in Myanmar are to foster private manufacturers and to attain equitable development among states and regions encouraging domestic investments. Since 1990, 18 regional industrial zones (and 34 district level industrial zones) have been developed under the supervision of the state/provincial governments (JETRO, 2013). Daily supervision is undertaken by the Industrial Zone Supervision Committees, which is composed of investors, and by the Industrial Zone Management Committees, which comprises related public agencies such as the Ministry of Industry and local governments. The Department of Human Settlements and Housing Development (DHSHD) of the Ministry of Construction developed the majority of the industrial zones in Yangon. In other regions, state/regional/district authorities developed and supervise the industrial zones. In 1996, the first foreign joint venture developed an industrial zone of international standards (Mingaladon) in Yangon for foreign investments. Since 2000, domestic private investors have been developing industrial zones,<sup>9</sup> and all presently planned new industrial zones will be developed by the private sector. Firms in industrial zones can operate with a land leasing agreement with a management agency, and in some cases, firms can purchase land in industrial zones (JETRO, 2013).

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<sup>9</sup> Established in 2001, Shwe Than Lwin industrial zone in Yangon North was developed and supervised by the Shwe Than Lwin Company, which is a diversified trading company for vehicles, automotive parts, construction materials, heavy machinery and agro-products. Similarly, in 2002, Anawrahta industrial zone was opened in Yangon North by War War Win Co., Ltd., which is an industrial services provider. Thilawa in Yangon South was initially developed by the Union of Myanmar Economic Holdings Limited (UMEHL) as a state-private joint venture. UMEHL is one of two major conglomerates run by the Burmese military (through the Ministry of Defense), the other being the Myanmar Economic Corporation (MEC). See more details at [http://www2.irrawaddy.org/article.php?art\\_id=14151&page=7](http://www2.irrawaddy.org/article.php?art_id=14151&page=7).

**Figure 8: The Government has developed regional industrial zones and special economic zones as the main development strategy for the manufacturing sector**



Sources: Compiled by the author based on DICA (2013), Myanmar Investment Guide, Naypyidaw: Directorate of Investment and Company Administration, Ministry of National Planning and Economic Development of Myanmar; MMRD (2013), Mandalay Construction Directory 2013-2014, pp.22-23, Yangon: Myanmar Marketing Research and Development.

Since its initial stage in the early 1990s, the development of the industrial zones has aimed to serve local markets at the regional or district levels, and no serious consideration has been made for FDI attraction and the export business. It is apparent from the selection of locations of the industrial zones that the majority of the existing ones were developed around

major cities that had no severe security issues at the time of development. This often resulted in the relocation of existing SME manufacturers simply from urban areas to industrial zones. The majority of industrial zones have no international level facilities, such as wastewater treatment plants, and no worker safety standards, making them vulnerable to pollution and labour issues. There is no working relationship with the Myanmar Investment Commission either; thus, neither one-stop services nor clear investment procedures are available to investors (JETRO, 2013). In addition, decentralization of management and supervision with no quality standards and guidelines resulted in different levels of services, infrastructure and facilities among the industrial zones. Recently, the biggest problem at the industrial zones has been the significant hike of land prices and office rent caused by speculation as a result of the negative impact of the ongoing economic reforms.<sup>10</sup> Table 2 provides an overview of the 18 existing industrial zones. Figure 9 also shows the distribution of sub-manufacturing sectors in terms of the number of firms within the industrial zones. The figure indicates the diversified sectoral structures among individual industrial zones, although the food and beverages sub-sector is the majority.<sup>11</sup>

**Table 2: Industrial zones serve SME manufacturers.**

No.	State/Region	Industrial zone	Year opening	No. of companies operated	Total area (hectare)	Workers per firm (2009-10)
1	Yangon	North (12 zones)	1990	1093	3634.7	38.6
2		South (2 zones)	1996	3	350.2	
3		East (10 zones)	1992	3204	1295.1	
4		West	Unknown	659	Unknown	
5	Mandalay	Mandalay	1990	1379	501.5	9.7
6		Myingyan	1995	265	66.2	
7		Meiktila	1997	290	156.0	
8	Sagaing	Monywa	1999	632	147.8	6.9
9		Kalay	2004	76	67.7	
10	Magway	Yananchaung	1998	90	69.5	5.0
11		Pakokku	1998	274	153.3	
12	Bago	Pyay	1992	143	48.9	6.5
13	Ayeyarwady	Pathein	1993	51	43.0	6.9
14		Myaungmya	1995	9	23.5	
15		Hinthada	1995	9	34.9	
16	Shan	Taung Gyi (Ayethaya)	1995	932	365.0	4.3
17	Mon	Mawlamyine	1995	83	69.2	5.2
18	Tanintharyi	Myeik	1999	8	128.9	131.6
	Total			9200	7155.4	21.5

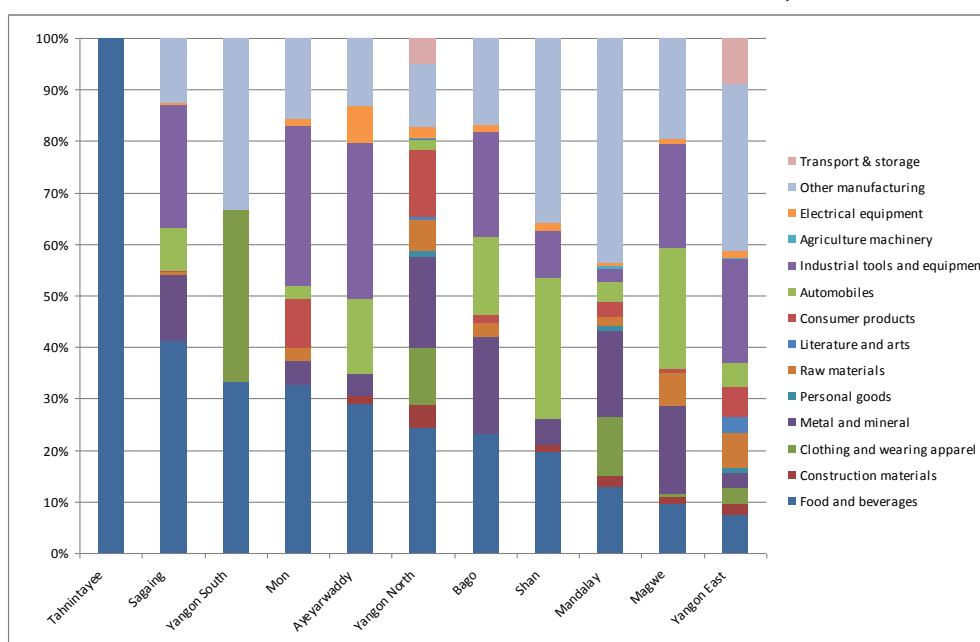
Source: Compiled by the author based on the data of JETRO (2013) and CSO (2014).

<sup>10</sup> Please see the following section on business climate and challenges for the manufacturing sector for empirical evidence.

<sup>11</sup> For example, Myeik Industrial Zone hosts fishery industries only for processed food (JETRO, 2013).

**Figure 9: Industrial zones host a variety of industries but food and beverages is the majority**

*Distribution of industrial sectors in industrial zones, 2013*



Source: Compiled by the author based on the data of JETRO (2013).

### *Mingaladon Industrial Zone*

Among 18 regional industrial zones, Mingaladon, which comprises of the Mingaladon Pyinmabin and Yangon Industrial Zone in the North Township of Yangon, is the one and only industrial zone which has been developed for FDI attraction with international industrial standards of infrastructure and utility facilities for manufacturing. It was initially developed by a state-foreign joint venture between DHSHD and the Mitsui & Co. Ltd. of Japan in 1996 and is presently managed by DHSHD and Kepventure Pte. Ltd. of Singapore (plus investment by Zaykabar Co., Ltd., a Burmese conglomerate in the construction and telecommunications sectors) (JETRO, 2013).

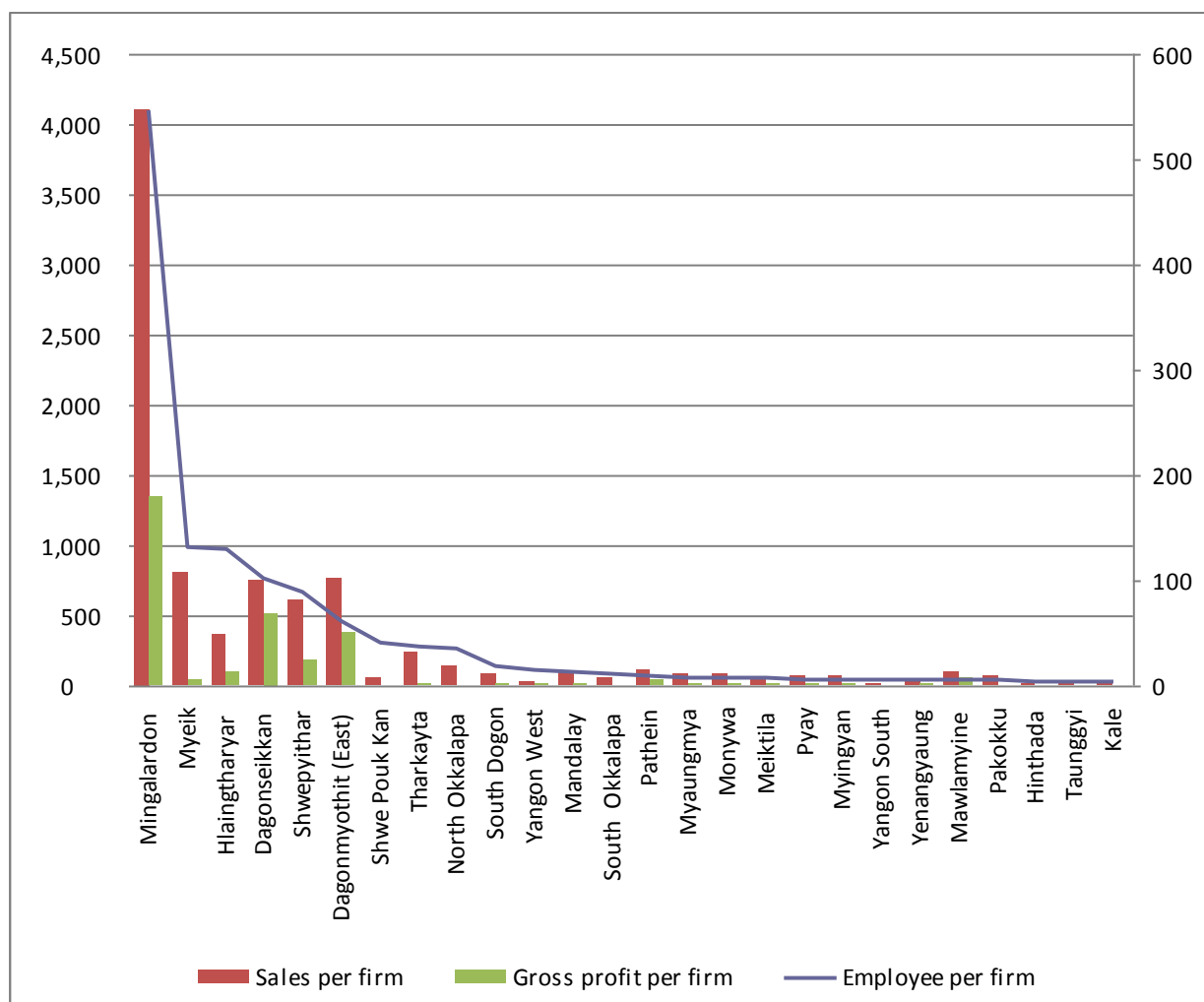
Mingaladon hosts large manufacturers with more than 500 workers per firm, which is a clear separation from other industrial zones in Yangon and other regions whose clients are predominately SME manufacturers. Its sales and profit are also at the top among those of all the industrial zones (see Figure 10). Presently, the Mingaladon Industrial Zone is fully occupied and there is no room to host new manufacturers.<sup>12</sup> Garment and apparel, construction materials, and food and beverage comprise 60 per cent of the entire firms in Mingaladon. Other minor sub-sectors include industrial raw materials, consumer goods, automobiles and agricultural machinery. It is interesting to note that despite its apparent

<sup>12</sup> The author's interview with the chief representative of JETRO Yangon Office in 2013.

success, there had been no other plans for such a high-standard industrial zone since the opening of Mingaladon in 1996 until the recent development plans of several special economic zones in Myanmar, such as Dawei, Kyauk Phyu and Thilawa.<sup>13</sup>

**Figure 10: Mingaladon has been the most successful industrial zone in Myanmar so far**

*Workers, sales and profits per firm among regional industrial zones, 2009-10*



Source: Compiled by the author based on the data from CSO (2014).

<sup>13</sup> In contrast to the success of Mingaladon, some planned industrial zones, such as North Dagon industrial zone in Yangon East and Than Lyin / Kyauk Tan industrial zones in Yangon South, have failed to be established as manufacturing hubs. Instead, they became housing projects, hosting the housing communities as well as various services sectors under the supervision of the Yangon City Development Committee (YCDC) which is the administrative body of Yangon (JETRO, 2013).



### *New industrial zones*

Ten new industrial zones have been under development or planned in Bago, Chin, Kayin, Mandalay, Mon, Rakhine, Shan and Tanintharyi. Their objective is basically identical to that of the existing industrial zones, as the Government aims to achieve balanced geographical development of Myanmar including the development of some remote areas based on regional agreements or ceasefire agreements between the Central Government and rural military groups (cf., Kudo, 2007). Private developers have been invited to develop those new industrial zones.<sup>14</sup> However, there is no plan to build these industrial zones up to international standards like in Mingaladon.

### *Special economic zones*

The Government has so far planned to develop five SEZs, adopting an export- and FDI-led development strategy, in Dawei, Kyauk Phyu, Myawaddy, Patheingyi and Thilawa. Due to the Government's objective to foster manufacturing and export/import operations, those SEZs have been planned to be built at logistical and industrial hubs to facilitate access to markets as well as resources. Dawei SEZ, Kyauk Phyu SEZ and Patheingyi SEZ have been planned to be equipped with international deep sea ports. Myawaddy SEZ has an inland location on the Myanmar-Thailand border along the East-West Economic Corridor (see the case in the box below) which facilitates cross-border trade and production, particularly for labour-intensive industries such as garment and apparel. Thilawa does not have a deep sea port but is located just south of Yangon, the commercial and industrial centre of Myanmar.

#### **The East-West Economic Corridor**

The East-West Economic Corridor crosses the central regions of four countries, Viet Nam, Lao PDR, Thailand and Myanmar, linking the South China Sea and Andaman Sea by roads of international standards and three border crossing points. It starts from the Da Nang deep sea port, Viet Nam, and runs through Savannakhet, Lao People's Democratic Republic, and Mukdahan, Pitsanulok and Mae Sot in Thailand, to Myawaddy and Mawlamyine, Myanmar before finally reaching Yangon (see Figure 11 below). The development of the Corridor has

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<sup>14</sup> The majority of new industrial zones will be developed by the private sector except few. For example, Hpa-An industrial zone was developed by Sijwe Than Iwin Co., Ltd in 2012. In addition, the Ministry of Communication, Post and Telegraph plans to upgrade the Yatanapon Cyber City in Mandalay, which was initially developed in 2007 for ICT companies, into a regional industrial zone with services provided by the Yatanapon Teleport Co., Ltd.

been led by the Asian Development Bank and financially supported by Japan, Thailand and the World Bank since the middle of the 1990s (ADB, 2010). The development of the East-West Economic Corridor within the Myanmar territory was delayed due to international sanctions, but recently resumed under the present political and economic reforms of Myanmar. Specific actions include the long-awaited construction of a new road link between Myawaddy and Kawkareik, which will replace mountainous one-lane roads along the route 85 and has been supported by Thailand (MEMI, 2007). The Corridor is expected to enhance the movement of goods and services among the four countries, fostering, in particular, the cross-border production networks of the automobile, electronics and garment sectors.

**Figure 11: The East-West Economic Corridor**



The development of those SEZs has been led by the private sector, mainly by foreign investors. Thai investors have been active at Dawei, Myawaddy and Patheingyi SEZs while Japan and China have committed to the development of SEZs in Thilawa and Kyauk Phyu, respectively. A number of Hongkongese garment manufacturers have announced plans to

relocate some of their factories from China to the Thilawa SEZ. Finally, Indian, Indonesian and Singaporean investors are also interested in the Patheingyi SEZ.<sup>15</sup>

### *Lack of a deep sea port for the commercial and industrial centre of Myanmar<sup>16</sup>*

One of the bottlenecks of manufacturing development in Myanmar is the lack of a deep sea port to serve as a key logistical gateway of Yangon, the commercial and industrial centre of Myanmar.<sup>17</sup> A deep sea port is particularly crucial for the manufacturing sector because such a port is needed to facilitate the movement of goods for both sales and supply, serving for export and import operations. Deep sea ports, due to the depth of water, have the capability to accommodate large and heavily loaded ships. It is commonly observed throughout the world that the manufacturing sector develops best when having good access to a large deep sea port. Unfortunately, Yangon has no deep sea port, although it is equipped with two river ports: Yangon port and Thilawa port.

Two existing deep sea ports, Sittoung and Kyauk Phyu,<sup>18</sup> are along the northwest coastal line of Myanmar; however, their locations are far from the central region of Myanmar (and the East-West Economic Corridor) (see Figure 8 again). Further investment still is necessary for the upgrading of their facilities and capacities as well. Their expected roles in manufacturing would be likely to be limited as regional logistics hubs for specific development purposes (e.g., gateways to and investment destinations for South Asia and China). There is another well-published development plan of a special economic zone in Dawei, including the development of a deep sea port. This project has been strongly supported by Thailand, which aims to develop large scale utility infrastructure and diversified industrial clusters, including heavy industries. However, the Dawei port is located on the southern coastline, approximately 700 km from Yangon and 300 km from Mawlamyine, the western hub of the East-West Economic Corridor. Although the Dawei port has a geographic advantage with regard to market access to Thailand, Myanmar's main trade partner, it is far from the traditional industrial clusters of Myanmar.

In addition to those three advanced development plans for deep sea ports, there are two more emerging projects to develop deep sea ports rather close to Yangon: Patheingyi and Kalargote Island (see Figure 8 for their locations). Patheingyi's plan has been recently proposed by Indian, Singaporean and Thai investors, and includes a new deep sea port, a

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<sup>15</sup> Based on various sources and interviews.

<sup>16</sup> This section was developed mainly based on a number of the author's interviews with government officials and industry experts in both the manufacturing and transport sectors in 2013-14.

<sup>17</sup> This indicates that there is no deep sea port along the East-West Economic Corridor, either.

<sup>18</sup> Kyauk Phyu also has a plan to develop a China-led special economic zone along with the recently opened international natural gas and oil pipelines between China and Myanmar.

couple of special economic zones around Patheingyi, and expressway and railway links between Yangon and Patheingyi. Patheingyi is located 150 km west of Yangon and its deep sea port is planned to be developed at either Ngazun Bay or Ngazun-Chatung Thar at the western coastline of Ayeyarwady region, another 50 km west from Patheingyi (Consult Myanmar, 2013). This project, once completed, could extend the East-West Corridor to Patheingyi. On the other hand, Kalangut Island, located between Mawlamyine and Yangon in Tanintharyi coast, has been considered as a potential deep sea port location by various agencies for the past three decades, on and off (cf., MEMI, 2007). The most recent proposal was made by a Thai investor in 2013 to develop the island as a deep sea port, which aims to serve for the future industrial clusters along the East-West Economic Corridor and nearby states (Irrawaddy, 2013). The plan proposes the island not only to become a gateway for import and export operations at the existing and planned industrial zones in Kayah State and Mon State, but also to serve for Thai-Myanmar border-trade and -production through the Three Pagoda border-pass and Myawaddy SEZ. The Kalangut Island project has clear advantages to others, including proximity to Yangon (the commercial and industrial center of Myanmar), the East-West Economic Corridor, the industrial zones in Kayah and Mon States and Thailand (the biggest trading partner of Myanmar).<sup>19</sup>

### **Business climate and challenges for the manufacturing sector**

While the Myanmar's manufacturing sector has the potential to achieve quick development, the success of this process is highly dependent on the adoption of a coherent and appropriate combination of policy measures in the sector. However, a lack of information on the conditions and environment in which manufacturers operate represents a major obstacle in identifying effective policy recommendations (cf., World Bank, 2014).

The Survey on Businesses in Myanmar 2014 was therefore conducted to fill this gap and assess the status of the business community, including both domestic and foreign manufacturers. The OECD and UNESCAP carried out the business survey jointly with the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) (Abe and Molnar, 2014). This comprehensive nation-wide business survey comprises 1,018 manufacturing firms from all states and regions, of various firm sizes and engaged in a range

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<sup>19</sup> The Myanmar Port Authority is supposed to take lead to proceed with the two projects in cooperation with Ayeyarwady regional government, Mon State government and Ministry of National Planning and Economic Development.

of manufacturing activities (annex 1). Over 40 per cent of manufacturing firms belong to the food products and beverages sector,<sup>20</sup> and they cover almost all manufacturing activities which are categorized by the United Nations' International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4.<sup>21</sup>

Sampled manufacturers have a range of 1 to nearly 3,000 employees with an average of 70 employees. Over 40 per cent of the sample firms belong to the micro enterprises category with less than 10 employees. More than one-third of firms are small enterprises with 10 to 49 employees, and approximately 14 per cent are medium sized with 50-249 employees. Nearly seven per cent of firms surveyed have 250 or more employees as large enterprises (see annex 1 again for details).<sup>22</sup> While fewer in number, the larger enterprises make a more significant contribution to employment; 68 per cent of total employment among respondents is in firms with 250 or more employees. Among the sampled manufacturers, nearly 11 per cent of them (and typically smaller by size) operate informally,<sup>23</sup> and 5 per cent are foreign firms. Half of surveyed firms have been established for over 14 years, and less than one-fifth are younger than five years. One-fifth and two-fifths of them conduct exporting and importing business, respectively. Finally, the gender balance of respondents is 27 per cent for female and 73 per cent for male.

*Corruption, lack of technology and access to land and office space are major obstacles to manufacturers*

Among the 34 choices of major obstacles to the current operations of the manufacturer (ranging from infrastructure issues to human and institutional capital), corruption was identified most frequently as a very severe obstacle (see Figure 12). Although corruption can be present in various aspects of economic transactions and interactions with the public authorities, a particular question inquired about the under-the-table payments required to register a firm or to get a business license or a permit. While 38.5 per cent of manufacturers found it not necessary to pay above the officially required fees, over half of the respondents calculated the amount of extra payments for registration, license or permit to be MMK 500,000 or less (equivalent to slightly above USD 500). There were a few respondents that perceived the required extra payments to exceed MMK 5,000,000 (over USD 5,000).

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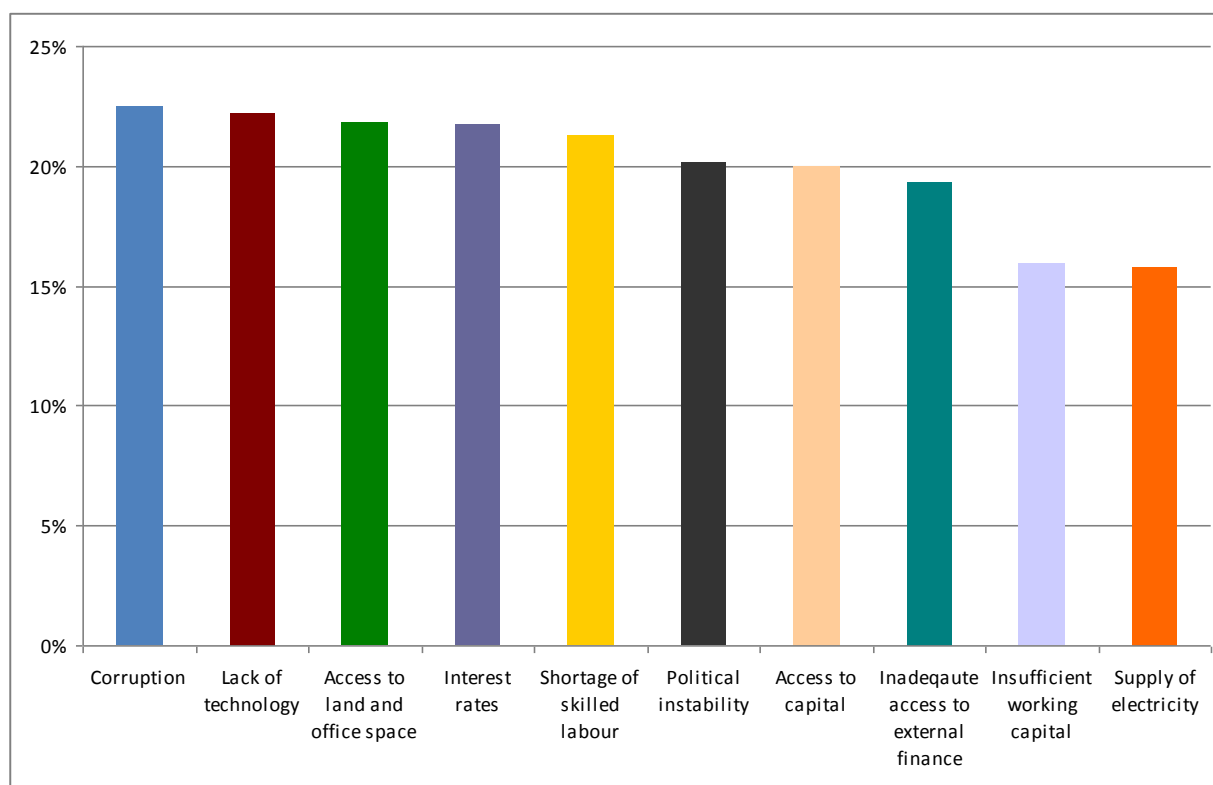
<sup>20</sup> This is in line with the results of other earlier business surveys in Myanmar (e.g. the Industrial Zone Surveys 2005–2010 of the Central Statistical Organization (CSO)).

<sup>21</sup> See more details at <https://unstats.un.org/unsd/cr/registry/isic-4.asp>.

<sup>22</sup> The definition of small and medium-sized enterprises (SMEs) varies country by country. The definition used for the present survey is based on UNESCAP (2012), *Policy Guidebook for SME Development in Asia and the Pacific*, Bangkok: United Nations.

<sup>23</sup> Interestingly, even three medium-sized enterprises and one large enterprise in the survey have never registered with any public authorities.

**Figure 12: Corruption, technology and access to land and office space are major obstacles to manufacturers.**



Source: OECD-UNESCAP-UMFCCI Business Survey 2014.

Other serious bottlenecks to firms' current operations are the lack of technology (this issue will be reviewed in depth in the next section) and access to land and office space. The price hike of land and offices (and housing in general) has emerged as a severe issue for both local and foreign businesses recently, as a side effect of the present reform process of Myanmar (cf., JETRO, 2013). High interest rates and a lack of skilled labour also appear to constitute important barriers to operations, as does political instability. The next group of issues in the ranking relate to financing, which indicates difficulty in access to financing and inadequate working capital. Electricity supply, which is often cited as a bottleneck to any business activity in developing countries, not just manufacturing, surprisingly ranks below corruption, technology, skills and financing issues.

Some aspects of institutional capital, including the protection of intellectual property rights, taxation, business and labour regulations, and administrative procedures all appear at the very bottom of the ranking of the major obstacles to business operations (see the detailed ranking in annex 2).

Further explanatory factor analysis and theoretical background (ESCAP, 2012) indicate that those obstacles for manufacturing can be broadly categorized into six groups, namely:

- 1) Corruption
- 2) Access to financing
- 3) Access to markets, labour, supplies and technologies
- 4) Regulations and taxation
- 5) Infrastructure and utilities
- 6) Conditions for international business

Those six groups of obstructions to manufacturing are ordered by their statistical significance. Corruption is the most crucial issue among manufacturing firms while international business is relatively less critical among the groups for the manufactures in Myanmar presently. These results provide useful insights for the policymakers in terms of which they could prioritize for their necessary interventions to enhance business climate for the manufacturers effectively.

The following sections will discuss some select issues in depth.

*Innovation is considered important but firms spend little on it*

Over half of respondents consider innovation to be critical to their business, with automobile, chemical, electronics and ICT sub-sectors most likely to hold this view. Over 40 per cent of firms implemented new products; however, process innovation has been less common. Almost three-quarters of firms that adopted innovative products or processes did so to increase revenue and about half to increase responsiveness to customer needs or to improve quality of goods and services. Less than a quarter of firms implemented innovations to increase their competitive positions, to develop a new business or to gain market share in foreign markets. Similarly, the reduction of environmental impact, corporate social responsibility or the improvement of ICT capabilities featured much less as motivations for innovating. Surprisingly, investment in new products to enter export markets is also weak.

Despite the importance manufacturers attach to innovation, 56 per cent of them do not spend at all on innovation. This is likely to be related to the small size of most firms that prevents economies of scale and for which fixed costs of innovation may be prohibitive. The top two per cent of manufacturers in the sample, in contrast, spends the equivalent of hundred thousand dollars or more on R&D. Finally, nearly 40 per cent of respondents protect their intellectual properties mainly through established trademarks, patent applications and design registrations.

### *Skill shortages are severe barrier to manufacturing*

Nearly 60 per cent of all respondents find skill shortages a major problem. Among the sub-sectors, those firms in electrical machinery manufacturing, motor vehicle manufacturing, petroleum product manufacturing and chemical product manufacturing find it more difficult than the average to recruit skilled workers.

Computer and IT-related jobs are facing the most acute shortage of workers at the skilled and unskilled worker level as well as in top management. Jobs requiring other technical skills or analytical thinking, creativity or initiative are also hard to fill. Across job categories, professionals and skilled workers are in greatest shortage but firms would also like to see more interns in most job categories. At the other extreme, there is a relative abundance of people who master foreign languages, have good communications skills or experience in sales and customer service.

Overall, little investment is made in workforce development as over one-half of the respondents allocate no funding to training for the workforce. The majority of the respondents only provide in-house training to deal with skill shortages, spending a minimal USD 200 per employee per year.

### *Over half of firms need more financing and roughly a half have external debts*

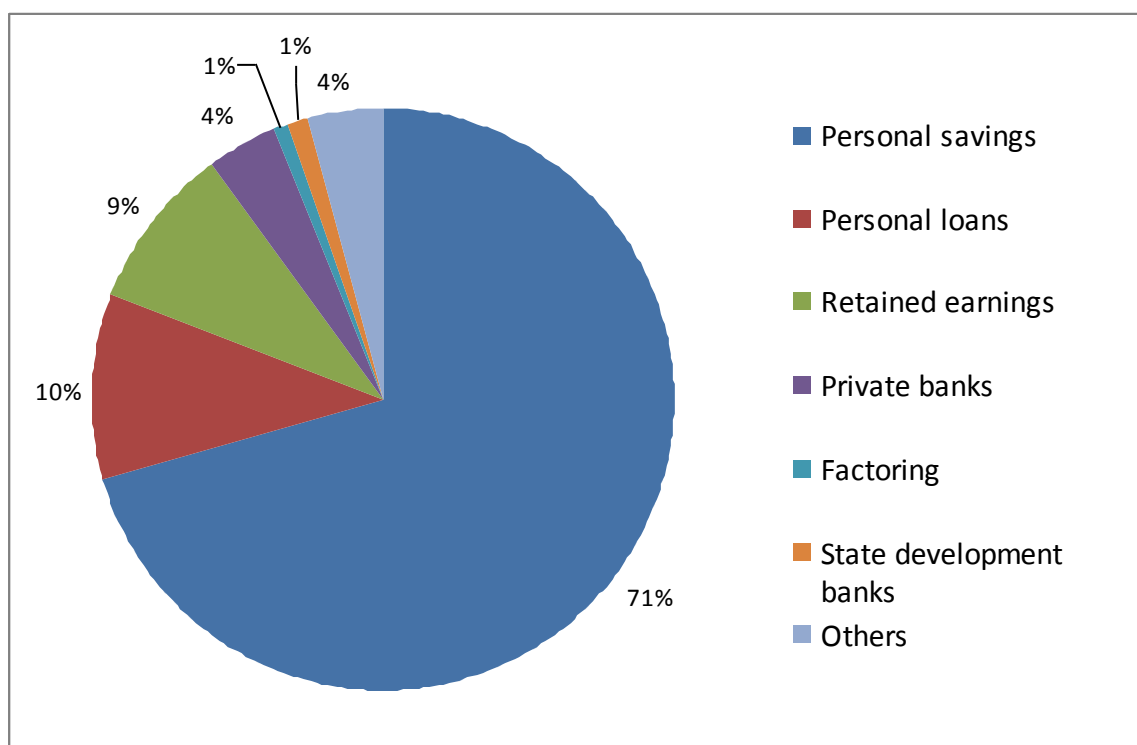
On average, the respondents mobilize more than 80 per cent of financial resources from informal financing, namely personal savings and loans (Figure 13). Approximately 10 per cent of financial needs are supported by internal financing (i.e., retained earnings). The share of institutional loans is low at five per cent provided by both commercial banks and state development banks. Close to one per cent of financing is made through asset-based financing (i.e., factoring).<sup>24</sup> As expected, sophisticated financial instruments such as equity financing (e.g., corporate stocks), corporate bonds and leasing are uncommon in Myanmar. Indeed, only a few firms are customers of banks in Myanmar with one-quarter not using banking services at all, although 52 per cent have a current account.

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<sup>24</sup> Although it is not substantial yet, it is an interesting result as factoring exceeds other financing sources, such as state development banks and money lenders.



**Figure 13: Manufacturers tend to personalize financial management**  
*The share of financing resources*



Source: OECD-UNESCAP-UMFCCI Business Survey 2014.

Slightly over half of the respondents think that they do not have adequate financing in general (over one-third of the respondents do not need external loans, though) and only one-half of manufacturers have access to loans. Nearly two-thirds of the manufacturers that borrow do so to finance expansion. Firms tend to borrow more to meet working capital needs rather than to invest, which reflects the scarcity of long-term lending in Myanmar. The majority of the firms that borrow obtain loans worth less than USD 5,000 and there are only a handful of firms that borrow over USD 5 million. Most firms borrow at an average of around 13 per cent interest rate, with a median interest rate of 13 per cent, which is the official lending rate and is regulated. Although three per cent of them only pay a two per cent interest rate on their loan, and at the other extreme five per cent of firms pay rates at or above 30 per cent, which is the official lending rate by micro-finance institutions or credit cooperatives.

The biggest obstructions to accessing institutional loans in Myanmar are unfavourable borrowing conditions (such as stringent collateral requirements), complicated application procedures, the small size of loans and high interest rates, while the lack of sophistication and needs of manufacturers has discouraged the use of external financing. Interestingly, the quality of banking services (e.g., customer orientation, timeliness) is found to be less crucial to having access to formal loans.

## **Policy recommendations**

As discussed in the preceding part on the business climate and challenges, the manufacturing sector faces various issues such as corruption, lack of technology, inadequate and expensive financing, lack of skilled labour, inflation on land and rent, and inadequate supply of electricity, the culmination of which is most likely to result in limited growth in the sector. This calls for more effective government interventions to enhance manufacturing's competitiveness in Myanmar.

This part proposes specific policy options for action which are designed based on: (1) the centrality of manufacturing in adding value; (2) identified critical issues in manufacturing development (i.e., corruption, access to financing, technological innovation, human resource development and infrastructure); (3) the recognized importance of SMEs in the manufacturing sector; (4) stakeholders' involvement in policymaking and implementation; and (5) enhanced collaboration with specialized international bodies and non-governmental organizations. Policy recommendations are summarized below.

- a) Establish an SME development agency to develop and enforce a fair and transparent legal and regulatory regime for manufacturers by assessing the costs and benefits of specific laws/regulations and eradicating the roadblocks, including a clear contract policy for public (and private) procurements with manufacturers and an e-procurement system;
- b) Establish an SME development fund to enhance manufacturers' access to financing providing services in the following areas: (i) assistance to financial institutions, including the Small and Medium Industrial Development Bank, in developing loan programmes for supporting manufacturers; (ii) training to both state development banks and commercial banks to build institutional capacity and human resources (e.g., risk appraisals, loan modifications and consulting functions), while enhancing their understanding of manufacturers and their needs; (iii) the development of two state-subsidized loans for manufacturers: long-term development loans and short-term safety net loans; (iv) setting up credit guarantee schemes to encourage banks to assist manufacturers; and (v) assistance in the establishment of a credit bureau to record manufacturers' credit history for the banking sector's risk evaluation and loan appraisals; and (vi) the provision of trade finance through the banking sector, including the Myanmar Foreign Trade Bank;
- c) Establish "single-window" SME service centers in each capital of the states and regions of Myanmar under the supervision of the SME development agency, in cooperation with ministries concerned (e.g., Ministry of Industry, Ministry of National Planning and

Economic Development, Ministry of Finance and Revenue, Ministry of Commerce and Ministry of Cooperatives), financial institutions and business associations (e.g., UMFCCI), while providing technical assistance to the centers for their continued capacity building. The centers should handle all business registrations, licensing, permits and tax collection in streamlined, simplified and transparent manners and disseminate regulatory, financial, technical and market information to the manufacturers. They also should establish help desks with their staff members and external experts, such as certified public accountants, attorneys and business consultants, and dispatch those experts for consulting services. The centers should be upgraded overtime to be business development services (BDS) providers as well as business and technology incubators for the local manufacturing communities, providing financing and tax-related services and comprehensive technical and marketing assistance to both startups and existing manufacturers, while providing such services through an SME business support portal website. The centers' specific services may include, among others: dissemination of regulatory and market information; marketing research; branding strategy development; advice on public procurement; trade fairs, exhibitions and buyer-seller matching; training and information sessions; publicity literature; credit assessment of importers and consortia formation. The center also takes the lead in using ICT to support SME development through the implementation of business matching platforms, the publication and use of public data and the creation of a framework to foster technology transfer in Myanmar;

d) Develop and implement a nation-wide strategic plan for the development of SEZs and industrial zones, including: the selection of strategic locations (e.g., deep sea ports) and objectives (e.g., cross-border production, export gateways); the planning and designing of necessary infrastructure to international standards, such as roads, utilities, telecommunications and waste management facilities, for fostering key industry clusters; the promotion of FDI and domestic private sector investment; and building managerial capacities of SEZs and industrial zones;

e) Conduct a mapping exercise with research and training institutes, such as chambers of commerce and industry, universities, colleges and vocational schools, and disseminate information on available training courses on business and management as well as technology and engineering; establish seven SME colleges by upgrading existing industrial training centers, including one each in Mandalay, Naypyidaw and Yangon, in order to develop managerial and technical skills; design and implement a simplified and streamlined institutional framework for the development of science and technology at both the national and the sub-national levels through institutional networking and coordination, capacity-building and infrastructure development (e.g., science and technology parks); subsidize SME

manufacturers, as well as other key stakeholders, for R&D, technology transfer and technology commercialization through various financial and non-financial measures including special tax schemes; develop the patent office and its portal site; subsidize patent, design and trademark applications made by manufacturers (to reduce the cost of filing such applications domestically and overseas) through the SME service centers; organize information sessions and training courses on innovation and intellectual property systems; organize training courses on ICT applications for business management, productivity improvement and new product/service development; provide SMEs with grants, subsidies, tax credits and/or low-interest commercial loans for new product development and participation in international trade fairs and exhibitions;

f) Conduct annual manufacturer surveys (including micro manufacturers, manufacturing cooperatives and manufacturing entities in the informal sector), which would be an upgrade over the present industrial zone survey conducted by CSO and MOI, and disseminate their results through print media (e.g., white papers, studies and flyers), information sessions, seminars and the portal site; and

g) Establish regular consultation mechanisms with manufacturers at both national and sub-national levels on pressing business issues and related policies, including effective infrastructure development, in cooperation with local business associations and foreign investors, and publish the results of the consultations and related action plan annually.

## **Conclusion**

The development objectives of the Government of Myanmar with respect to its export-led and FDI-led development strategies are clear: to build the capacity of its manufacturing sector; promote FDI into the sector; enhance the competitiveness of SME manufacturers; and promote exports of manufactured goods. Towards these ends, the Government has been active in developing its own policy frameworks, institutions and linkages with the manufacturers.

The Government of Myanmar and its associated institutions, however, must carefully assess the status of its manufacturing producers, the majority of which are SMEs, in terms of their capacities, technologies, culture and current competitiveness before embarking to the next stage of reform, while simultaneously promoting investments from foreign multinationals. Based on such an assessment, it should develop a plan of action most suited to its particular situation that will enable it to address the requirements of its manufacturing sector. Naturally,

consultations with experts, SME leaders, foreign investors and other stakeholders are prerequisites before finalizing any plan that might involve policy changes, the reshuffling of officials, budget allocation, capacity-building of delivery organizations and the encouragement of public-private partnerships. Ultimately, the long-term development of the manufacturing sector, and indeed the country as a whole, will rest heavily on the informed policy decisions made in the coming years.

Based on the above-summarized background and analysis, this paper examined the following: the present status of the manufacturing sector in Myanmar; its regulatory and policy environment; the past and present development of regional industrial zones and special economic zones; and crucial obstacles to manufacturers' operations. It finally proposed a number of policy options to foster the manufacturing sector in Myanmar, which should not be considered to be a substitute for the existing Government development plan for manufacturing; rather, it is aimed at complementing the existing development plan. The policy framework herein will guide policymakers, practitioners, support institutions, chambers of commerce and industry, and business associations in their efforts towards the development of the manufacturing sector in Myanmar.

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## Annex 1

### Details of manufacturer samples

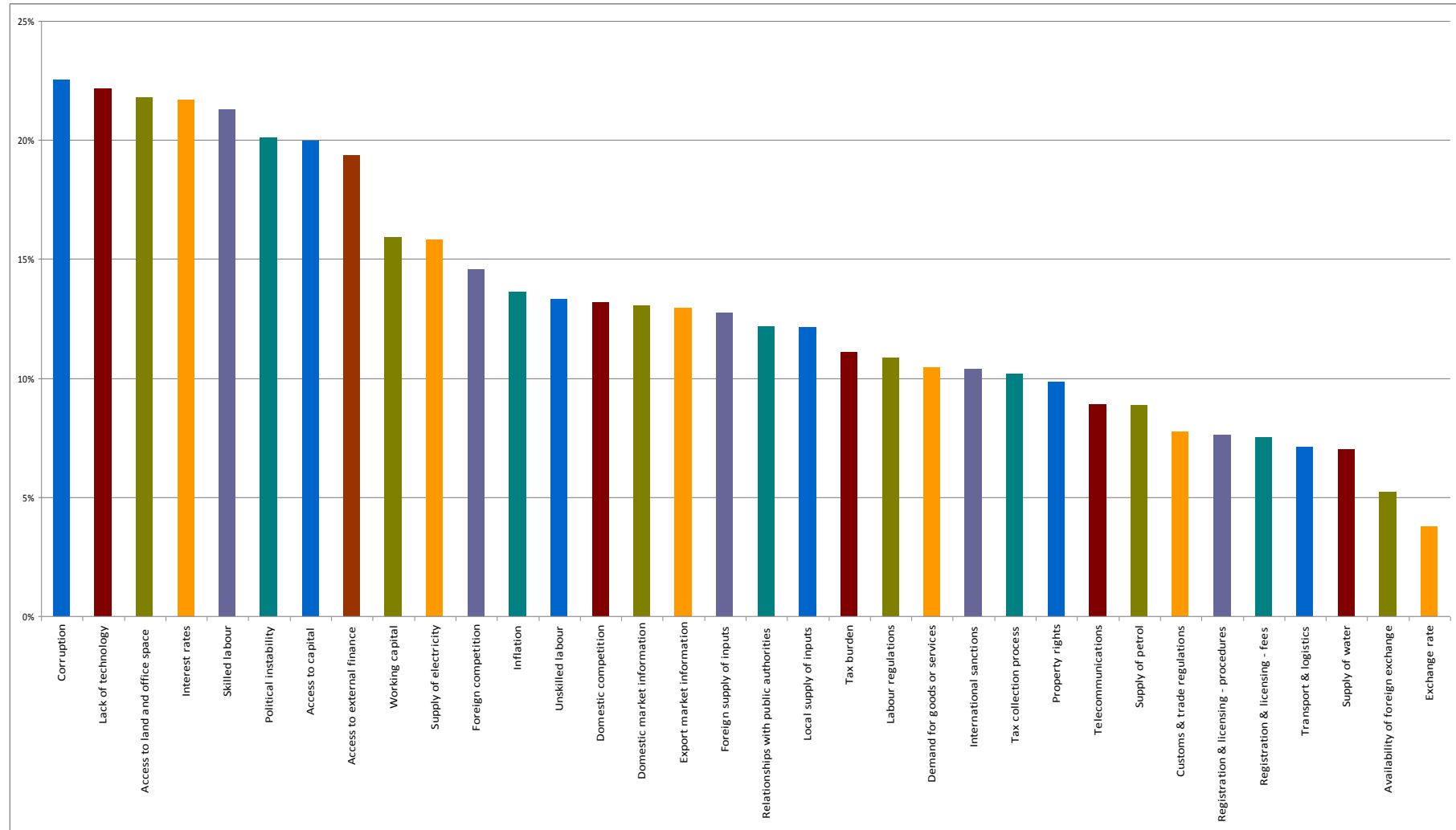
	Micro	Small	Medium	Large	Total
Ayeyarwady	15	16	10	0	41
	36.6%	39.0%	24.4%	0.0%	100.0%
Bago	25	21	2	1	49
	51.0%	42.9%	4.1%	2.0%	100.0%
Chin	11	5	0	0	16
	68.8%	31.2%	0.0%	0.0%	100.0%
Kachin	29	9	0	0	38
	76.3%	23.7%	0.0%	0.0%	100.0%
Kayah	12	1	1	0	14
	85.7%	7.1%	7.1%	0.0%	100.0%
Kayin	19	15	1	1	36
	52.8%	41.7%	2.8%	2.8%	100.0%
Magway	11	12	0	0	23
	47.8%	52.2%	0.0%	0.0%	100.0%
Mandalay	99	119	36	8	262
	37.8%	45.4%	13.7%	3.1%	100.0%
Mon	11	9	1	0	21
	52.4%	42.9%	4.8%	0.0%	100.0%
Rakhine	9	9	3	0	21
	42.9%	42.9%	14.3%	0.0%	100.0%
Shan	82	29	2	0	113
	72.6%	25.7%	1.8%	0.0%	100.0%
Sagaing	23	18	1	1	43
	53.5%	41.9%	2.3%	2.3%	100.0%
Tanintharyi	9	4	0	0	13
	69.2%	30.8%	0.0%	0.0%	100.0%
Yangon	65	116	80	58	319
	20.4%	36.4%	25.1%	18.2%	100.0%
Naypyidaw	4	2	0	0	6
	66.7%	33.3%	0.0%	0.0%	100.0%
Total	424	385	137	69	1015
	41.8%	37.9%	13.5%	6.8%	100.0%

Source: OECD-UNESCAP-UMFCCI Business Survey 2014.

Note: Three samples are excluded due to missing data; thus, the number of total samples is 1,018.

## Annex 2

### Obstacles to manufacturers



Source: OECD-UNESCAP-UMFCCI Business Survey 2014.

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### ARTNeT Secretariat

United Nations  
Economic and Social Commission  
for Asia and the Pacific  
Trade and Investment Division  
United Nations Building  
Rajadamnern Nok Avenue  
Bangkok 10200, Thailand  
Tel: +66 (0)2-288-2251  
Fax: +66(0)2-288-1027  
Email: [artnetontrade@un.org](mailto:artnetontrade@un.org)