



Economic and Social Upgrading in Global Value Chains

A Case Study of Thailand's Electronics Sector

Authors: Jidapa Meepien and Chongdee Chandam

Editors: Divya Prakash, Tanja V. Matheis, Sabina Dewan, Richard Bernhard and Piyachatr Pradubraj

May 2020



This research was supported by



Economic and Social Upgrading in Global Value Chains

A Case Study of Thailand's Electronics Sector

Authors: Jidapa Meepien and Chongdee Chandam

Editors: Divya Prakash, Tanja V. Matheis, Sabina Dewan, Richard Bernhard and Piyachatr Pradubraj

May 2020

Published in May 2020 by JustJobs Network Inc.

This study was supported by the JustJobs Network Inc. (JJN) and implemented by the Kenan Foundation Asia, Thailand with funding from the International Development Research Centre (IDRC), Canada.

This is the sector report on the electronics sector in Thailand, and it was based on a questionnaire survey of 60 firms and 230 workers, and 34 in-depth interviews.

Authors:

Jidapa Meepien
Chongdee Chandam

Editors:

Divya Prakash
Tanja Verena Matheis
Sabina Dewan
Richard Bernhard
Piyachatr Pradubraj

Acknowledgments

The authors gratefully acknowledge helpful comments and inputs from Sabina Dewan (President of JustJobs Network), Richard Bernhard (Executive Director of Kenan), and Bouba Housseini (IDRC). The project teams are grateful to Edgard Rodriguez for his support in the initial stages of the project.

Kenan would like to thank a number of people and organizations who have greatly contributed to different research processes, including planning, survey design, data collection, data analysis, and report writing. Our special thanks go to Surat Tangpaitoon from the Electrical and Electronics Institute, Sampan Silpanard from the Electronics and Computer Employee Association, representatives from trade unions of electronics firms, and firm managers and workers, who provided the research team with effective institutional and technical support during the fieldwork activities conducted from March to November 2018.

Table of Contents

List of Figures	1
List of Tables	1
List of Boxes	2
1. Background of the Study	3
1.1 Trends in Thailand’s Electronics Sector	3
1.2 Working Conditions in Electronics Firms	8
2. Sampling Description	10
2.1 Worker Characteristics	10
3. Putting the Data into Larger Context	13
3.1. Firm Characteristics of Electronics Sector	13
3.2. Exports and Economic Performance in Electronics Sector	13
3.3. Workforce and Training in Electronics Sector	14
3.4. Innovation and Training	16
4. Research Findings	18
4.1 Training Opportunities and Promotion	18
4.2 Wage Increases	20
4.3 Working Conditions	21
4.4 Worker Voice and Feedback Loops	25
5. Conclusion	27
References	29
Appendix	31

List of Figures

Figure 1. Production Value of Electronics Goods	4
Figure 2. Manufacturing Production Index of Electronics Sector (Percent and Values in US\$ Billion)	5
Figure 3. Value of Overall Trade for Electrical and Electronics Industry (Percent)	5
Figure 4. Value of Overall Trade for Electronics Sector	6
Figure 5. Export Revenue by Electronics Goods in 2015	7
Figure 6. Major Export Markets for Electronics Products	7
Figure 7. Foreign Investment Value during 2015 - 2018	8
Figure 8. Labour Share by Gender and Labour Category (Number)	10
Figure 9. Educational Achievement by Labour Category (Number)	11
Figure 10. Number of Workers by Migration Status	12
Figure 11. Distribution of Firms by Size (Percent)	13
Figure 12. Annual Growth Rate in Employment and Real Sales (Percent)	15
Figure 1.3 Perception of Workers on Improvement in Occupational Health and Safety Policy	25

List of Tables

Table 1. Surveyed Firms by Ownership (Percent)	2
Table 2. Share of Materials Inputs or Supplies	2
Table 3. Share of Markets where Final Product is Sold	5
Table 4. Share of Market where Main Product is Sold	5
Table 5. Workforce Indicators	12
Table 6. Economic Upgrading and Training	12
Table 7. Number of Workers Participating in Training Programs	15
Table 8. Average Monthly Wages of Labour (Thai Baht)	15

List of Boxes

Box 1. Challenges Faced by Electronics Firms in Economic Upgrading	17
Box 2. Limited Training Opportunities	19
Box 3. Conditional Promotions	20
Box 4. Guidelines for Employers Regarding Female Employees	23

1. Background of the Study

Countries around the world—especially in Southeast Asia—have leveraged economic integration to drive growth. Gary Gereffi's landmark paper in 1994 discussed the emerging organization of production into “global value chains” (GVCs) that span nations. 80 percent of global trade takes place through value chains (United Nations Conference on Trade and Development, 2013).

The apparent economic success from integration into the global economy in some Southeast Asian nations conceals high levels of inequality. The quest to be competitive exerts downward pressure on wages and working conditions in some countries. Nations, seeking to capitalize on an abundance of low-cost labour, specialize in low-value added activities, while others struggle to reconcile higher value-added production in supply chains with the need for more jobs and a skilled labour force. In addition, living standards stagnate, inequality widens, and growth becomes unsustainable when countries fail to leverage gross domestic product growth to upgrade their supply chains, invest in human capital and diversify their economies.

Against this backdrop, there is a need to better understand the conditions under which

participation in and upgrading along global value chains can promote inclusive industrialization.ⁱ Improving wages and working conditions spur aggregate demand; this is not only of interest to Southeast Asian nations, but also to the developed countries of Europe and North America that look to Asia's dynamism to propel the global economy.

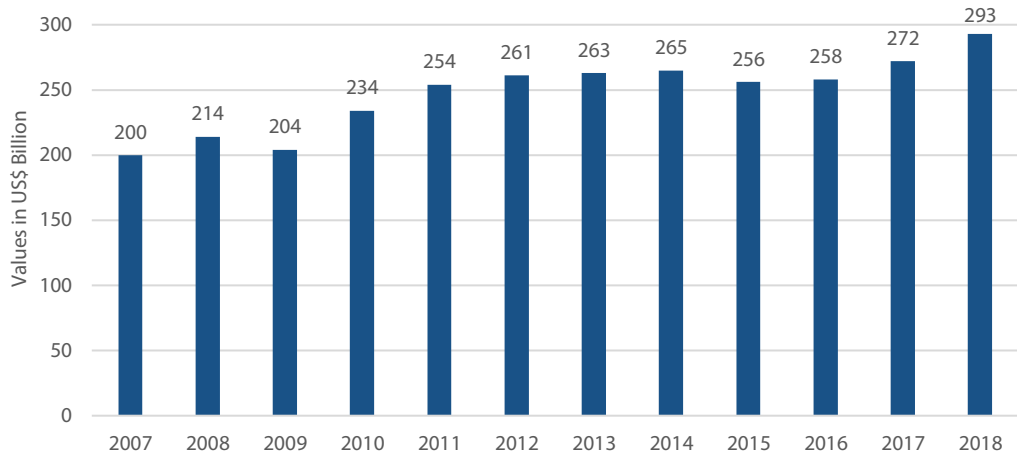
1.1 Trends in Thailand's Electronics Sector

To understand the trends in the Thai electronics sector, this section first provides an overview of the global trends. Between 2008 and 2015, the global electronics and information technology (IT) sectors' production declined slightly owing to the 2008 global economic crisis and ensuing decline in global economic growth. Since then, production in the electronics and information technology sectors continued to grow steadily, increasing by six percent every year between 2015 and 2017 to US \$2,740 billion. Of this, the subset - electronics -- hardware, including electronic equipment, components and devices -- increased by seven percent to US \$1,976 billion. The electronics and IT sector production rose by four percent every year between 2015 and 2018 to US \$2,836 billion. Overall production in the global electronics and information technology (IT) industries is driven by high growth in the market for semiconductors and other electronic

ⁱ Inclusive industrialization is a core principle of the post-2015 Sustainable Development Goals. Inclusive industrialization means that every country achieves a higher level of industrialization in their economies, and benefits from the globalization of markets for industrial goods and services. Inclusive industrialization not only relates to economic benefits or creation of more job, the principle of inclusive industrialization also relates to enhancing living standards of all people—the development of inclusive industrialization must generate good job that increase demand and raise living standards of all people. Inclusive industrialization, therefore, implies that no one is left behind and all parts of society benefit from industrial progress, which also provides the means for tackling critical social and humanitarian issues (United Nations Industrial Development Organization, 2014).

Figure 1

Production Value of Electronics Goods



Source: JEITA (2018) Production Forecasts for the Global Electronics and Information Technology Industries

components and devices owing to the global technological revolution (**Figure 1**).ⁱⁱ

Thailand is recognized as a major production base for the electronics sector both regionally as well as internationally. The electronics sector has played a pivotal role in Thailand's economic growth. The sector contributes 15 percent of country's GDP and represent 12 percent of total employment in manufacturing in 2015 (Errighi & Bodwell, 2017).

As a result of the demand for new communication devices and gadgets, Thailand's electronics sector saw continual growth between 2012 and 2014.

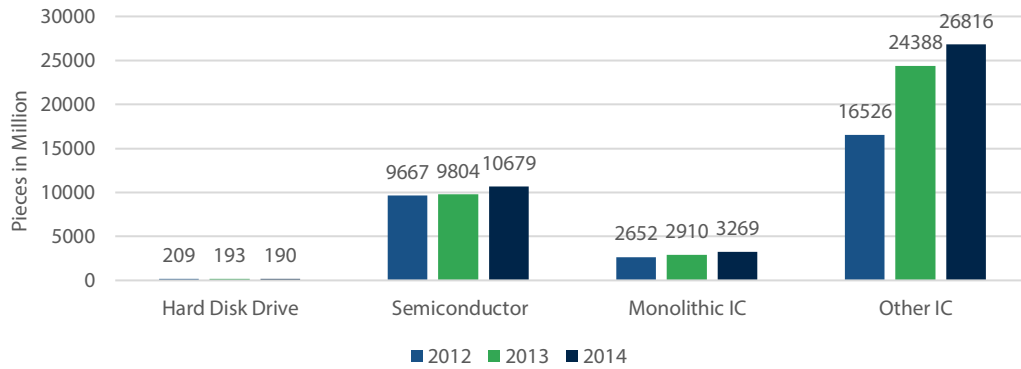
Figure 2 shows that semiconductor production in 2014 increased by approximately 10 percent from 2012, the monolithic IC increased approximately 23 percent, and other integrated circuits increased approximately 62 percent.

The Ministry of Commerce of Thailand reported that the electrical and electronics industry ranked third in production of export products in 2015. The overall trade in the electrical and electronics industry was approximate US \$99 billion, with export revenues accounting for over US \$54 billion (**Figure 3**). The microelectronics sector, which is the target of this study, saw trade valued at approximately US \$59 Billion,

ii Internet of things is an internet of three things: (1). People to people; (2) People to machine /things; and (3) Things /machine to things /machine, Interacting through internet. It is a paradigm that considers pervasive presence in the environment of a variety of things/objects that through wireless and wired connections and unique addressing schemes are able to interact with each other and cooperate with other things/objects to create new applications/services and reach common goals.

Figure 2

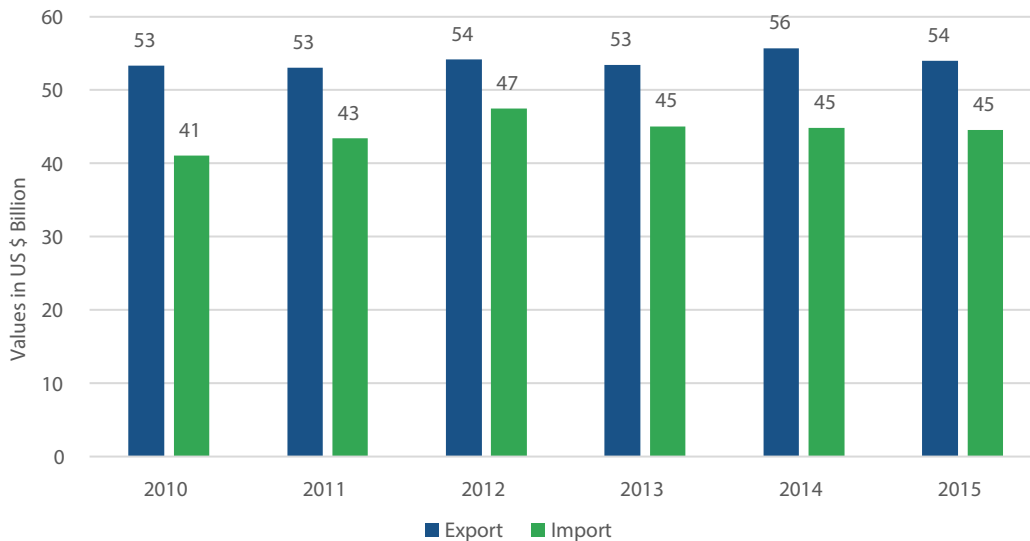
Manufacturing Production Index of Electronics Sector (Values in US \$ Billion)



Source: Electrical and Electronics Institute, 2015

Figure 3

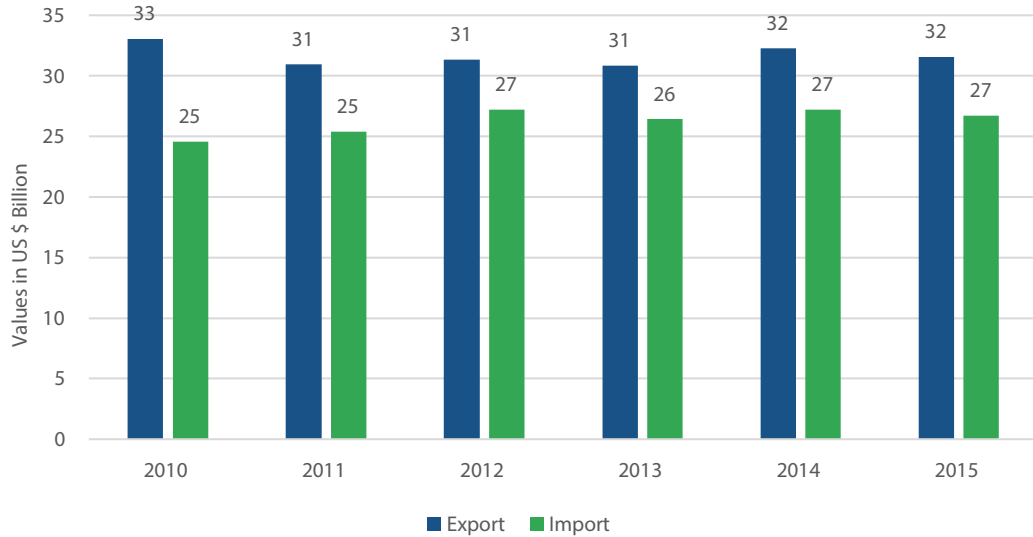
Value of Overall Trade for Electrical and Electronics Industry



Source: Electrical and Electronic Institute, 2016

Figure 4

Value of Overall Trade for Electronics Sector



Source: Electrical and Electronic Institute, 2016

with export revenues accounting for over US \$32 Billion (**Figure 4**). Based on export value, the major products of the microelectronics industry in Thailand are computer components and parts, printed circuit boards and parts, and integrated circuits (IC) valued at US \$14.6 Billion or 46 percent of total export revenues from microelectronics sector (**Figure 5**).

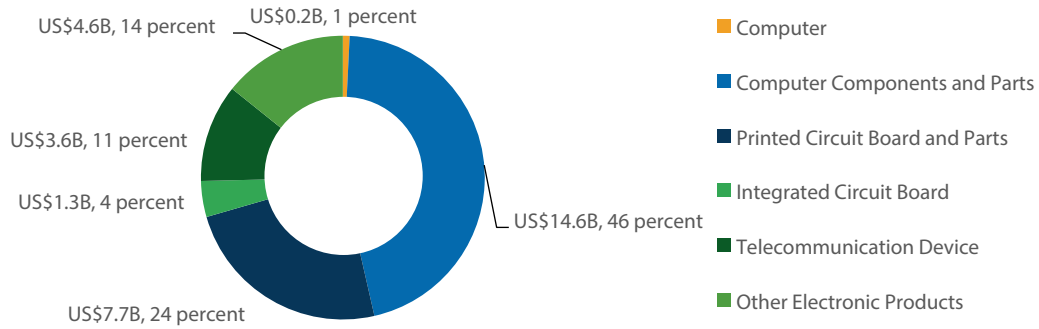
The major export markets for electronics goods include the United States (US), members of the Association for South East Asian Nations (ASEAN),

and the European Union (EU). The export value from these three markets accounts for 52 percent of the total Thai revenue from exports (**Figure 6**).

Figure 7 shows that foreign investment by international corporations in electrical and electronics sector (E&E) between 2015 to 2017 continuously declined due to fall in the external demand, however, post 2017 the external demand increased by US \$128 million (12.7 percent) in 2018.

Figure 5

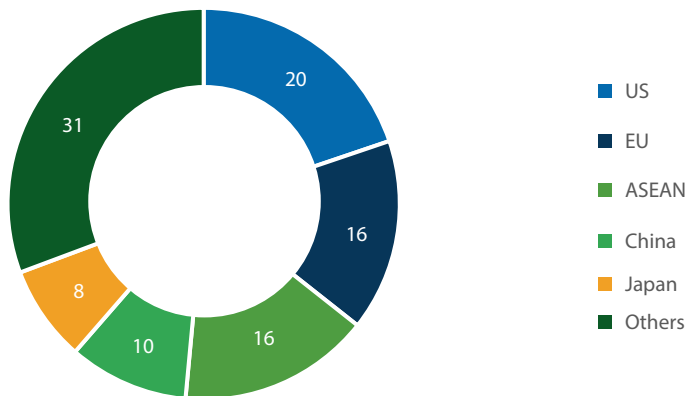
Export Revenue by Electronics Goods in 2015



Source: Electrical and Electronic Institute, 2016

Figure 6

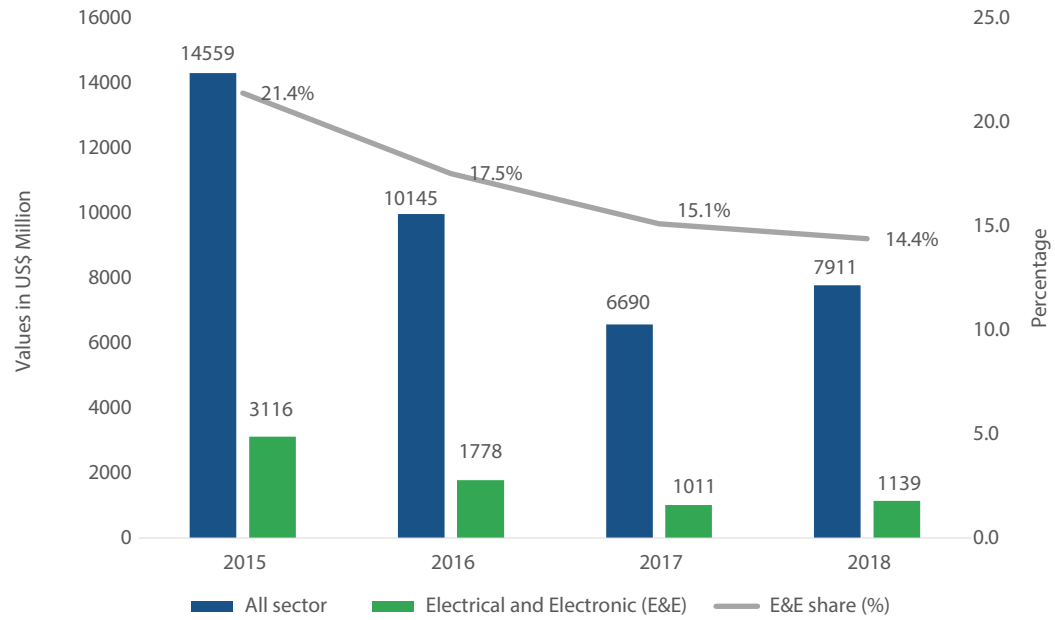
Major Export Markets for Electronics Products



Source: Electrical and Electronic Institute, 2016

Figure 7

Foreign Investment Value During 2015 - 2018



Source: BOI, 2019

1.2 Working Conditions in Electronics Firms

The Thai electronics sector still relies heavily on labour-intensive work often associated with low-skilled workers (ILO, 2016). The survey completed by Thailand’s Ministry of Labour in 2015 shows that 80 percent of the total workforce in the Electrical and Electronics (E&E) industry were employed in low-skilled occupations, mostly as assembly workers and plant and machinery operators. The remaining 20 percent are employed in higher-skilled positions at the managerial, professional and technician levels (Ministry of Labour, Thailand 2015).

Gender balance in the sector

Women constitute over half of all the employees in the sector (ILO, 2017). Nonetheless, while women are significant to the functioning of the sector, most female employees are limited to low-skilled jobs such as clerical work, general services, and assembly or production lines. Most of the women workers are between the ages of 18 – 31 years. The largest gender gap is seen at the higher end of the skills spectrum—male workers seem to have more opportunities than female workers for career advancement. Women represent just 25 percent of managers in the industry, while their male counterparts account more than 50 percent of total technical positions. This gender gap also

includes earning as women are paid on average 16 percent less than male workers (ILO, 2017).

Working time

It is common for workers to work for more than eight hours a day. The research for this study confirmed that workers in this sector sometimes work more than 10 hours a day or 60 hours a week. Such long working hours have direct consequences for the physical and mental health of workers.

Bargaining power

Although mechanisms are nominally present for workers to wield bargaining power in the electronics sector, the study found there are significant barriers. Thailand has some of the lowest rates of unionization in the world. Estimates suggest that only around 1.5 percent of the total workforce are members of a union

(ILO, 2017). There are only 34 unions out of 76 provinces (ILO, 2017). The Labour Federation of Electrical Appliances and Electronics Workers has been the major industrial federation of unions in the electronics sector. At the present there are 21 unions affiliated with the federation with 24,456 members. Most of its affiliates are the trade unions in Japanese MNCs, such as Panasonic, Sanyo, Sony, Hitachi, Mitsubishi and Fujitsu (AMRC, 2013).

The Labour Federation of Electrical Appliance and Electronics of Thailand, the Federation of Automobile and Metal Workers, and the Thai Iron and Metal Industrial Workers Federation (TIAM) work together under the Confederation of Thai Electrical Appliances, Electronics, Automobile and Metal Workers, bringing together 63,674 members and 88 trade unions in these industries.

2. Sampling Description

2.1 Worker Characteristics

This study is based on interviews with a total of 230 workers in Thailand's electronics sector. The workers were categorized into two different categories based on the worker survey—techniciansⁱⁱⁱ and production line workers.^{iv} **Figure 8** shows that, out of 230 workers, there are 23 technicians (10 percent) and 207 (90 percent) production line workers. Most of the workers in all categories are female – 193 out of 207 (93.2

percent) production line workers and 20 out of 23 technicians (87 percent) are female.

Figure 9 reflects that the majority of production line workers have an upper secondary education (150 persons, 72 percent). A few production line workers had a bachelor's degree (17 persons, 8 percent). Technicians, on the other hand, mostly hold bachelor degrees (15 persons, 65 percent). This finding was reinforced by the in-depth interviews, which revealed that technicians need

Figure 8

Labour Share by Gender and Labour Category (Number)



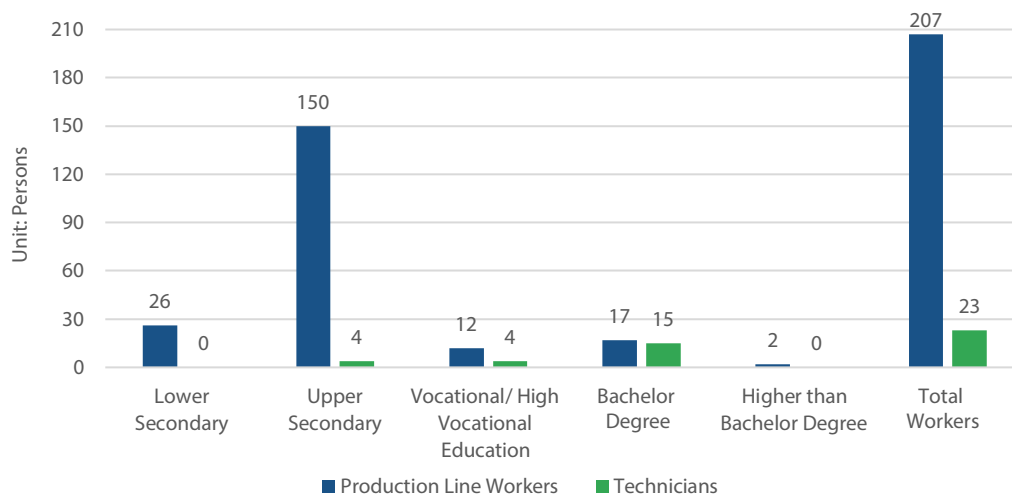
Source: Worker Survey data (Kenan Foundation Asia - JJN, 2018)

iii Technician includes engineer, designer, technology expert and supervisor. At least 1-3 years of education in colleges or universities.

iv Production line worker includes workers as heads of the worker groups, given they work in a production line. (Kenan Foundation Asia, 2018).

Figure 9

Educational Achievement by Labour Category (Number)



Source: Worker Survey data (Kenan Foundation Asia - JJA, 2018)

to possess more complex skills that come with higher degrees. Moreover, executives interviewed for this study expressed a preference for technicians with higher degrees and experience in production lines.

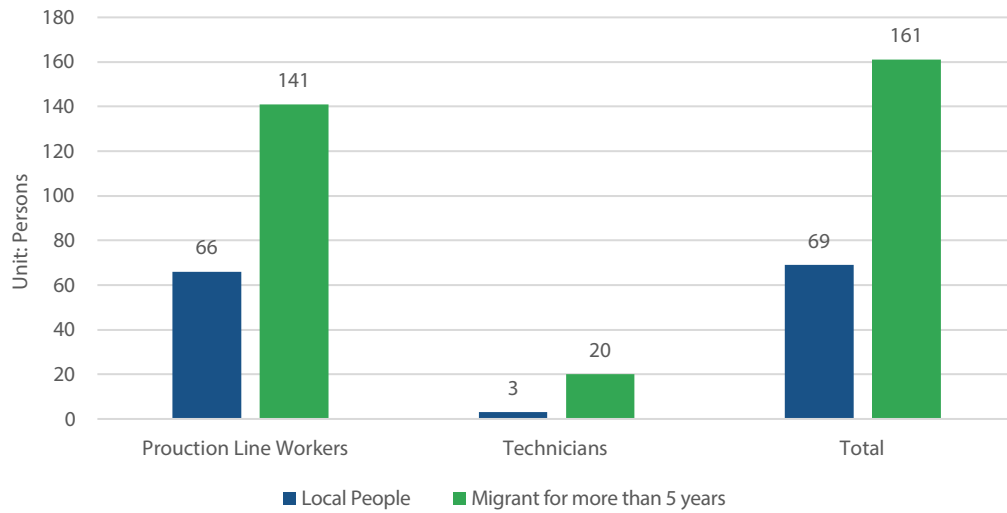
70 percent of workers in electronic firms are migrants^v of which 61 percent are production workers and just under nine percent are technicians. Of the 30 percent of workers that

are locals, just under 29 percent are production workers and one percent are technicians. In case of long-term migrants, there appears to be a tendency to remain in the work area and not return to one’s hometown. In many cases, workers got married, bought houses, had children and sent their children to local schools in the working area and thus tended to stay rather than return to where they had originally migrated from.

^v In this study, migrant refers to Thai production line workers and Thai technicians who moved from another city to live in the province that employer’s company is located in (Kenan Foundation Asia, 2018).

Figure 10

Number of Workers by Migration Status



Source: Worker Survey data (Kenan Foundation Asia - JJJ, 2018)

3. Putting the Data into Larger Context

This study examines firm level data from the World Bank Enterprise surveys to understand the landscape of firms in Thailand's electronics sector. The World Bank dataset contributes to an understanding of the structure of typical firms that employ workers such as the ones in this survey. Due to industrial property rights and bureaucracy, the research team could not survey firm level quantitative data in detail (see appendix for an explanatory note).

3.1. Firm characteristics of Electronics Sector

The Enterprise Surveys conducted by the World Bank Group and its partners cover small, medium,

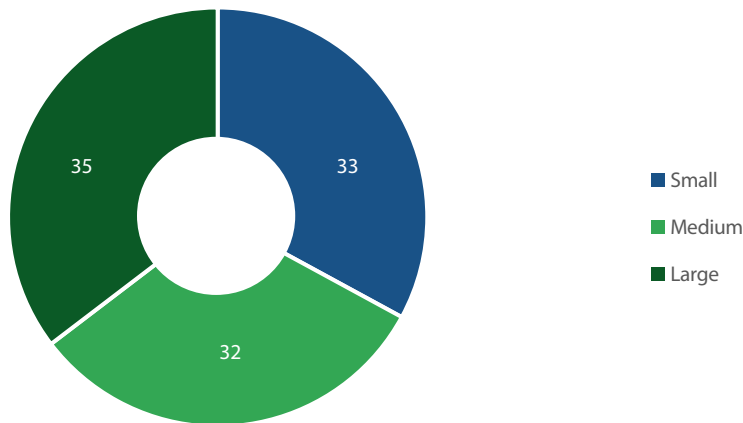
and large firms with different types of ownership. The size of the firm is determined by the number of employees: 5 to 19 (small), 20 to 99 (medium), and 100 or more (large). Firms with less than five employees are ineligible for the survey. Firms that are 100 percent state-owned are also ineligible. The distribution of electronics firms is reflected in figure 11. More than 74 percent of firms are private domestically owned, and 13.4 percent have foreign ownership (**Table 1**).

3.2. Exports and Economic Performance in Electronics Sector

Using the responses to questions on annual sales and the total number of permanent full-

Figure 11

Distribution of Firms by Size (Percent)



Source: WB enterprise survey, 2016

Table 1

Surveyed Firms by Ownership (Percent)

Ownership	Electronics
Private domestic	74.4
State-owned and private	0.0
Foreign owned	13.4
Foreign and domestic owned	12.2
Total	100

Source: WB enterprise survey, 2016

time employees in the last fiscal year and three fiscal years prior, one can calculate the growth measures for each firm. **Figure 12** displays the resulting annual growth rate in employment and in real sales. Thai electronic firms experienced a decline in the real annual sales growth by 4.2 percent while the annual employment growth grew by only 2.6 percent.^{vi}

Two-third of the firms' relied on domestic markets for material inputs and 32 percent of firms used both domestic and foreign material inputs. Only 1.2 percent of firms import all of their material inputs or supplies from abroad (**Table 2**).

Around 55 percent of the firms sell their final products in the domestic market, 31.7 percent sell in both domestic and international markets, and 6.2 percent of firms sell their final products internationally. 3.6 percent of the firms sell their products domestically to a third party that then exports the products.

Table 2

Share of Materials Inputs or Supplies

	Percent
Domestic	66.7
Domestic and Foreign	32.1
Foreign	1.2

Source: WB enterprise survey, 2016

Just over 44 percent of the firms sell their main product locally i.e. in the same municipality where the establishment is located, 22.3 percent of the firms sell their main product across the country and only one-third of firms sell their main products in the international markets.

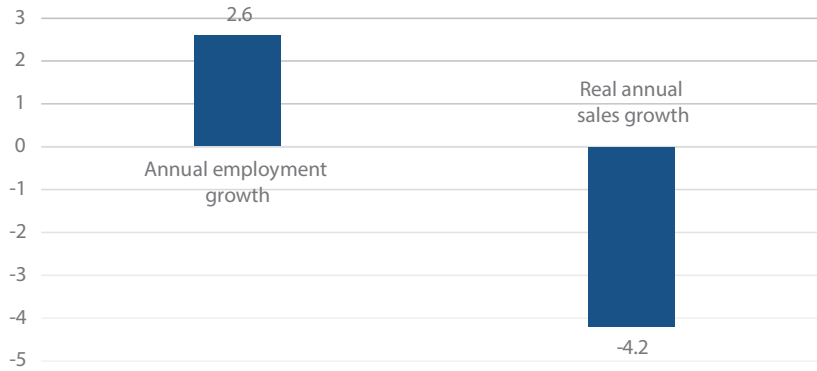
3.3. Workforce and Training in Electronics Sector

The Enterprise Survey collects detailed information about workforce indicators such as the number of permanent full-time employees, the number of temporary employees, employees disaggregated by gender, and whether formal training is offered. In addition to this, for manufacturing firms, the Enterprise Surveys also collect the breakdown of the workforce between production and non-production workers, and between skilled and unskilled production workers. **Table 5** shows firms' investment in the skills and capabilities of their workforce.

vi Out of 117 electronic firms, data for all indicators of interest were available for 82 firms. But in case of annual sales indicator data is available for 59 firms.

Figure 12

Annual Growth Rate in Employment and Real Sales (Percent)



Source: WB enterprise survey, 2016

Table 3

Share of Market where Final Product is Sold

	Percent
National Sales	54.9
Indirect Exports (sold domestically to third party that exports products)	3.6
Direct Exports	6.2
Both National Sales and Indirect Exports	3.6
Both National Sales and Direct Exports	31.7

Source: WB enterprise survey, 2016

Table 4

Share of Market where Main Product is Sold

	Percent
Local – main product sold mostly in same municipality where establishment is located	44.4
National – main product sold mostly across the country where establishment is located	22.3
International	33.3

Source: WB enterprise survey, 2016

The incidence of training is measured by the percent of firms that offer formal training and the intensity of training is measured by the share of workers receiving training in the manufacturing sector. Just over a fifth, 20.7 percent, of electronic firms offered formal training to their employees, and within firms that offer training, the proportion of workers trained is 46.9 percent. Around 90 percent (29 firms) of the large firms, 42 percent (26 firms) of the medium firms, and only 7 percent (27 firms) of the small firms offered formal training to their employees.

The intensity of unskilled workers in production is measured by the share of unskilled workers out of all production workers. Only 8 percent of all production workers are unskilled; the remaining 92 percent are skilled workers. The average number of permanent workers in the electronics firms are 441 and there are zero temporary workers. Out of 441 workers, 405 are production

workers and remaining 36 are non-production workers. 375 production workers are skilled and 30 production workers are unskilled.

3.4. Innovation and Training

Overall, there are 14 out of 80 firms, or 17.4 percent, that have undertaken at least one type of economic upgrading in the period (**Table 6**). **Table 6** shows that functional upgrading (moving to higher-value functions) is the most prevalent, undertaken by 13.7 percent of surveyed firms in the sector, while process upgrading (incorporation of more sophisticated technologies into production), and product upgrading (producing higher-value products) is undertaken by 10 percent of firms. Also, the firms that have upgraded are more likely to provide formal training to their employees as seen in **Table 6**. 85.7 percent of upgraded firms provide training to their employees compared to 37.9 percent of non-upgraded firms.

Table 5

Workforce Indicators

	Percent
Percent of firms offering formal training	20.7
Proportion of workers offered formal training (percent)	46.9
Average number of permanent full-time workers	441
Average number of temporary workers	0
Average number of permanent production workers	405
Average number of permanent non-production workers	36
Average number of permanent skilled production workers	375
Average number of permanent unskilled production workers	30
Proportion of unskilled workers (out of all production workers) (percent)	8

Source: WB enterprise survey, 2016

Table 6

Economic Upgrading and Training

	In Absolute Number			In Percentage		
	Formal Training	No Formal Training	Total	Formal Training	No Formal Training	Total
No economic upgrading	25	41	66	37.9	62.1	100
Economic upgrading	12	2	14	85.7	14.3	100
Process upgrading	6	2	8	75.0	25.0	100
Product upgrading	6	2	8	75.0	25.0	100
Functional upgrading	10	1	11	90.9	9.1	100
Total	37	43	80	46.2	53.8	100

Source: WB enterprise survey, 2016

Box 1

Challenges Faced by Electronics Firms in Economic Upgrading

Reliance on labour-intensive technology: Although most firms have invested in new machines and technologies, such as automation system and robotic system, still there is a high demand for low-skilled labourers especially by small and medium firms. The demand is to perform sophisticated tasks and also to maintain cost. The reliance on low-skilled labour could reduce the capability to develop new products or could affect the productivity of the firms.

“At present, our firm imports new machines. However, those are not entirely automated system. The demand for labour is still the same as in some processes, we still need humans to do sophisticated tasks”.

An in-depth interview with a manager from a medium-sized electronics firm in Lamphun.

Limited Research and Development (R&D): The in-depth interviews have shown the disparity in R&D investment between large electronic firms, and small & medium firms. The large electronic firms, especially MNCs, have assigned budget for R&D to develop new products in order to meet the changing market demand. On one hand, the large firms are often seen collaborating with academic institutes to develop new products or new technologies whereas, on the other hand, small & medium firms struggle to finance the R&D units.

4. Research Findings

Social upgrading refers to access to training, promotions, wage growth, welfare benefits, improvements in working conditions in the production line, worker voice and feedback mechanisms from between workers and firms.

4.1 Training Opportunities and Promotion

Table 7 presents number of workers participating in training programs. Out of 230 workers, 141 workers, or 61 percent, participated in training programs. 95 respondents, or 68 percent, reported that most of their training programs were organized by their firms.

The study found that 48 percent of technicians have been trained in various skills, including technical knowledge, technical foreign languages, computer electronics control devices, and soft skills. For the workers in the production line, the survey found that more than half of them

were provided training on computer electronics control devices.

Production line workers noted that the demands of a 12-hour work day leaves little time for these workers to engage in training programs. Skills upgrading happens on the job.

In terms of job promotion, 12 out of 230 workers reported that they had a change in position over the past year. A move from a lower to a higher position brought more responsibilities but also a higher salary. Nonetheless, there were conditions attached to some of the promotions. The research found that a few workers who received promotions were also asked to resign from the trade union. Stakeholder interviews also confirmed this finding that some electronics sector workers had to leave the trade union to get a more supervisory role within the firm.

Table 7

Number of Workers Participating in Training Programs

Skills	Position		Total
	Technicians	Production Line Workers	
Management skills	0	0	0
Relevant technical knowledge	4	0	4
Technical foreign language	4	0	4
Computer electronic control device	6	125	131
Soft Skills	2	0	2
Total	16	125	141

Source: Worker Survey data (Kenan Foundation Asia - JJJ, 2018)

Box 2

Limited Training Opportunities

Limited Training opportunities for low-skilled labour in electronics sector

A study found that in Thailand, where the production of electronic firms is heavily relied on low-skilled labour, many low-skilled workers in production line have less opportunities to receive training and promotion as compared to other job roles.

Small and medium firms, which are subcontractors to large firms, mainly focus on product assembly and manufacturing raw materials for electronic goods whereas design and technology are created by large firms. In such conditions, workers in these firms do not require high level of skills.

During the survey, the in-depth interviews with Human Resources Managers showed that minimum qualification for workers to work in the production line is to graduate secondary schools (lower secondary to upper secondary level). The firms do not have specific requirement for these workers but they are expected to have good eyesight, skilful hands and ability to perform repetitive tasks.

Since any specific skills are not required from these workers, the firms only provide on- the-job training before the workers start their jobs. The training involves informing about workers' responsibilities and task assignments. Skill development trainings were limited only for supervisors, technicians and engineers.

From workers' perspective, the limitation in skill development was a key barrier for their career advancement.

“Even though our firms invest a lot in new machine, many workers in the production line have less opportunity to obtain training programs on that machine. We learn from our work only through our daily assignments. Even though our supervisors attended training programs organized by the firms, they rarely share the knowledge with the production line workers”

In-depth interview with a representative of a trade union associated with a large electronics firm in Chonburi.

Box 3

Conditional Promotions

A woman working in a large-scale Japanese firm located in the eastern region mentioned that she has been working in the production line for 23 years and has been promoted to a supervisory position for the last few years. In order to be promoted, the employer asked her to resign from the trade union as there were worker strikes for wage increase at that time. “I used to be with the colleagues organizing strikes in front of the company”, she was quoted as saying. After resigning, she had to discontinue her role and her active participation in the union.

Another case is of a female worker who has recently been promoted to be a supervisor at one of the Korean firms where she has worked since 2011. Even though she has resigned from her leadership role in the trade union from last two years, she is the one who coordinates to invite other workers to our interviews. The resignation was required by the employers as they wanted to avoid conflict in the firm. As a Supervisor, she is entitled to receive higher salary along with better allowance, for instance, a better healthcare package. It was noticed that her quality of life has improved overall. She has replaced her motorcycle with a new car. However, not being a member of the trade union has not stopped her other members when they are in need of help and support.

4.2 Wage Increases

Table 8 shows the average monthly wages of workers between 2017 and 2018. Comparing the average wages of all workers in the dataset, the study found that the average wages in 2018 was higher than average wages of all workers in 2017.

The average wages in 2018 were THB 8,601 (USD 266.2), an increase in real terms of 4.9 percent from the 2017 average of THB 8,171 (USD 240.76) per month. The survey did not find a significant difference between the average wages of males and females. This finding does not align with the national-level labour force survey which suggests that women were paid an average 16 percent less than their male counterparts in 2013. This

discrepancy can be attributed to the fact that a majority of this study's sample was female workers, 213 females relative to 17 males, skewing the results. Such a pay gap can be explained in part by the increase in the return to observables characteristics of men. Also, there exist a certain degree of discrimination against women working at similar positions. The discrimination is worse in the younger than the older female workers and it is higher particularly for middle to high-skilled occupation levels (Bui, M. T. T., & Permpoonwivat, C. K.). As is expected, the data suggest a high positive correlation between wages and the education levels -- a higher wage is associated with higher education. This finding also aligns with the labour market survey.

Table 8

Average Monthly Wages of Labour (Thai Baht)

	2018	2017
Gender		
Male	8,402	7,982
Female	8,617	8,187
Education		
Lower secondary	9,034	8,582
Upper secondary	8,183	7,773
Vocational Education/High Vocational Education	10,135	9,628
Bachelor Degree or higher	10,909	10,363
Labour category		
Technician	9,713	9,227
Workers in production line	8,478	8,054

Source: Worker Survey data (Kenan Foundation Asia - JJN, 2018)

Within labour categories, the survey found a difference between technicians and workers in the production line. The labour categories has a positive correlation with wages; as expected, a higher position receives a higher wage.

4.3 Working Conditions

a. Working Hours

Despite the fact that the Labour Protection Act of Thailand states that the minimum working hours is eight hours per day or 48 hours per week, the working hours of workers in the electronics sector, especially those of production line workers, seems to exceed eight hours per day.

The average working hours for all workers is 12 hours per day, though the study found a wide range between three to 22 hours. Workers putting in 22 hours per day are doing double or nearly triple shifts in addition to overtime. When workers work during the swing shift^{vii} they generally receive two times the wages. The number of work days per week ranges between six to seven days a week. In the past year, 84 percent of all workers reported no change in the number of working days or working hours; 5.7 percent reported a decrease in both the working days and working hours and 10.3 percent reported increase in both the working days and working hours.

vii A work shift from afternoon to late evening

b. Work Regulations, Regular Services and Benefits

In this survey, the researchers found that all workers have written employment contracts that include provisions for salary, financial compensation (overtime and performance bonus) and other social benefits (leave, holiday, Occupational Health and Safety (OHS), training and health insurance.)

Work regulation is understood as having two components. The first part is general regulations, which cover working hours, leave, compensation^{viii}, wages, and social benefits. The second part is safety regulations, which relate to occupational health and safety. Of 230 workers, the survey found out that only 23 persons, or 10 percent, indicated an improvement in general regulations and 40 persons, or 17.39 percent, described an improvement in safety regulations.

The survey noted that social benefits for workers in electronics firms include leave policy (sick leave, personal leave, and annual leave), social security (mandatory by Thai law), health insurance, preventative health check-ups, occupational health and safety training (fire training).

Many employers mentioned that the shortage of labour is one of key factors that drove them to improve the social benefits for their workers. In the concentrated areas of Chonburi, Lamphun and Prachinburi, a high turn-over rate also forced these employers to provide better health insurance and a preventative medical check-up

package. These social benefits were seen as tools to attract and retain workers in firms.

However, out of 230, only 61 workers, or 26 percent, said that they saw such improvement. In addition, out of the seven benefit types, there were only four improvements observed by the workers. Only 24 workers, or 10.4 percent, saw an improvement in health insurance; 16 workers, 6.9 percent, saw an improvement in leave policy; 11 workers, or 4.7 percent, saw an improvement in work-related safety training; and 10 workers, 4.3 percent saw an improvement in fire training. In-depth interviews did shed light on the fact that some workers saw an improvement of inpatient and outpatient benefits, compensation for accidents, an increase in annual leave days, and an increase of the OSH related training.

According to the Labour Protection Act B.E. 2541 (LPA), there is a provision that protects women from working in ostensibly dangerous and high-risk work environments. The Act covers working conditions for female employees, pregnant women, and maternity leave provisions.

The most improvement on women-related policies was seen in maternity leave and other policies related to women. Among 213 women workers, there are 11 women workers or 5.16 percent of women workers that pointed out that there was an improvement on the maternity leave policy. In the past, they will not receive wage during the maternity leave. Today, many workers can receive wage during the maternity leave period. In addition, in the past, they could have

viii Compensation in this study means financial reward for overtime hours and performance bonus.

Box 4

Guidelines for Employers Regrading Female Employees

These are the guidelines which employers have to adhere for the safety and security of female employees based on Labour Protection Act B.E. 2541:

An employer shall be prohibited to require a female employee to perform any of the work like mining or construction work to be performed underground, underwater, in a cave, in a tunnel, etc.; working on a scaffold of ten meters or more above the ground; producing or transporting of explosive or inflammable materials; where the conditions of work are not harmful to health or body of the employee.

An employer shall not require a female employee who is pregnant to work between 10 pm and 6 am, to work overtime, to work on a holiday, or to perform any of the following work like driving or going on vehicle; lifting, carrying on her shoulders, carrying by head, pulling or pushing loads in excess of fifteen kilograms; working in a boat.

Where the female employee who is pregnant works in an executive position, academic work, clerical work or work relating to finance or accounting, the employer may require the employee to work overtime in the working days as long as there is no effect on the health of pregnant employee and with prior consent of the pregnant employee on each occasion.

Whereas an employer requires a female employee to work between 10 pm and 6 am and the Labour Inspector is of the opinion that the work may be hazardous to her health and safety, the Inspector shall report it to the Director-General or a person entrusted by the Director-General for consideration, and shall order the employer to change or reduce the female employee's working hours, as inspector deems appropriate, and the employer shall comply with such order.

A female employee who is pregnant shall be entitled to maternity leave of not more than ninety days for each pregnancy.

Whereas a female employee who is pregnant presents a certificate from a first class physician certifying that she is unable to continue in her previous duties, the employee shall be entitled to request the employer to temporarily change her duties before or after delivery, and the employer shall consider changing her duties to suitable work for such an employee.

only 30 days maternity leave, which was less than the requirement of the law. However, the employer nowadays allows the employee to have maternity leave for 90 days. There are seven women workers in the study sample, or 3.29, percent, that pointed that there is an improvement in policy provisions pertaining to pregnant women. In the past, many pregnant workers were forced to resign from their jobs after their pregnancy. However, the survey shows that now, many electronics firms have abandoned that policy. The electronics firm have developed special working areas for pregnant workers. These areas are located far from risky working conditions with chemicals and noise for instance.

According to the Occupational Safety, Health, and Environment Act B.E. 2554, an employer is obligated to keep an establishment and an employee safe with hygienic working conditions and an environment that prevents harm to life, physical and mental health.

The survey shows that many workers in small and medium electronics firms face risky working conditions including coming into contact with chemicals, dust, noise, and cutting machines. The in-depth interview with many of these workers shows that there not enough employers provide protective equipment. Workers pointed out that they only receive one pair of gloves and one mask per month. Many workers have confronted chronic diseases

In-depth interviews with labour union representatives in Chonburi revealed cases of workers that work in medium sized electronics firms in the eastern region that are forced to work

with chemicals, but the firms do not provide protective gear. Employees have to buy their own mask and gloves. With such working conditions, some workers contract injurious health conditions such as cancer and miscarriages.

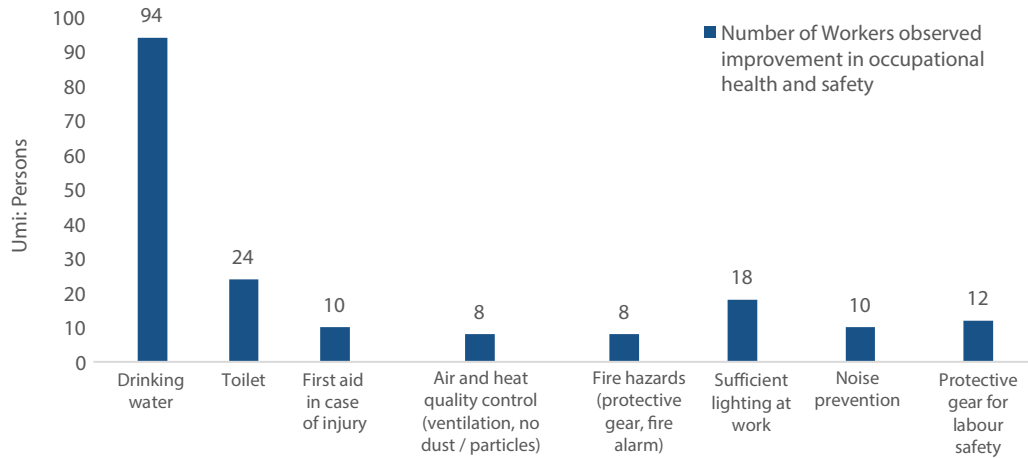
Figure 13 shows the improvement in occupational health and safety policy in electronics firms. Occupational health and safety is divided into two main categories—the first is hygiene-related policies including the development of drinking water, toilets, and first aid. The second is safety-related policies including air and temperature control, fire protection systems and safety systems, appropriate lighting, noise prevention and protective gear for labour safety.

For the hygiene-related policy, among 230 workers, 94 workers or 40.8 percent pointed out that drinking water improved. In the past, drinking water was contaminated with dust. Now, firms use water purifiers. 24 workers pointed out that there is an improvement in toilet systems. In the past, both men and women workers have to use the same toilet, but many electronics firms nowadays separate toilets for men and women workers, which is conducive to safer working conditions for women.

Most common improvement in working conditions was in the lighting system. 18 workers, or 7.8 percent, of 230 workers cited this. Twelve workers, or 5.2 percent, noted that there is an improvement in protective gear such as masks and gloves for labour safety. 10 workers, or 4.3 percent, noted an improvement in noise levels. The workers were provided ear muffs if they have to work in noisy environments.

Figure 13

Perception of Workers on Improvement in Occupational Health and Safety Policy



Source: Worker Survey data (Kenan Foundation Asia - JJN, 2018)

4.4 Worker Voice and Feedback Loops

There are three levels of bargaining power and collective action in the electronics sector—factory level, provincial level, and national level. At the national level the electronics sector has the Federation of Workers in the Electronics Sector.

There are two main channels for workers to provide feedback to firms -- the company channel

(HR Department), and the trade union system. The study found the trade union system has made many recommendations to the companies and to the government in order to improve working and living conditions for workers in the electronics sector. The main recommendations from the trade unions include minimum wage revision and minimum health benefits for employees.

Yet, according to the survey, most workers in the electronics sector faced challenges in exercising their rights and receiving legal protection. It was found that many electronics firms do not allow their workers to establish trade unions.

Trade union representatives during the in-depth interviews mentioned that if employers learn of an attempt to unionize, management explain that unionizing is unwelcome. At times, many workers were forced to relocate to work at other branches. If the resistance continues, this can lead to suspension or even dismissal. This is meant to serve as a deterrent for other workers to stay out of such activities.

Surprisingly, many government officers – whether from the Labour Protection and Welfare Department, the Ministry of Labour, or the police – attempt to dissuade workers from organizing, sometimes with similar threats as employers. This attitude goes against duties set out in the Thai Labour Relations Act, and against Conventions of the International Labour Organization (ILO).

The study also found that there is fear of dismissal, harassment and frivolous lawsuits. Many workers feel anxious about unionizing and the resulting damage to their employment prospects. The deeply ingrained impression is that organizing will lead to chaos and reduced orders in the factory. As workers depend on overtime to make ends meet, they are vulnerable to pressure of employers who will simply reduce overtime as punishment.

Another challenge observed during the survey is a general lack of workers' awareness on how to exercise their rights, meaning that employees are not fully aware of the benefits of organizing and collective bargaining with employers, while unions often lack the resources to effectively mobilize and educate workers. The lack of education and information from their employers means that these workers have little knowledge about their fundamental rights and lack confidence in unionization.

5. Conclusion

Thailand has played a significant role in the global electronics sector for more than 30 years. The country's production base for electronics products ranges from tier 3 (raw material production) to tier 1 (final products). At present, due to the intense global competition and technological disruption, electronics firms have had to adjust in order to maintain their competitiveness in the global market.

This research project based on interviews with 230 workers and semi-structured interviews with a range of stakeholders found that Thai firms in the electronics sector are part of the new phase of industrial development, in which firms are adopting more innovation and technology -- greater use of automation and robots, for instance -- to increase their production. To this end, many electronics firms have made great efforts to improve their production processes and products, while investing more in research and development (R&D). Nonetheless, the study found that while the industry has shifted to incorporate greater innovation and technology, electronics firms still rely on low-skilled labour particularly in their production lines. This helps them stay competitive by maintaining a low product price over product efficiency.

Most of the economic upgrading in firms takes in the form of functional upgrading. The number of firms with product or process upgrading is still very small. Therefore, Thailand has room for improvement and it must exert considerable effort

in these areas to move up in its value chains. Firm size matters for economic upgrading; larger firms more likely to undertake economic upgrading. Among different types of economic upgrading, functional upgrading appears to benefit the largest number of employees. Employees in upgraded firms are more likely to receive formal training compared to their counterparts in non-upgraded firms. Across types of employees, there is evidence that technicians and managers are more likely to see their wages rise and to get promoted than workers in production lines.

About a quarter of workers said they have experienced some form of social upgrading while working in the electronics value chain. The study also found out that the opportunity to get a promotion and receive skill development are limited to product line workers. Most of the electronics firms have to improve social benefits and working conditions in order to retain their workers given the high turnover rate in electronics industry in Thailand.

When it comes to working conditions specifically, there were the differences between small and medium firms on the one hand, and large firms on the other. According to the interviewed workers, the large firms, especially the MNCs, have better working conditions, including the provision of space for chemical storage, protection gear and better management systems to maintain suitable working conditions. The small and medium firms, however, tend to have problems with chemical

storage, providing protective gear and their management of the work environment. Some of these workers pointed out that they have been facing serious work-related health concerns. In contrast, almost all firms insisted that they have improved working conditions by providing access to protective gear.

Workers in the electronics sector in Thailand still face challenges in voicing their needs and conveying feedback to employers either by themselves, or through trade unions. Even

with the presence of the Labour Federation of Electrical Appliances and Electronics Workers, acting as their representative, many electronics firms are reluctant to allow the establishment of a trade union for their workers.

In order to study the association between economic upgrading and social upgrading, Employer-Employee data could not be matched. This happened because the report has utilized WB enterprises data for firm analysis whereas for worker related analysis survey data is used.

References

- AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers'.
- Asian Development Bank. (2015). *Integrating SMEs into global value chains: Challenges and policy actions in Asia*. Mandaluyong City: Asian Development Bank.
- Barrientos, S., Gereffi, G., & Rossi, A. (2011). *Economic and social upgrading in global production networks: A new paradigm for a changing world*. Geneva: <https://doi.org/10.1111/j.1564-913X.2011.00119.x>.
- Board of Investment. (2015). *Thailand's Electrical and Electronics Industry*. Bangkok: Board of Investment.
- Chakanan, S. (2016, February 3). Thailand's Labour Market. (J. Meepien, Interviewer)
- Chalamwong, Y. (2016, January 22). Skill Mismatch in Thailand. (J. Meepien, Interviewer)
- Chiamdee, C. (2016, February 25). Employability of the Thai labour force. (J. Meepien, Interviewer)
- Department of Industrial Works, Ministry of Industries. (2015). *Statistics on Number of Factories Registered with Ministry of Industries 2015: Lamphun*. Bangkok: Department of Industrial Works, Ministry of Industries.
- Department of Industrial Works, Ministry of Industries. (2015). *Statistics on Number of Factories Registered with Ministry of Industries in 2015: Chonburi*. Bangkok: Department of Industrial Work, Ministry of Industries.
- Department of Industrial Works, Ministry of Industry. (2015). *Statistics On Number of Factories Registered With Ministry of Industry 2015: Prachinburi Province*. Bangkok: Department of Industrial Works, Ministry of Industry.
- Department of Labour Protection and Welfare. (2541). Employment of Women. In D. o. Welfare, *The Labour Protection Act B.E.2541* (pp. 18-19). Bangkok: Department of Labour Protection and Welfare, Ministry of Labour.
- Electrical and Electronics Institute. (2016, February 1). *Worldwide Sales Electrical and Electronics by Region*. Retrieved March 23, 2016, from <http://www.thaieei.com/eiu/TableauPage.aspx?MenuID=87>
- Euromonitor International. (2016, March 11). *Changing Industry Patterns-New Opportunities for Western Electronics Companies*. Retrieved from <https://blog.euromonitor.com/>: <https://blog.euromonitor.com/changing-industry-patterns-new-opportunities-for-western-electronics-companies/>
- Gereffi, G. (1994). The Organisation of Buyer-driven Global Commodity Chains: How U.S. Retailers. In G. Gereffi, & M. Korzeniewicz, *Commodity Chains and Global Capitalism* (pp. 95-122). London: Praeger.
- Gereffi, G. (1995). Global Production Systems and Third World Development. In B. Stallings, *Global Change, Regional Response: The New International Context of Development* (pp. 100-142). New York: Cambridge University Press.
- Gereffi, G. (1999). International trade and industrial upgrading in the apparel commodity chain. *Journal of International Economics*, 37-70.
- Gereffi, G., & Sturgeon, T. (2013). Global Value Chain-Oriented Industrial Policy: The Role of Emerging Economies. In *Global Value Chains in a Changing World* (pp. 329-360). Geneva: World Trade Organization.
- Hengrasmee, C., Popuang, C., Charter, M., & Kumar, R. (2007). *Country report on the Thai electronics sector*. Bangkok: Electrical and Electronics Institute, Thailand.
- Higashi, S. (1996). *Economic Policy and the Growth of Local Manufacturers in Thailand*. Retrieved March 10, 2016, from http://www.ide.go.jp/English/Publish/Download/Apec/pdf/1996_11.pdf
- Intarakumnerd, P., Chairatana, P.-A., & Chayanajit, P. (2015). Global Production Networks and Host-Site Industrial Upgrading: The Case of the Semiconductor Industry in Thailand. *ERIA Discussion Paper Series*, 1-39.
- International Labour Organization. (2014). *Ups and downs in the electronics industry: Fluctuating production and the use of temporary and other forms of em-*

- ployment. Geneva: International Labour Organization.
- International Labour Organization. (2016). *Sectoral studies on decent work in global supply chains: Comparative analysis of opportunities and challenges for social and economic upgrading*. Geneva: International Labour Organization.
- International Labour Organization. (2017). *Electrical and electronics manufacturing in Thailand: Exploring challenges and good practices in the workplace*. Bangkok: International Labour Organization.
- International Monetary Fund. (2017). *The World Economic Outlook*. Washington, D.C: International Monetary Fund.
- Japan Electronics and Information Technology Industries Association. (2017). *2017 Production Forecasts for the Global Electronics and Information Technology Industries*. Tokyo: Japan Electronics and Information Technology Industries Association.
- Kate, A. t., & Haan, E. d. (2010). *Working Conditions in Thailand's Hard Disk Drive Industry*. Amsterdam: Stichting Onderzoek Multinationale Ondernemingen.
- Mcfalls, R. (2016). *The Impact of procurement practices in the electronics sector on labour rights and temporary and other forms of employment*. Geneva, Switzerland: The International Labour Organization.
- Mephokee, C., Ruengrichaiya, K., Konde, V., & Reddy, P. (2005). A Case Study of the Electronics Industry in Thailand. In J. Zhan, M. S. Arano, F. Farinelli, V. Konde, P. Reddy, C. Spennemann, & K. Hamdani (Ed.), *Transfer of Technology for the Successful Integration into the Global Economy* (pp. 1-33). Geneva: United Nations Conference on Trade and Development.
- Ministry of Commerce of Thailand. (2015, December 17). Thailand's top 10 major export products. Bangkok, Thailand.
- Ministry of Foreign Affairs Thailand. (2016). *Thailand's Economic Outlook*. Bangkok: Ministry of Foreign Affairs Thailand.
- Ministry of Industry. (2006). *MOI's 64th Anniversary*. Bangkok: Ministry of Industry.
- Nadvi, K., & Reichert, G. R. (2015). Governing health and safety at lower tiers of the computer industry global value chain. *Regulation & Governance*, 243 - 258.
- OECD and World Bank Group. (2015). *Inclusive Global Value Chains: Policy options in trade and complementary areas for GVC Integration by small and medium enterprises and low-income developing countries*. Washington D.C: OECD and World Bank Group.
- Sturgeon, T. J., & Kawakami, M. (2010). *Global Value Chains in the Electronics Industry: Was the Crisis a Window of Opportunity for Developing Countries*. The World Bank.
- Sturgeon, T. J., & Kawakami, M. (2010). *Global Value Chains in the Electronics Industry: Was the Crisis a Window of Opportunity for Developing Countries?* Washington, D.C.: The World Bank.
- Thailand Board of Investment. (2017). *Net Application Submitted (Jan - Dec 2017)*. Bangkok: Thailand Board of Investment.
- Thailand Board of Investment. (2015). *Thailand Moving Ahead with Cluster Development*. Retrieved February 2, 2016, from http://www.boi.go.th/upload/content/BOI-brochure-cluster%20percent20ar-ea-EN-20151116_53354.pdf
- Thailand Board of Investment. (2015, December 31). *Thailand's Electrical and Electronics Industry*. Retrieved January 2, 2016, from http://www.boi.go.th: http://www.boi.go.th/upload/content/BOI-brochure%20percent202015-E&E_67848.pdf
- United Nations Economic and Social Commission for Asia and the Pacific. (2015). *Asia-Pacific Trade and Investment Report 2015: Supporting Participation in Value Chains*. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific.
- United Nations Industrial Development Organization. (2014). *Inclusive and Sustainable Industrial Development: Creating Shared Prosperity and Safeguarding to Environment*. Geneva: United Nations Industrial Development Organization.
- Vasu, S. (2015). *CHEVRON- Thailand Partnership Initiative: Microelectronic*. Bangkok: Kenan Institute of Asia.

Appendix

Challenges in Data Collection

The research team encountered several obstacles to interviewing firm managers and owners. There were many restrictions on who can enter the compound, let alone the buildings where production takes place. One concern for the tight security was a fear of copying of technology or theft of processes. To overcome this the questionnaire was given to the firm to fill out. However, there were many firms who did not return the questionnaires as agreed upon and despite the researchers' previous briefing on the survey's purpose. To handle these cases, an external coordinator was hired to follow up by calling and providing firms with the most convenient ways to return the forms, such as, email, on-site pick up and express mail. However, the data recorded based on this procedure is not very accurate and the overall quality of the firm survey data was not good. Therefore in this report

an alternative secondary data sources have been used to get an overview of the sector in terms of economic upgrading particularly. The findings from firm survey data is not used in this report wherever possible the information have been filled in using World Bank enterprise survey data 2016.

Characteristics of Key Informants

The study included 34 in-depth interviews with key stakeholders from the government (17), the private sector (9) and civil society organizations (8). 26 of the interviews were with individuals at the management level^{ix} (16 from government sector; 8 from the private sector and two from CSOs). Eight stakeholders were at the officer level^x (6 from CSOs; one from government sector, and private sector each).

Table 9

Number of Workers in Electronic Sector Classified by Gender

Gender	Number		Total
	Workers in production line	Technician	
Male	14	3	17
Female	193	20	213
Total	207	23	230

Source: Worker Survey data (Kenan Foundation Asia - JJN, 2018)

ix Managing level includes supervisor with subordinate, manager level and higher than manager (with or without subordinate), organizational advisor, and board committee

x Officer refers to supervisor without subordinate and positions lower than supervisor.

Worker Survey

Table 10

Educational Achievement by Labour Category (Number)

Education	Number		Total
	Workers in production line	Technician	
Lower secondary	26	0	26
Upper secondary	150	4	154
Vocational Education/High Vocational Education (Specify)	12	4	16
Bachelor Degree	17	15	32
Higher than Bachelor Degree	2	0	2
Total	207	23	230

Source: Worker Survey data (Kenan Foundation Asia - JJJ, 2018)

Table 11

Workers' Evaluation of Work Regulations, Regular Services and Benefits

	Workers receiving the services and benefits		Improvement in policy implementation over the past year (Yes/No assessment)		Assessment of the current performance
	Number of workers	Percent of workers	Number of workers	Percent of workers	The average mark on the scale 1 to 5
Work regulation					
General regulation	230	100	23	10	3
Safety regulation	230	100	40	17.39	3
Social Benefits					
Leave policy	230	100	16	6.95	3
Health insurance	230	100	24	10.43	3
Family support	230	100	0	0	3
Regular health check	230	100	0	0	3

	Workers receiving the services and benefits		Improvement in policy implementation over the past year (Yes/No assessment)		Assessment of the current performance
	Number of workers	Percent of workers	Number of workers	Percent of workers	The average mark on the scale 1 to 5
Regular personal work-related safety training (e.g. chemical usage)	230	100	11	4.78	3
Regular fire training	230	100	10	4.34	3
Other	230	100	0	0	3
Women Related Policy					
Policy for pregnant women	230	100	7	3.04	3
Maternity leave	230	100	11	4.78	3
Other female-focused policy	230	100	0	0	3
Occupational Health and Safety Policy					
Drinking water	230	100	94	40.86	3
Toilet	230	100	24	10.43	3
First aid in case of injury	230	100	10	4.34	3
Air and heat quality control (ventilation, no dust/particles)	230	100	8	3.47	3
Fire hazards (protective gear, fire alarm)	230	100	8	3.47	3
Sufficient lighting at work	230	100	18	7.82	3
Noise prevention	230	100	10	4.34	3
Protective gear for labour safety	230	100	12	5.22	3

Source: Worker Survey data (Kenan Foundation Asia - JJJ, 2018)

JustJobs

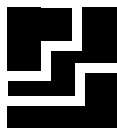
WORKING FOR SHARED PROSPERITY

JustJobs Network is a private, nonpartisan organization finding evidence-based solutions to one of the most pressing challenges of our time: How to create more and better jobs worldwide. We produce empirical research on good job creation, focusing our work on the critical knowledge gaps in the global employment landscape.

JustJobs convenes a global network of diverse stakeholders—including policy shapers, academics, and grassroots leaders—to deepen the practical implications of our research endeavors and amplify their impact. Through the combination of cutting-edge research and global knowledge sharing, we aim to forge a fresh, dynamic channel for policy dialogue on employment at national, regional and international levels. Our team members are based in New Delhi and Washington, D.C.

For more information visit www.justjobsnetwork.org or write to us at info@justjobsnetwork.org

Report design by



Whitespace35
www.whitespace35.com
venkatesh@whitespace35.com
+91 97414 51309