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Service Sector in Taiwan: An Overview

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ABSTRACT

The service sector has been growing rapidly worldwide. During the past decades, the global economies have generally had an expansion in service sector output and jobs and a corresponding drop in the share of manufacturing output. The service sector itself is playing a critical role in global economy. Services are indispensable in all value chains. The development of the service sector has, thus, been an important focus for the policy makers in the global nations. Countries are seeking for good strategies and policies in order to develop their service industries. Many efforts have been put to examine the service sector as a whole in order to understand its role in their economies.

The service sector is predominant in Taiwan's economy. However, because of the traditional focus on manufacturing sector, the services tended to be ignored. This study aims to provide an overview of the service sector in Taiwan. It examines five aspects of the industries: (1) the service sector in Taiwan's economy; (2) the labor force in the service sector; (3) the regional distribution of the labor force in the sector; (4) salary situation and (5) performance of the service sector in Taiwan.

The results reveals that the growth rate of service sector shows a strong correlation with Taiwan's GDP growth rate. Although the manufacturing sector was a key driver for Taiwan's economy, in the periods when the manufacturing experienced the downturns, the service sector played a key role to stabilize the GDP growth in the nation.

The service sector is also a very important part for Taiwan's job market. The share of the service sector for the employment has been steadily expanding. Wholesale and Retail Trade, Construction, Accommodation and Food Service Activities are dominant in the job market. Nevertheless, Education, Accommodation and Food Service Activities and Other Service Activities tend to have low salaries.

However, the industries that hire more workers tend to have low productivities. Construction, Accommodation and Food Service Activities and Other Service Activities rank as the less productive industries in Taiwan. This study provides an overview of Taiwan's service sector. More examinations are needed to explain the results and phenomenon observed in this study.

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A. INTRODUCTION

The service sector has been growing rapidly worldwide. During the past decades, the advanced economies of the world have generally had an expansion in service sector output and jobs and a corresponding drop in the share of manufacturing output (Brook, 2008).¹ Global rankings of leading firms, such as the Fortune 500, contain more service companies than in previous decades. In some cases, manufacturing firms have transformed themselves into predominantly service-providing companies. (Uppenberg and Strauss, 2010)²

However, despite of the growing importance in the world economy, the service sector has gained no universal consensus on either its range or its classification (Stigler, 1956). It is often defined by what they are not. The phrase "service sector" encompasses all industries except those in the goods-producing sector agriculture, mining, and manufacturing (Stigler, 1956 and Kutscher and Mark, 1983). Because of this nature, organizations tend to define and classify the service sector depending on their individual purposes or uses.

The World Trade Organization (WTO, 2010) defined services as below³:

The term services covers a wide range of intangible and heterogeneous products and activities that are difficult to encapsulate within a simple definition. ... They can cover transport, telecommunication and computer services, construction, financial services, wholesale and retail distribution, hotel and catering, insurance, real estate, health and education, professional, marketing and other business support, government, community, audiovisual, recreational, and domestic services.

The definition of the Bureau of Labor Statistics (BLS), the United States (2011), is as follow: ⁴

The service sector or "service-providing industry," encompasses the industries of wholesale and retail trade, utilities, transportation, information, financial and business

¹ Keith Brook, "Developments in measuring the UK service industries, 1990 to 2006", Economic & Labour Market Review, Vol 2, No 1, January 2008, pp 18-29.

² Kristian Uppenberg and Hubert Strauss, "Innovation and productivity growth in the EU services sector", Economic and Financial Studies, European Investment Bank, July 2010.

³ WTO Secretariat, "Measuring trade in services," World Trade Organization, November 2010. Webpage: <u>https://www.wto.org/english/res_e/statis_e/services_training_module_e.pdf</u> (Accessed: 2016/03/31)

⁴ Department for Professional Employees, the United States, "The service sector: projections and current stats", Fact Sheet 2011, May 2011. Webpage: <u>http://dpeaflcio.org/programs-publications/issue-fact-sheets/the-service-sector-projections-and-current-stats/</u> (Accessed: May 14, 2016)

activities, professional and technical services, education, health care and social assistance, government, leisure and hospitality, and miscellaneous services.

In general, apart from the good-producing industries, all the economic activities have been classified as services. 'Services deliver help, utility or care, an experience, information or other intellectual content. The majority of the value of that activity is intangible rather than residing in any physical product', as the Australian Services Roundtable defined.⁵

The service sector is playing a critical role in global economy. Services are indispensable in all value chains. The National Board of Trade, Sweden (2013), clarified two essential functions of services in the global value chains (GVCs): (1) enabling services; and (2) pure services.

- (1) Enabling services: The existence and functioning of global value chains depend on enabling services. The enabling services in GVCs include a variety of key services such as communications, insurance, finance, computer and information services, and other business services. They support the creation of value chains in both goods and services. These enabling services are important for the competitiveness of GVCs in goods.
- (2) Pure services: Pure services in value chains refers to the separate tasks that can be disaggregated and traded. Firms are outsourcing not only the assembly of goods but also many services-related tasks. Information technology services that support this phenomena is a good example.

In the Global Services Forum, Beijing Summit, hold by the United Nations in 2013, some important facts of the service sector were listed.⁶

 International trade in services covers trade in intangibles, such as peoples' skills. Services trade is carried out through four modes of supply namely: cross-border supply, consumption abroad, commercial presence and presence of a natural person. International trade in services through these modes does not physically cross national border and thus is not affected by customs tariffs and other taxes applied to merchandise trade.

⁵ The Parliament of the Commonwealth of Australia, "Servicing our future: Inquiry into the current and future directions of Australia's services export sector", House of Representatives Standing Committee on Economics, Finance and Public Administration, May 2007.

⁶ Global Services Forum, "Global importance of services", the United Nations, May 28-29, 2013. Webpage: http://unctad.org/en/conferences/gsf/2013/pages/importance-of-services.aspx (Accessed: June 5, 2016)

- 2. Services trade is affected by domestic regulations in force in the sectors concerned in countries. International trade in services is thus sensitive to behind the border, national regulations that affect the supply of services.
- 3. World Bank has pointed to the higher contribution of growth in the services sector to poverty reduction than the contribution of growth in the agriculture or manufacturing sectors.
- 4. Strengthening the domestic services sector by increasing its backward and forward linkages with the primary and the secondary sectors, as well as its linkage with trade, can be an effective component of a comprehensive development strategy.
- 5. The 2011 World Development Indicators show that the services sector accounted for almost 71% of global GDP in 2010 and is expanding at a quicker rate than the agriculture and the manufacturing sectors. Moreover, trade in services is growing at a pace faster than trade in goods since the 1980s. In 2011, commercial services exports grew 11% to US\$ 4.1 trillion 29'82% coming from developing countries and 2.85% from transition economies.
- 6. Trade in services demonstrated relative resilience in the latest financial and economic crises in terms of lower magnitude of decline, less synchronicity across countries and earlier recovery from the crises. Such resilience has led many countries to incorporate services trade into their post-crisis national trade and growth strategies.

The development of the service sector has, thus, been an important focus for the policy makers in the global nations. Many countries are seeking for good strategies and policies in order to develop their service industries. Many efforts have been put to examine the service sector as a whole in order to understand its role in their economies.

The service sector is predominant in Taiwan's economy. However, because of the traditional focus on manufacturing sector, the services tended to be ignored. This study aims to provide an overview of the service sector in Taiwan. It examines five aspects of the industries: (1) the service sector in Taiwan's economy; (2) the labor force in the service sector; (3) the regional distribution of the labor force in the sector; (4) salary situation and (5) performance of the service sector in Taiwan.

B. METHODOLOGY

Data collection and industrial classification

The data used in this research were mainly adapted from the database of the Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R.O.C. Taiwan.

The industrial classification is based on the classification system of the Standard Industrial Classification System of the Republic of China (Revision 9, 2011)⁷. It followed the International Standard Industrial Classification of All Economic Activities (ISIC), the United Nations, and classified the economic activities into the Section A to S. The brief descriptions of each section are as follows. (The abbreviations used in this report are also demonstrated.)

Section	Description	Abbreviations					
I. Agriculture and Mining							
А	Agriculture, Forestry, Fishing and Animal Husbandry	A_AF					
В	Mining and Quarrying	B_MQ					
II. Manufacturing							
C	Manufacturing	C_MF					
III. Services							
D	Electricity and Gas Supply	D_EG					
E	Water Supply and Remediation Activities	E_WR					
F	Construction	F_CN					
G	Wholesale and Retail Trade	G_WR					
Н	Transportation and Storage	H_TS					
I	Accommodation and Food Service Activities	I_AF					
J	Information and Communication	J_IC					
К	Financial and Insurance Activities	K_FI					
L	Real Estate Activities	L_RE					
М	Professional, Scientific and Technical Activities	M_PS					
N	Support Service Activities	N_SS					
0	Public Administration and Defence; Compulsory Social	O_PD					
	Security						
Р	Education	P_ED					
Q	Human Health and Social Work Activities	Q_HS					
R	Arts, Entertainment and Recreation	R_AE					
S	Other Service Activities	S_OS					

For the statistic purposes of this study, the industries in Taiwan are grouped into three sectors: (I) Agriculture and Mining; (II) Manufacturing; (III) Services. Based on this

⁷ The 10th revision was published in January, 2016. However, the data used in this report was based on the 9th revision.

classification, service sector in this study includes Section D to S, which are totally 16 sections.

Analysis

The industrial data collected from DGBAS will be analyzed by the descriptive statistic means. The analysis will include: (1) the service sector in Taiwan's economy; (2) the labor force in the service sector; (3) the regional distribution of the labor force in the sector; (4) salary situation and (5) performance of the service sector in Taiwan.

C. RESULTS AND DISCUSSION

Five aspects were examined in this study: (1) the service sector in Taiwan's economy; (2) the labor force in the service sector; (3) the regional distribution of the labor force in the sector; (4) salary situation and (5) performance of the service sector in Taiwan.

Service Sector in Taiwan's Economy

In the past 35 years, the service sector has been the most dominant part of Taiwan's economy (Figure 1). In 2015, the share of the service sector in Taiwan's GDP was 64.34%, while manufacturing and agriculture and mining sectors are 30.1% and 1.89%, respectively.

Over time, the contribution of the service sector has increased from an estimated 54.98% in 1981. Its golden age to expand the share was between 1986 and 2001. The service sector experienced a rapid growth, after the decrease to the bottom at 52.12% in 1986, and then climbed to peak at 71.03 in 2001. Afterwards, their share dropped down to 64.34% in 2015. However, it is still the most important sector for the GDP contribution in Taiwan.

The manufacturing sector has been seen as the key driver of Taiwan's economy. However, in contrast of the service sector, its percentage of value added in the nation's GDP has generally been declining after its peak at 37.76% in 1986 and reached its lowest point at 24.08% in 2001. Afterwards, it started to steadily increase and returned to 30.01% in 2015. The agriculture and mining sector has been steadily declining during the past 35 years.

Taiwan's GDP growth rate in 2015 was 0.75%, with its manufacturing and service sectors had -0.6 and 0.28% growth, respectively. Both the manufacturing and service sectors of Taiwan experienced a downturn in 2015. However, while the growth rate of manufacturing sector dramatically dropped from 7.93% in 2014 to -0.6% in 2015, the decrease in the service sector was less volatile, from 2.68% to 0.28%. Figure 2

demonstrates the growth rates of Taiwan's GDP, manufacturing and service sector. The changes of annual growth rates of Taiwan's service sector had been less volatile than those of the manufacturing sector between 1982 to 2015.

Taiwan's service sector has lower annual growth rates than its GDP growth in most of the years (Figure 2). This means that it was mainly manufacturing sector in those periods to lead Taiwan's GDP growth. However, by contrast, when the manufacturing sector was hit badly by the recessions, like the global financial crisis in 2008 and 2009, the European debt crisis in 2013 and the global trade downturn in 2015, the service sector kept Taiwan's GDP growth rate to a stable level. The growth rate of the service sector in 1982 was 5.47%. It prospered reached its highest point at 12.71% in 1989. The growth then slowed. This explains the decreasing GDP contribution of the service sector in Figure 1.

In addition, it is observed in figure 2 that the curve of the service sector seems to follow a correlative pattern as GDP growth rate curve. Thus, a correlation test was conducted to examine the relation between the annual growth rates of Taiwan's GDP and its service sector. The result appears that the annual growth rate of service sector was highly correlated with the annual GDP growth (r=0.82).

The total value added of the service sector in Taiwan was NT \$ 10.75 trillion in 2015. The top service industry, regarding to GDP contriburion, was the Wholesale and Retail Trade Industry, contributing NT \$2.64 trillion of the value added (about 25% of the GDP share in the service sector), followed by Real Estate Activities (13%), Finance and Insurance Industry (10%), Public Administration and Defence and Compulsory Social Security Industry (10%), and Education Industry (6%) in this year (Figure 3).

The Support Services Industry had the highest growth rate of 3.83% among the services industries in Taiwan in 2015, followed by Finance and Insurance Industry (3%), Information and Communication Industry (2.72%) and Arts, Entertainment and Recreation Industry (1.36%) (Figure 4). Five industries- Other Services, Construction, Wholesale and Retail Trade, Water Supply and Remediation Services, and Electricity and Gas Supply Industries- in the service sector had negative growth in the same year.

The service industries performed differently in different periods of the past 10 years. Between 2006 and 2010, the top three service industries with highest growth rates were Support Services (which grew 42.08% in this period), Water Supply and Remediation Services (33.41%), and Real Estate and Ownership of Dwellings (24.86%) industries (Figure 5). Nevertheless, interestingly, Finance and Insurance (21.39%), Accommodation and Food Services (20.27%) and Support Services (19.78%) became the three leading industries from 2011 to 2015. In average, the growth rates of the service industries in 2006-2010 were higher than those in 2011-2015.

Labor force in Service Sector

The labor participation rate in Taiwan has been lower than 60% for long. In 2015, there were totally 11198 thousands of workers in Taiwan. The labor participation rate was 56.44%, according to the data of the DGBAS. Among this, male workers' participation was higher than female workers. However, the female workers have been expanding their participation rate. In 2015, the male participation rate was 64.2%, dropped from 71.68% in 1993; the female participation rate was 48.99%, increased from 44.17% in the same period. The unemployment rate nationwide was 3.78% in 2015.

The service sector deploys most of Taiwan's labor force. The share of the service sector in employment has increased from 64.72% in 2001 to 68.01% in 2015. The number of the workers in the sector has been steadily growing at the same period (Figure 6). In January, 2016, there were 7.66 million people working in the service sector.

The share of the manufacturing sector in total employment slightly declined in Taiwan in the past 15 years, from 27.65% to 27%, while the drop in agriculture and mining sector was about 7.63% to 4.99%. Over the three economic sectors in Taiwan, the service was the only sector which expand its share in total employment (Figure 6).

In terms of individual industries, Wholesale and Retail Trade industry deployed most of the workers (about one sixths of Taiwan's labor force) in 2015 (Figure 7). The employment rates followed by Construction (7.99%), Accommodation and Food Service Activities (7.26%) and Education (5.8%). The other industries, instead, deployed the labor force less than 5% of the total labor force in Taiwan. The share of the employment in Accommodation and Food Service Activities, Human Health and Social Work Activities and Public Administration and Defence; Compulsory Social Security industry had more than 1% increases in the past 15 years. Construction, Education, Support Service Activities, Information and Communication, Real Estate Activities and Water Supply and Remediation Activities, Transportation and Storage, Financial and Insurance Activities, Arts, Entertainment and Recreation and Electricity and Gas Supply decreased their share of employment in Taiwan.

In Taiwan, male workers dominate in most of the service industries, like in the other economic sectors. Because of the nature of labor intense, the industries, like Construction and Transportation and Storage, have apparently much more male workers than female. The industries, like Wholesale and Retail Trade, Accommodation and Food Service Activities, Education, Human Health and Social Work Activities and Financial and Insurance Activities, which need more feminine characters thus have more female workers (Figure 8).

However, the share of female workers in Taiwan's service sector has been increasing. From 2001 to 2015, the female workers in the service sector had their share in total employment expanded from 28.05% to 32.82%, while the male workers decreased from 36.67% to 35.18%.

Regional Distribution of Labor Force

Figure 9 illustrates the sectoral shares of employment in Taiwan's four district regions. Among the regions, Eastern Taiwan has largest portion of employment in its service and agriculture sectors. The manufacturing sector is thus relatively small. Northern Taiwan has only 0.97% of its employment in agriculture and mining sector. Its employment in service and manufacturing sectors are 73.53% and 25.51%, respectively. Central and Southern regions also have big portions of their employment in agriculture. Their service sectors are smaller than their counterparts.

Regarding to the service sector in individual districts, Taipei City was among the highest share in Taiwan with 86.77% of employment in its service sector. Some districts, like Penghu County, Keelung City and Hualien County, also have more than 80% of employment in their service industries.

Table 1 shows the rankings of the employment in the service industries of Taiwan's district regions in 2015. In all the regions, Wholesale and Retail Trade, Construction and Accommodation and Food Service Activities, ranked as the top three service industries, contribute the most for the employment. Education is also ranked high as No 4 in Northern, Central and Southern Taiwan as well as No 6 in Eastern Taiwan. Other Service Activities, including activities of membership organizations, maintenance and repair of personal and household goods, laundry, hairdressing, activities, are important in all the regions.

In terms of the unemployment in individual service industries, the top five service industries, Wholesale and Retail Trade, Construction and Accommodation, Food Service Activities, Education and Other Service Activities, which hire most of the workers also have high unemployment rates (Figure 10). In 2015, almost half of the unemployment in the nation came from these five industries. Another 27.76% of Taiwan's unemployment was from the manufacturing sector, ranking together as the top industries for workers to leave jobs in 2015.

Performance of Taiwan's Service Industries

Taiwan's services in average is the most productive sector. The average productivity of the service sector in 2015 was NTD 1262.76 per worker per hour (at current price), which is 65% more productive than the manufacturing sector (NTD 762.17 per worker per hour). When it was examined chronologically, between 2009 and 2015, the productivity of the service sector did not change much but even experienced a slight decline. However, the manufacturing sector became more productive in the past years. The productivity increased about 50% in producing industries from 2007 to 2015 (Figure 11).

In terms of the individual industries, the performance varied hugely among different industries (Figure 12). Some industries, like Real Estate Activities and Electricity and Gas Supply, had astonishingly good performances, while the others, like Construction and Accommodation and Food Service Activities, had relatively much low performances. The productivity of the Real Estate Activities was 27 times higher than that of the Construction industry.

Another finding is that the service industries that hire more workers resulted to have relatively low productivities. For example, the Construction, Accommodation and Food Service Activities and Other service activities, among the leading industries with high work force participation, had the lowest productivities in the ranks.

Salaries in Service Industries

In 2015, the average salary of Taiwan's service sector was NTD 50767, about 10% growth since 2009. The average salary per working hour in 2015 was NTD 295.53, also increased 13.1% from 2009. Electricity and Gas Supply industry enjoyed highest average salary (NTD 96357) in 2015, followed by Financial and Insurance Activities (NTD 84746), Information and Communication (NTD 66549), Human Health and Social Work Activities (NTD 64154) and Professional, Scientific and Technical Activities (NTD 58290) (Figure 13). The service industries with low salaries were Education (NTD 24306 in average), Accommodation and Food Service Activities (NTD 32613) and Other Service Activities (NTD 34522).

D. CONCLUSION

The service sector has been a dominant and important part in Taiwan's economy, in terms of both GDP contribution and employment. Agriculture and Mining sector has been declining in Taiwan in the past 35 years. The periodical tendency of the GDP shares of Taiwan's service sectors had been opposite to that of the manufacturing sector during

this period. When the share of the service sector was expanding, the manufacturing sector was then shrinking.

The results of this study reveals that the growth rate of service sector shows a strong correlation with Taiwan's GDP growth rate. The growth rate of service sector in Taiwan has been more stable than its counterparts, like the manufacturing sector. Although the manufacturing sector was a key driver for Taiwan's economy, in the periods when the manufacturing experienced the downturns, the service sector played a key role to stabilize the GDP growth in the nation.

The service industries have different paths of growth and development in the past years. For instances, Wholesale and Retail Trade, Real Estate Activities, Financial and Insurance Activities, Public Administration and Defence; Compulsory Social Security and Education plays an important role, in terms of GDP contribution, in Taiwan. However, it was Financial and Insurance Activities, Accommodation and Food Service Activities, and Support Service Activities drove the major growth in service sector in the past five years.

The service sector has also been a very important part for Taiwan's job market. The share of the service sector for the employment has been steadily expanding. According to the data, during the past years, the increased input of labor force in the service sector was mainly from female workers. Industries, like Wholesale and Retail Trade, Construction, Accommodation and Food Service Activities, are dominant in the job market. Nevertheless, these industries also have high unemployment rates. Education, Accommodation and Food Service Activities and Other Service Activities tend to have low salaries.

However, the industries that hire more workers tend to have low productivities. Construction, Accommodation and Food Service Activities and Other Service Activities rank as the less productive industries in Taiwan.

This study provides an overview of Taiwan's service sector. More examinations are needed to explain the results and phenomenon observed in this study.

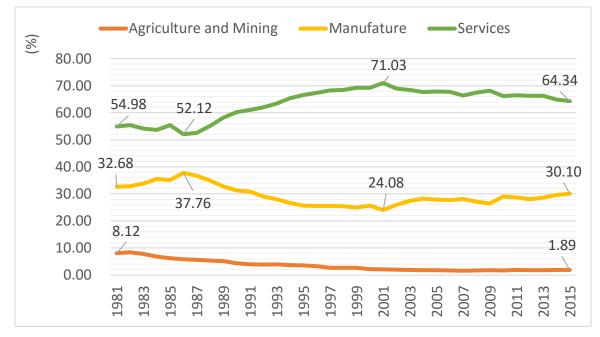
E. REFERENCES

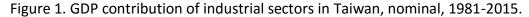
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FIGURES





Data source: The Directorate General of Budget, Accounting and Statistics of Executive Yuan, Taiwan.

Figure 2. Annual growth rates of GDP, manufacturing and service sectors in Taiwan, 1982-2015

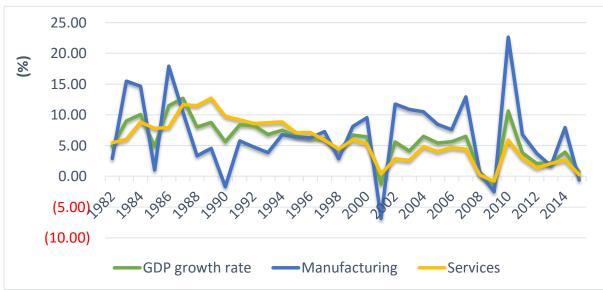
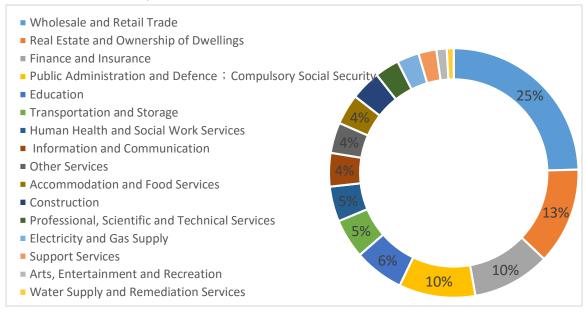


Figure 3. GDP composition in Taiwan's service sector, by nominal GDP, 2015. (Total service sector = 100%)



Data source: The Directorate General of Budget, Accounting and Statistics of Executive Yuan, Taiwan.

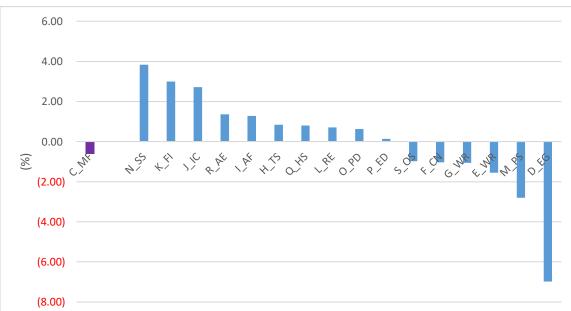


Figure 4. Industrial growth rates of the service sector and manufacturing sector in Taiwan in 2015.

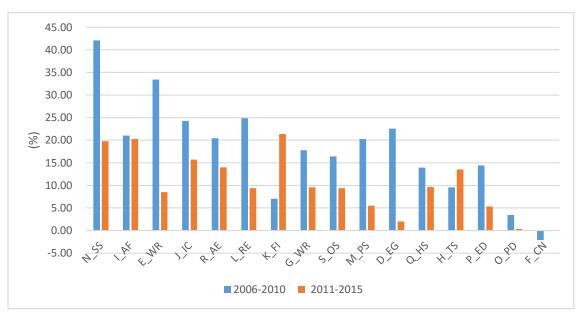


Figure 5. Industrial growth rates of the service sector in Taiwan, 2006-2015.

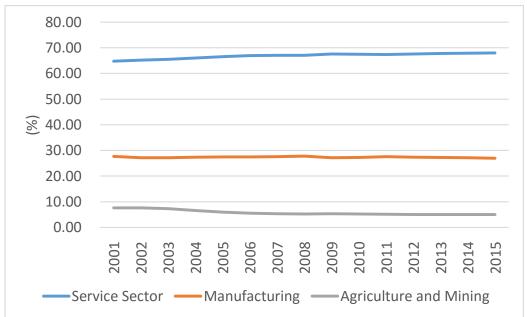
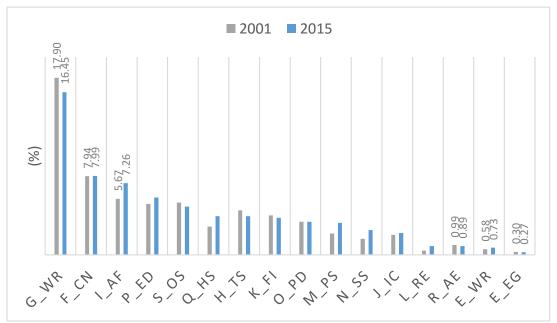


Figure 6. The share of employment in Taiwan's economic sectors, 2001-2015.

Data source: The Directorate General of Budget, Accounting and Statistics of Executive Yuan, Taiwan.

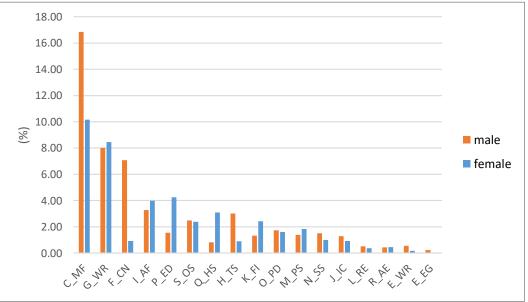
Figure 7. The share of employment in Taiwan's service industries, 2001-2015.





Data source: The Directorate General of Budget, Accounting and Statistics of Executive Yuan, Taiwan.

Figure 8. The share of employment in manufacturing and service Industries in Taiwan in 2015, by genders.



(Total employment in Taiwan= 100%)

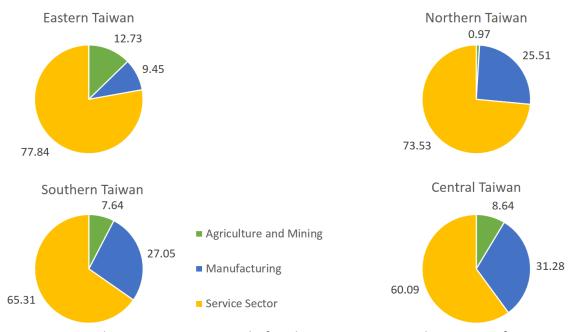
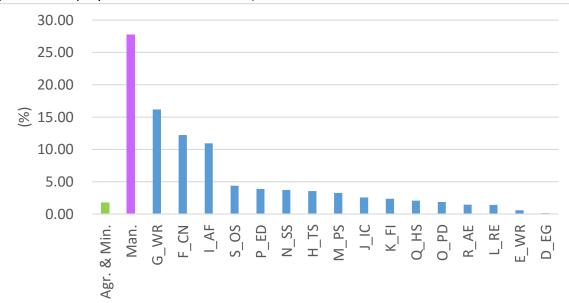


Figure 9. The sectoral shares of employment in Taiwan's regions in 2015, percentage.

Data source: The Directorate General of Budget, Accounting and Statistics of Executive Yuan, Taiwan.

Figure 10. The industrial unemployment rates in Taiwan in 2015.



(Total unemployment in Taiwan= 100%)

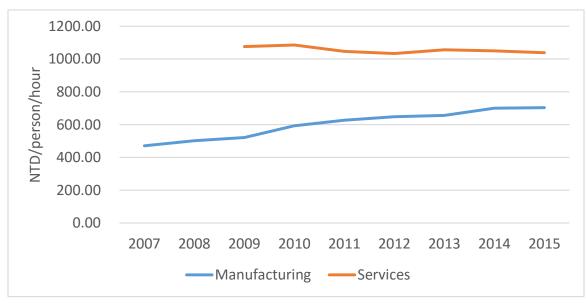


Figure 11 The average productivity of the manufacturing and service sector in Taiwan, 2007-2015.

Data source: The Directorate General of Budget, Accounting and Statistics of Executive Yuan, Taiwan.

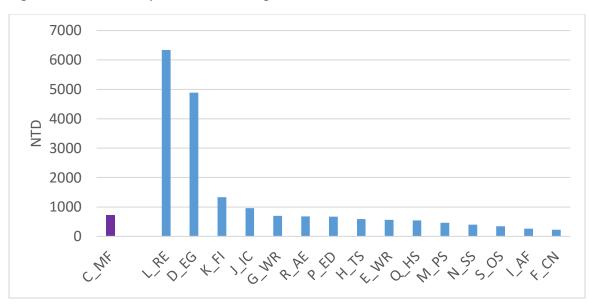


Figure 12. Productivity in manufacturing and service industries in Taiwan, 2015.

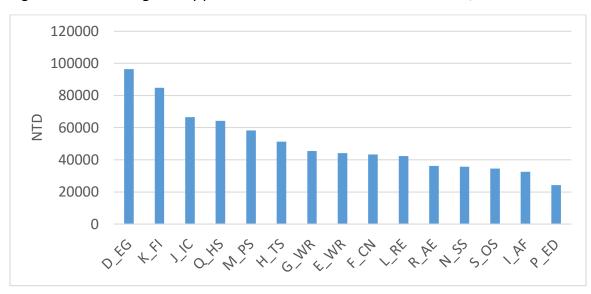


Figure 13. The average salary per month in service industries in Taiwan, 2015.

TABLES

Table 1. The rankings of employment in the service industries of Taiwan's district regions in 2015.

	Northern Region	Central Region	Southern Region	Eastern Region
1	Wholesale and Retail Trade	Wholesale and Retail Trade	Wholesale and Retail Trade	Wholesale and Retail Trade
2	Construction	Construction	Construction	Construction
3	Accommodation and Food Service Activities	Accommodation and Food Service Activities	Accommodation and Food Service Activities	Accommodation and Food Service Activities
4	Education	Education	Education	Public Administration and Defence; Compulsory Social Security
5	Transportation and Storage	Other Service Activities	Other Service Activities	Other Service Activities
6	Financial and Insurance Activities	Human Health and Social Work Activities	Human Health and Social Work Activities	Education
7	Other Service Activities	Public Administration and Defence; Compulsory Social Security	Public Administration and Defence; Compulsory Social Security	Human Health and Social Work Activities
8	Professional, Scientific and Technical Activities	Financial and Insurance Activities	Transportation and Storage	Transportation and Storage