LAB-MOVIE
Labour Market Observatory in Vietnam universities

Report on Vietnam labour market and available monitoring tools

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INTRODUCTION

This report is part of the initial Work Programme 1 of the Erasmus+ project "Lab-Movie - Labour Market Observatory in Vietnam universities". The goals of this report are two-fold:

1. to get acquainted with the major developments of the Vietnamese labour market and available data sources for its study.
2. To summarize current knowledge regarding the 3 specific sectors for which the Labour Market Observatory will be initially built: tourism, Telecommunications and information technology, and agrifood. They have been chosen for the first prototype since they are all fast-growing sectors that can potentially employ many new University graduates. However, the idea is to gradually extend the analysis to all relevant sectors.

This is a key input for further stages of the project in order to avoid redundancies and build on existing knowledge. Vietnam is a very dynamic economy that has been growing at rates of 6 percent and above for the last three decades and whose labor force is undergoing a process of transformation. In this respect it is important to have mechanisms at work that channel newly trained University graduates to the dynamic enterprise setting, and that foster a two-way dialogue: guaranteeing that skills of new graduates are in line with those needed by the enterprises, and that students are aware of current and emerging opportunities for their career development.

The structure of the report is as follows:

- A first section analyzes the background of Vietnam's economy and labor market focusing on developments since the economic reforms of *doi-moi* started in 1986, and, in particular, developments in the last decade. It also puts the 3 economic sectors chosen for initial development of the observatory in the context of the overall economy.
- A second section provides a more detailed analysis of those 3 sectors, describing their current activities and patterns of development, the labor force needs and the sources of information available.
- A third section is conceived as a reference on data sources currently available for a business-oriented study by sector that can inform the next stages of the project.
- A final section presents the conclusions of the analysis.

SECTION 1 - VIETNAM LABOUR MARKET

1. The Economy of Vietnam: Current situation and trends

During the last three decades, Vietnam's economic development has been remarkable. The process of economic reforms referred to as *doi-moi* that started in 1986, has rapidly transformed the country from one of the world's poorest nations into a lower-middle-income country (Tarp, 2019). Economic development helped to increase GDP per capita by 250%, reaching US$2,500 in 2018. This has resulted in a reduction of the poverty rate from over 70% of the population in 2002 to below 6% in 2018, lifting more than 45 million people out of poverty[1]. Over the last five years, the GDP growth rate of Vietnam has always exceeded 6%, and in two consecutive years, 2018 and 2019, the country's economic growth reached impressive results of 7.076%[2] and 7.02%, respectively. This fast growth has been fueled by increased international trade: Exports have been growing at a 14.4% in the last five years[3], leading to Vietnam ranking 7th in the world according to exports as percent of GDP at 105.83%[4]. According to the Atlas of Economic Complexity, Vietnam's export basket has been growing in complexity, meaning that Vietnam's economy is in a position to take advantage of opportunities to diversify given its current know-how, and it is expected to keep growing at a fast pace of 6% over the next decade, in the top decile of countries[5]. No wonder that this process of transformation has been perceived as a role model for other countries starting at low levels of development (Newman et al, 2017; Eckardt et al., 2018).

Hand-in-hand with this process of growth we can observe a transformation of the economy and the labor market. This can be grasped from table 1.1. In 1991 the vast majority (71%) of the labor force was employed in the primary sector, which contributed only 40% of GDP due to its lower productivity. The period 1991 to 2000 showed fast increase in the share of industry and services in the GDP that was not accompanied by a similar change in employment. However,

1 World Bank Vietnam – Overview

2 The World Bank Data (2020). GDP growth (annual %) - Vietnam

3 The Atlas of Economic Complexity. http://www.atlas.cid.harvard.edu

4 https://www.theglobaleconomy.com/rankings/exports/

5 https://atlas.cid.harvard.edu/countries/239

since 2000 the employment structure changed completely so that by 2010 less than half of the labor force was employed in agriculture, with 22% in industry and 30% in services. The trends have consolidated in the 2010s, with particular momentum since 2014. As a result, the service sector has become the main component of production, as typical in more advanced economies, with a strong industry sector at 38% of GDP. In terms of employment, there has been a particularly fast growth of employment in industry since 2014 reaching 27%, something made possible by the reduction of employment in agriculture. Overall, these developments explain good part of the fast economic growth since the economy is moving from low to high productivity sectors (McCaig and Pavcnik, 2017). In the 2018 Global Competitiveness Report, the World Economic Forum ranked Viet Nam 77th out of 140 economies with relatively high scores and rankings on macroeconomic stability and health. Market size reached 71 out of 100 points (29th rank out of 140, the highest-ever reached by Vietnam).

Table 1.1: Economic structure of employment and production in Vietnam, 1991-2018

Shares (%)	Sector	1991	2000	2010	2014	2018
Production	Agriculture, Forestry and Fishing	40.5	24.5	21.0	19.7	16.3
	Industry and construction	23.8	36.7	36.7	36.9	38.0
	Services	35.7	38.7	42.2	43.4	45.7
Employment	Agriculture, Forestry and Fishing	70.7	65.3	48.7	46.3	38.6
	Industry and construction	10.1	12.4	21.7	21.4	26.8
	Services	19.2	22.3	29.6	32.2	34.6

Source: World Development Indicators, World Bank. Shares in production correspond to GDP net of taxes and subsidies on products, shares of employment to total employment according to ILO modeling.

While agriculture, forestry, and fishing have been losing relative importance, it has also been restructuring internally, especially in agriculture and aquaculture. The nation's major crops and agriculture products include rice, coffee, rubber, tea, pepper, soybeans, cashews, sugar cane, peanuts, bananas, pork, poultry, and seafood. Crop choice gradually transformed replacing the traditional paddy with new varieties and a new Viet GAP-standard production model has been developed that focuses on quality and high economic value. Although the planted area of paddy in the whole country decreased, the paddy production in 2018 was estimated at 43.98 million tons, a rise of 1.2 million tons compared to 2017 thanks to the increased yield. Aquaculture has also increased substantially, and its production has reached

4.2 million tons in 2018, an increase of 6.9%. Overall, the agricultural sector, while reducing size, has been able to transform successfully in terms of diversification and commercialization (Tarp, 2017).

Within the new dominant Service sector, *Accommodation and food service activities* is one of the subsectors contributing a larger proportion to the GDP growth. *Trade and service activities* in 2018 saw considerable growth with high consumption. The gross retail sales of goods and services reached 4,416.6 trillion VND in 2018, an increase of 11.6% over 2017. In particular, tourism services have experienced significant growth over recent years. In 2018, the industry achieved impressive results with a record number of 15.5 million foreign visitors to the country, a growth of 19.9% compared to that in 2017 (an increase of more than 2.6 million visitors). However, the outlook for 2020 cannot be as positive given restrictions to travel put in place as a result of the covid-19 pandemic. It will be a challenge for an emerging sector to respond to these developments. The fast growth of the industry sector is also connected with the export-based growth strategy. It has allowed the development of new industries growing in complexity and inter-connectedness. The largest contribution to export growth is linked to products of high complexity such as electrical and industrial machinery and equipment[6]However, such strong growth in industry is putting pressure on the labor market of Vietnam and competitiveness indicators connected to skills and regulation in the context of the Industrial Revolution 4.0: were lagging behind: innovation capacity showed 33/100 points; labor market 56/100 points; and technological readiness 43/100 points with labor skills 54/100 points.

- The intensive economic integration into the international economy, which is a major strong point, has also the drawback of making the country potentially more affected by increasing international volatility and, in particular, by global economic downturns such as the present COVID-19 emergency. Regarding structural and regulatory changes in the economy, economic growth after *Doi Moi* is based on the emergence and strong development of the private sector. But this has meant creating and adapting a new regulatory environment. This is still an on-going process. The business environment has improved remarkably, including fewer requirements for business investments, streamlining administrative procedures, and new policies to support enterprise development. As a result, the country has witnessed a wave of

6 https://atlas.cid.harvard.edu/countries/239/growth-dynamics

startups with a large number of newly established enterprises, for example with more than 131,000 new firms in 2018.

- The transformation in economic structure took place among economic sectors as well as within each sector, resulting in both the rate and quality of economic growth. Regarding the agriculture industry, crop structure shifted from low-value to high-value crops, aquaculture focused more efforts into key species that can be used as processing materials for export, in particular brackish-water shrimp farming. Also, production value increased by 2.3 times when converting agricultural land to aquaculture.

- New production capacities were created in various areas of the economy. In real estate, more than three million square meters of floor area for both residential and commercial uses were added. In manufacturing, there are new major projects such as the Vinfast complex in Hai Phong with a total capacity of 250,000 vehicles annually, or Song Hau Power plant in Hau Giang province with a total capacity of 1,200MW. In other areas like the food processing industry, many new factories and projects continue to be developed. All these motions serve as a crucial driving force to promote economic growth of the country.

- The population of over 97 million people as well as a large number of foreigners residing in the country provide a high potential market and strong purchasing power to motivate the production of both goods and services.

- In terms of international relations, the country has strongly integrated its economy into the global market. In 1995, Vietnam joined the Association of Southeast Asian Nations (ASEAN), and in 2007, the country joined the World Trade Organization. Over the last decades, it has signed free trade agreements with multiple partners as a part of ASEAN or as a separate country. Most recently, on February 12, 2020, the European Union – Vietnam trade agreement was approved, which is stated to have "huge economic potential" and regarded as the most comprehensive trade agreement between the EU and a developing country[7] . These free trade agreements help to motivate economic growth as well as enhancing the opportunities to attract and utilize foreign direct investment inflow.

In order to sustain the rapid economic growth, the Vietnamese government recognizes that it is necessary to start a 'second wave' of reforms. These consist of restructuring public-owned

7 European Commission. (2020). Commission welcomes European Parliament's approval of EU-Vietnam trade and investment agreements

corporations, reducing red tape, and improving transparency of the business sector. Regarding the financial market, there is also a need to reduce the level of non-performing loans in the banking system together with making the financial sector more transparent[8].

2. Demographic and educational context

2.1. General overview of Vietnam Demographics

In 2019, Vietnam conducted a comprehensive population and housing census pursuant to Decision No. 772 / QD-TTg, June 26th, 2018 of the Prime Minister. This is the fifth time Vietnam has conducted such a census since the country reunification in 1975.

As of April 1, 2019, Vietnam's total population was 96,208,984, of which 47,881,061 were males (49.8%) and 48,327,923 females (50.2%). Vietnam is the third most populous country in Southeast Asia (after Indonesia and the Philippines) and ranks 15th in the world. This is in contrast with a population of 33 million in 1960.

Demographic developments and their implications for higher education are illustrated in figure 1.1 based on United Nations World Population Prospects 2019[9]. Since 1960, demographic growth has been very fast in Vietnam due to very high fertility. The total fertility rate remained above 6 children per woman until 1975, and above 4 children per woman until 1987. As a result, the crude birth rate was very high, over 30 per thousand, leading to fast population growth and a very young population structure. Since *doi-moi* started, a fast decline in fertility took place to current levels close to population replacement values (2.05 children per women). Despite this, population growth has continued mainly because of the very young population age structure which implies a very low crude death rate. The prospects for the future, according to UN medium population projections, is a gradual decrease in natural population growth as fertility further declines and the death rate increases due to an older population despite continuing improvements in mortality. The consequences of these demographic developments in terms of the age structure are highlighted in panel (b). The red line shows that as fertility started to decline, the number of births in the country plummeted from a maximum close to 2 million in

8 World Trade Organization - Viet Nam and the WTO. https://www.wto.org/english/thewto_e/countries_e/vietnam_e.htm

9 *United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019: Data Booket. ST/ESA/SER.A/424.*

1990 to a minimum below 1.4 million in 2002, a 30 percent reduction. In that year the number of births started a new increase up to 1.6 million births in 2016 due to a combination of stable fertility and bigger generations reaching childbearing ages. Expectations for the future are slow gradual decline.

The implications for higher education of these demographic developments can be grasped by looking at the green and blue lines in panel (b) that represent the number of Vietnamese of 18 and 22 years of age respectively. These are roughly the generations of new potential entrants to higher education and potential graduates. These numbers mimic four decades later the developments in the number of births. In particular, we observe that the number of potential university entrants reached a maximum in 2010, with a fast decrease of 30% in the last decade. This means a golden opportunity to increase educational capabilities of the Vietnamese population since it is possible to increase tertiary enrollment rates sharply even in the absence of increasing capacity. This positive potential during a limited period is connected with the idea of the demographic dividend (Nguyen Thi Minh, 2009) by which the social and economic circumstances of the country benefit from a period where the number of dependents at younger ages is small due to smaller birth cohorts, and the number of older dependents is also small given previous patterns of population growth. In this period there is a maximum proportion of working age population, and it is precisely in this period when higher income countries in East Asia (besides Japan) started to rise (Bloom et al, 2003). More recent research (Crespo Cuaresma et al. 2014) found evidence that the demographic dividend is actually more of an education dividend in the sense that it occurs when the lower demographic pressure leads to improvements in educational outcomes. In this respect, Vietnam higher education system is currently at a standpoint, benefitting from the smallest generation reaching University age, but with the prospect of a rebound in the coming 15 years due to the peculiar demographic developments in the country.

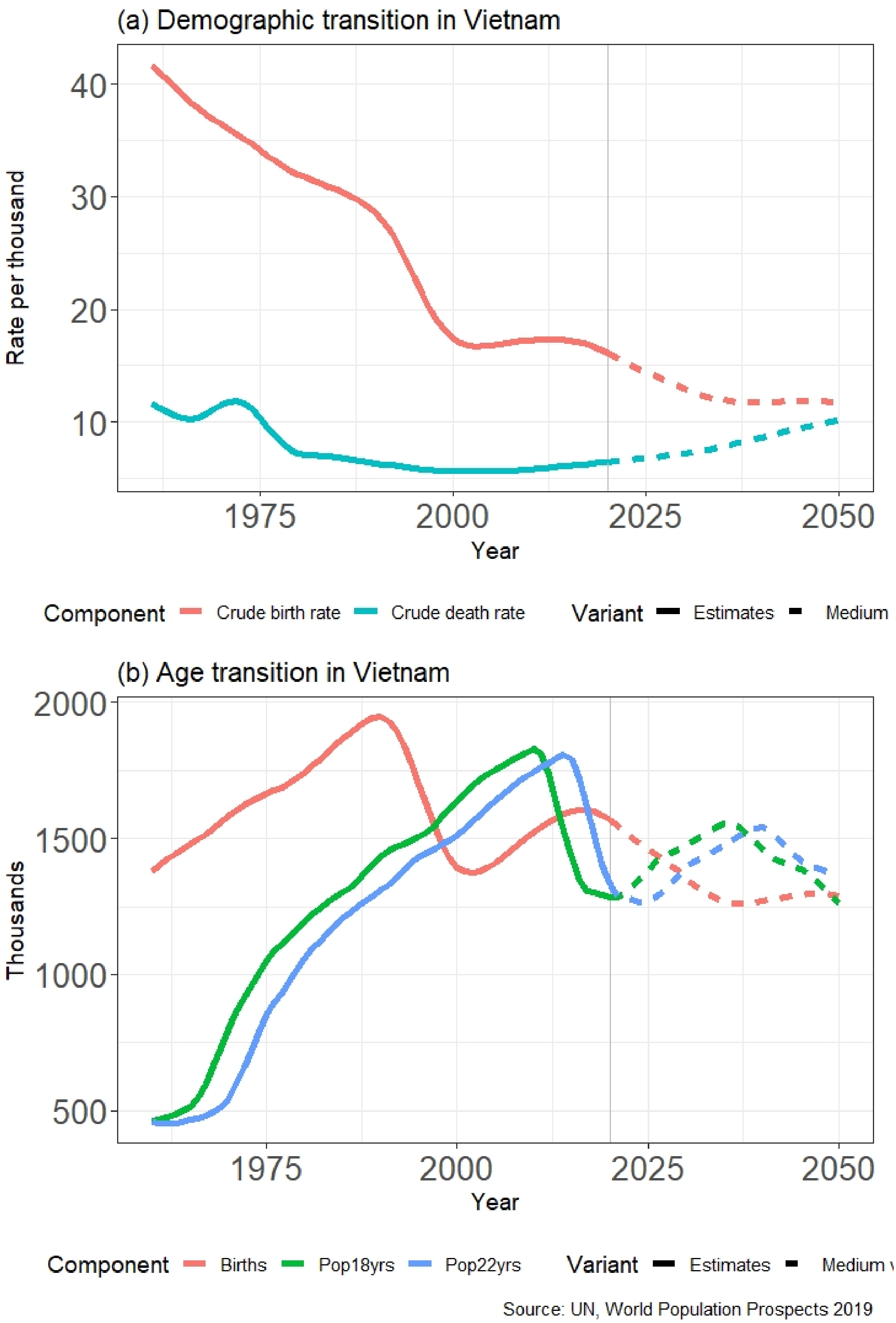


Figure 1.1: Demographic developments and implications for higher education in Vietnam 1960-

2050

Regarding population distribution, the current population density of 290 people/km^2, an increase of 31 people/km^2 compared to 2009, hides large differentials according to regions. The Red River Delta and the Southeast are the two regions with the highest population density nationwide: 1,060 people/km^2 and 757 people/km^2. This is where the two main largest urban agglomerations lie: the capital Hanoi (4.7 million) and Ho-Chi-Minh city (8.6 million)[10].The Northern Midland and Mountainous Region, and the Central Highland are the two regions with the lowest population density: 132 people/km^2 and 107 people/km^2 respectively. Differences are becoming more important over time given a large migration flow towards urban areas and the more developed regions (Liu and Meng, 2019). The urban population of 33,122,548 people, accounts for 34.4% of the total population nationwide. The average annual population growth rate in urban areas in the period of 2009-2019 was 2.64%/year, more than double the national average and six times higher than the average population growth rate. Migration towards the urban areas and more developed regions is closely linked to the transformations of the economy analyzed in section 1.1 and the shift from the primary sector towards the secondary and tertiary.

Th ethnic composition of the population is complex. While 85.3% of the population (82 million) belong to the Kinh ethnic group, there are 53 ethnic minorities including six ethnic groups with a population of over 1 million, Tay, Thai, Muong, Mong, Khmer, Nung of which the Tay has the largest population with 1.85 million At the other side of the spectrum,11 ethnic groups have a population of fewer than 5 thousand people. The Ơ Đu are the smallest group with a population of only 428. The main living areas of ethnic minorities are the Northern Midland and Mountainous Region and Central Highland. While the growth process in Vietnam has occurred with remarkable equity, there is a concern that differences in living standards among ethnic groups have been increasing (Benjamin et al., 2017).

[10] *United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision, custom data acquired via website* ,https://population.un.org/wup/DataQuery/.

2.2. General overview of education in Vietnam

We have seen in the previous section that demographic developments in Vietnam have put the country since the early 2000s in a positive situation regarding education, since substantially smaller cohorts were arriving at the successive educational levels in a period of fast economic growth. Has the country been able to reap the benefits of these developments? A first answer comes from the Human Development Index education indicators[11]. The expected number of years of education has expanded from 7.8 years in 1990 to 12.7 years in 2018. While this is an important increase, it is comparable to the average of medium human development countries, like Philippines (12.6) or India (12.4) and it has not been able yet to close the gap with reference countries in Asia-Pacific such as Thailand (14.7), China (13.8) or Malaysia (13.7).

Year	Primary	Lower secondary	Upper secondary
1999	91.4	60.0	29.0
2009	95.5	82.6	56.7
2019	98.0	89.2	68.3

Table 1.2: Net enrollment rates in Vietnam according to Population Census statistics[12]

Newly released data from the Population Census provides a more detailed assessment of the expansion of education in Vietnam, not yet incorporated into HDI statistics. Table 1.2 shows progress in net enrollment rates in the last 3 censuses for pre-university education. We see an expansion in all dimensions, particularly in the period 1999 to 2009. Primary education has expanded to be almost universal and also lower secondary education reaches the vast majority of students. Upper-secondary enrollment, while expanded, is still missing almost a third of the population. Among the factors limiting access there are economic factors and selection based on academic achievement given the requirement of an entrance exam to enroll in upper-secondary. There is also a concern regarding equality of access, in particular for ethnic minorities and rural areas, while enrollment rates are slightly higher for females than for males.

Enrollment rates do not capture the quality of education. In this respect, Vietnam results in PISA tests have been outstanding, particularly considering its income level (Dang and Glewwe

11 http://hdr.undp.org/en/data

12 Data sources: Glewwe et al (2004) for 1999, and Central Population and Housing Census Steering Committee (2020) for 2009 and 2019.

2017). They are based on standardized tests for 15 year olds. In 2012 Vietnam ranked 16th in math and 18th in reading out of 63 countries well ahead of the rest of developing countries. In 2015 it ranked 8th of 72 countries in science, 22nd in math and 32nd in reading. Dang and Glewwe (2017) analysis shows that part of the reason behind this remarkable performance has to do with selection: Vietnam has one of the lowest enrollment rates of the (mostly OECD) countries in the sample, and they have a higher socioeconomic status than the general population. Still, after controlling for those effects, the performance of Vietnam remains well above that of countries of similar income level. In PISA 2018 the results have not been made available together with the rest of countries. However, according to the Ministry of Education and Training its results would put it in rank 4th in science, 24th in math and 13th in reading[13]. It is no surprise, therefore, that the World Bank highlights the education system of Vietnam as one of the top performers in developing Asia-Pacific (World Bank, 2018).

Regarding higher education, a counterpart of the initial poverty and fast economic growth in the last three decades are the initial low levels of human capital. In the 1989 Census only 2 percent of the population 25-29 had completed higher education. In contrast in 2019, 19% of the total population age 15 years and above has studies higher than upper secondary. While this is still low compared to higher income countries, the fast transformation of higher education is one of the major challenges of Vietnam's development process (Harman et al., 2010; Tran, 2014). The number of students in higher education has multiplied sixfold in 21 years from 0.3 million students in 1995 to 1.8 million Figure 1.2 charts progress in the tertiary gross enrollment rate and an (approximate) graduation rate. The latter has been calculated as the ratio of the number of University graduates to the population 22 years of age in percentage terms. Gross enrollment ratios were close to 30% in 2015 while graduation rates are somewhat lower, in the 15-20% range, due to the lag from entrance to graduation, university dropouts and graduation requiring longer periods of education than nominal requirements.

13 Viet Nam News, "VN gets high scores but not named in PISA 2018 ranking", Dec 6, 2018. https://vietnamnews.vn/society/569454/vn-gets-high-scores-but-not-named-in-pisa-2018-ranking.html

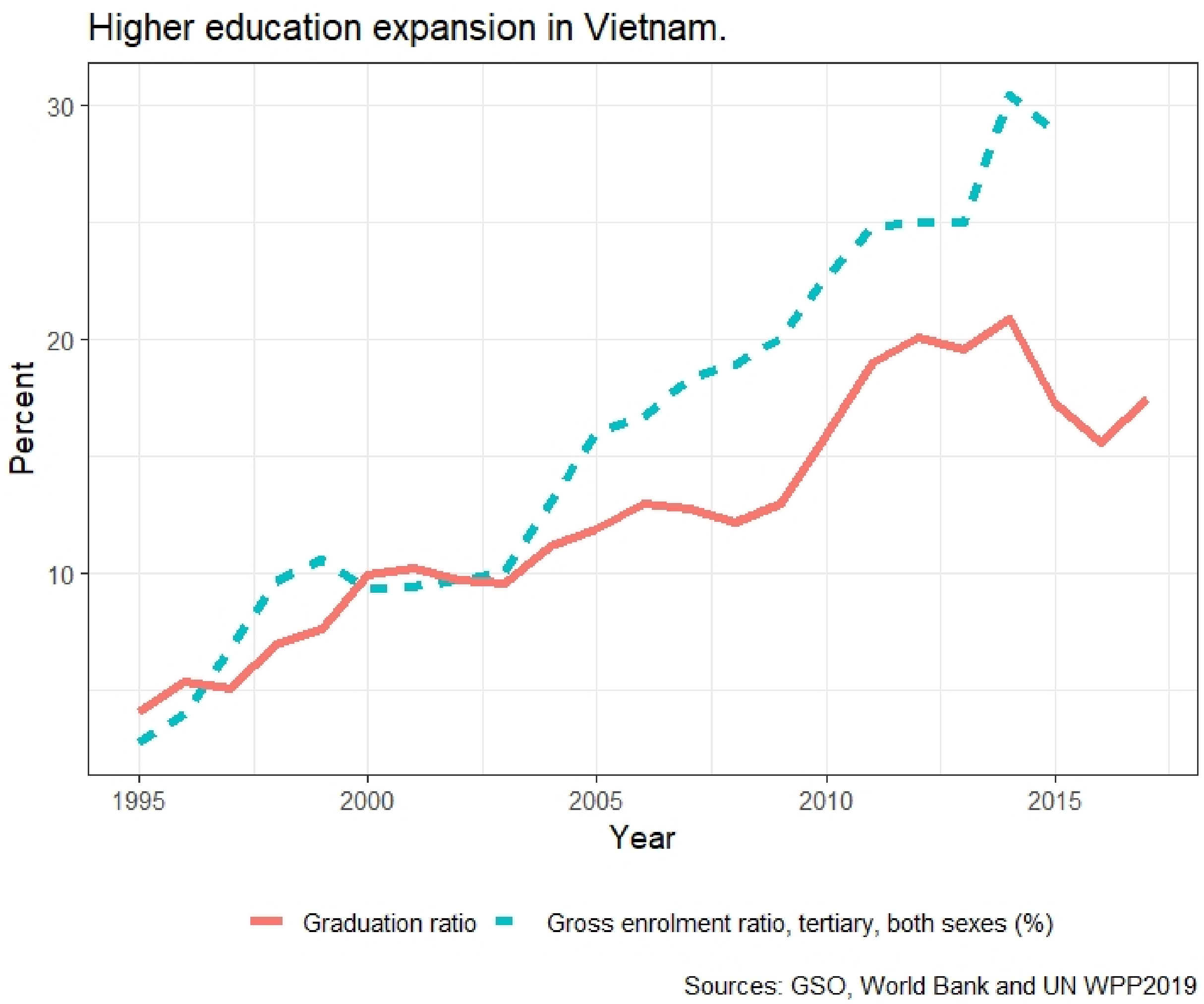


Figure.1.2: Higher education gross enrolment and graduation ratios, 1995-2017

The expansion of tertiary education has also seen, according to statistics of the Ministry of Education and Training, an increase in the number of universities from 109 in 1995 to 235 as of 2018, , including 170 public universities, 65 non-public universities, and 37 science research institutes providing doctoral training.. Expansion also occurs at postgraduate levels: There are 105,801 students enrolled in master's degree training (up 12.8% compared to 2015), and 15,112 doctoral students, an increase of 21% compared to the 2015 academic year. The number of annual university graduates reaches more than 380,000 students[14].

14 https://moet.gov.vn/thong-ke/Pages/thong-ko-giao-duc-dai-hoc.aspx

For vocational education, as of 2018, the number of vocational training institutions across the country is 2957. The number of students in vocational and professional training was 2.1 million students.

3. Driving economic sectors

As mentioned above, Vietnam's economy consists of 3 sectors, namely: 1) Agriculture, forestry and fishery; 2) Industry (including mining and mineral industry, processing industry, construction and manufacturing of construction materials, production and distribution of gas, electricity, and water); and 3) Trade and services. At different stages, the role and contribution of the sectors are different. The process of economic growth of the last two decades has been based in moving away from agriculture to the other two sectors (McCaig and Pavcnik, 2017).

Before the transformation process, Vietnam possessed a backward economy, where 90% of the population was involved in smallholder and outdated agriculture, small industries, and low added-value services. The economy was characterized by low labor productivity, slow economic growth, and insufficient goods and services. Life of people was hard: the poverty rate was as high as 80 percent in 1992[15].

The Vietnamese economic reform (*Doi Moi*) was launched by the 6th National Congress of the Communist Party of Vietnam in 1986. Vietnam's economy shifted from a closed and centrally planned economy to a trade-oriented socialist-market economy, adopting the concept of a multi-sectoral economy with open doors and integrated policies toward international trade and investment. Thanks to that change, domestic production was liberated, economic sectors developed, and foreign direct investment increased.

The 12th National Congress of the Party set the goal to "promote comprehensively and synchronously the renovation, rapid and sustainable economic development, striving to make our country become an industrialized country towards modernization, improving the material and spiritual life of the people". The Resolution of the fifth plenum of the Central Plenum XII (2017), also set out the policy of "continuing to improve the institutions, creating favorable conditions for the development of the private sector to really become a driving force of the economy, promoting push and form private economic groups with modern technology,

15 Poverty headcount ratio at $3.20 a day (2011 PPP), https://data.worldbank.org/indicator/SI.POV.LMIC?locations=VN

advanced management capacity, complete policies to support small and medium enterprises". The role of the private sector was recognized and emphasized.

With the renovated policies, the economic structure has shifted quite fast with strong development in both scale and speed. Over the past 30 years (1986-2017), Vietnam's average economic growth rate has been an impressive 7%, higher than regional and global growth. Within this growth period there have been some fluctuations. While in the period 1986-1990, Vietnam's economic growth rate was only 4.4%, it reached a peak 8.2% in the period 1991-1995 ; continuing at extremely high levels of more than 7% over next two decades, 1996-2015, and growth rates over 6% since then The economic transformation resulting from this growth has reduced the poverty rate to marginal levels of 7% in 2018. In contrast to other fast-growth processes in the region such as China, where increased inequality is a concern, growth in Vietnam happened with remarkable equity (Benjamin et al., 2017)

Along with the continuous and relatively stable growth of GDP in recent years, the structure of the economic sector has shifted from agriculture towards industry and services as illustrated over the last decade in table 1.3. Given this process of growth, today industry and services represent together 85% of GDP. Table 1.4 provides a more detailed glimpse at the sources of economic growth in the period 2010-2017. By looking at a more detailed classification of economic activities we can see the large differences in productivity according to sectors. Agriculture was by far the least productive sector in 2010 and the largest employer. While the absolute number of workers has declined by 3 million, the sector productivity has increased at 4.6% annually, close to the average real productivity growth of 4.7. Still, agricultural labor represents 40% of the labor force in 2017, making it difficult to reach the target of 20% by 2030 according to the strategy of industrialization and modernization. In contrast, employment has increased in more productive sectors. Employment gains in manufacturing, 2.6 times more productive than agriculture, actually mirror the 3 million lost by agriculture. Mining and quarrying and real estate activities are interesting sector: in that they have the largest real productivity. However, they both lost share in total GDP. In the case of mining. These decreases were probably due to price adjustments, in the international price of coal and real estate prices. In terms of employment, the fastest increasing sectors, with annual rates above 5% are all in the service categories: the aforementioned real estate activities, accommodation and food services, financial, banking and insurance activities, and administrative and support service activities. They are all relatively productive activities. In terms of fastest productivity growth, electricity and gas supply stands out with an annual 8.2% increase. It is one of the sectors increasing its share by more than 1 percentage point besides manufacturing and wholesale and retail trade, a large employer at 7% of the labor force.

Table 1. 3: Growth rate and economic structure in period 2010-2017

Indicator	Unit	2010	2011	2012	2013	2014	2015	2016	2017
1. Gross domestic product									
Agriculture	1000 bilion VND	396.6	544.0	623.8	643.9	697.0	712.5	734.8	768.2
Industry and construction	"	693.4	896.4	1089.1	1189.6	1307.9	1394.1	1473.1	1672.0
Services	"	797.1	1021.1	1209.5	1388.4	1537.2	1666.0	1842.7	2065.5
Product Tax minor subsidy	"	270.7	318.4	323.0	362.4	395.8	420.3	452.1	500.3
2. GDP Structure									
Agriculture	%	18.89	20.08	19.67	18.38	18.12	17.39	16.72	15.71
Industry and construction	"	38.23	37.90	38.63	38.31	38.50	38.50	37.41	38.11
Services	"	42.88	42.02	41.70	43.31	43.38	44.11	45.87	46.18
3. Growth rate									
Agriculture	"	4.23	2.92	2.63	3.44	2.41	1.36	2.90	3.76
Industry and construction	"	7.60	7.39	5.08	6.42	9.64	7.57	8.00	8.85
Services	"	7.47	6.71	6.72	6.16	6.33	6.98	7.44	7.03

(Source: GSO)

Regarding the relative contribution of productivity growth and labor market restructuring to economic growth, previous work showed that, during the period 2000-2011, one third of the growth was connected to the structural transition towards more productive sectors, and two thirds to sectoral improvements in productivity (Abbott et al, 2017). A similar exercise based on the figures in table 1.4 indicates that in the period 2010-2017 restructuring lost importance so that 78% of real GDP growth is connected to improvements in productivity.

Table 1.4: Employment and productivity growth by economic activity. Vietnam, 2010-17.

	Employment			Real productivity per worker			GDP net of product raxes and subsidies		
	Million workers		Annual	Mill. Dongs of 2010		Annual	% Share		Change
	2010	2017	growth	2010	2017	growth	2010	2017	share
Total Vietnam	49.05	53.70	1.3%	43.99	60.75	4.7%	100%	100%	-
Agriculture, forestry and fishing	24.28	21.56	-1.7%	16.33	22.37	4.6%	21%	17%	-4.3%
Mining and quarrying	0.28	0.21	-3.8%	742.18	1018.30	4.6%	11%	7%	-3.4%
Manufacturing	6.65	9.32	4.9%	42.04	60.82	5.4%	15%	20%	4.8%
Electricity, gas, stream supply	0.13	0.15	2.5%	504.77	873.80	8.2%	3%	5%	1.2%
Water supply, sewerage, …	0.12	0.13	1.9%	94.61	144.49	6.2%	1%	1%	0.1%
Construction	3.11	4.03	3.8%	42.67	51.05	2.6%	7%	7%	0.1%
Wholesale and retail trade	5.55	6.91	3.2%	31.10	45.21	5.5%	9%	11%	1.7%
Transportation and storage	1.42	1.75	3.1%	43.81	54.16	3.1%	3%	3%	0.0%
Accommodation and food service	1.71	2.49	5.5%	45.47	49.49	1.2%	4%	4%	0.1%
Information and communication	0.26	0.34	4.0%	77.29	104.59	4.4%	1%	1%	0.2%
Financial, banking and insurance	0.25	0.38	6.1%	457.82	486.92	0.9%	6%	6%	0.3%
Real estate activities	0.10	0.23	12.2%	1300.02	716.93	-8.2%	7%	6%	-1.4%
Professional, scien-tific, technical active	0.22	0.25	2.1%	128.75	179.12	4.8%	1%	2%	0.1%
Administrative and support service	0.19	0.31	7.6%	42.49	40.72	-0.6%	0%	0%	0.0%
Activities of public administration	1.57	1.73	1.4%	35.16	52.11	5.8%	3%	3%	0.2%

Education and training	1.67	2.03	2.8%	30.02	40.80	4.5%	3%	3%	0.2%
Human health and social work activities	0.44	0.54	3.0%	53.40	71.55	4.3%	1%	1%	0.1%
Arts, entertainment and recreation	0.23	0.29	3.0%	62.79	83.80	4.2%	1%	1%	0.1%
Other service activities	0.69	0.86	3.2%	50.05	62.17	3.1%	2%	2%	0.0%
Other household production	0.20	0.20	0.0%	14.97	24.06	7.0%	0%	0%	0.0%

Source: Own elaboration based on GSO, Statistical Data

Another interesting feature that emerges from table 4 is that sectors requiring a more educated labor force tend to have higher productivity. This is the case of information and communication, the financial service, real estate activities and professional activities. In this respect, the on-going process of expansion of tertiary education can further stimulate growth in the future.

Table 1.5: Main exports of Vietnam in 2017 and their complexity

Rank	Product	Export Share (%)	Product complexity
1	Electrical machinery and equipment	37.63	0.80
2	Footwear	6.86	-0.77
3	Industrial Machinery	6.46	0.99
4	Unspecified	4.82	-
5	Apparel, not knit	4.72	-1.13
6	Apparel, knit	4.47	-1.25
7	Other	3.59	-0.64
8	Furniture	3.02	0.26
9	Apparatuses (optical, medical, etc.)	2.15	1.04
10	Fish	1.80	-1.53
11	Coffee, tea and spices	1.75	-1.65
12	Mineral fuels, oils and waxes	1.65	-0.68
13	Fruits and nuts	1.38	-1.44
14	Rubber	1.34	0.18
15	Articles of leather	1.34	-0.10

16	Plastics	1.23	0.66
17	Iron and steel	1.22	0.39

Source: Harvard Atlas of Economic Complexity, https://doi.org/10.7910/DVN/T4CHWJ

Since the growth in the last years has been export led, it is of interest to look at the main export sectors and its characteristics. Table 1.5 presents the main products exported according to their share. The main exports by far are electrical machinery and equipment, representing 37.63% of all exports. This is a highly complex set of products among which the main component are mobile telephones. It is a sector that has developed in the last 10 years and today Vietnam's market share in electronics is 3.8% worldwide. Other important exports of high complexity are industrial machinery and optical/medical apparatuses In this sense, the evolution of the Vietnamese economy according to the Atlas of Economic Complexity is very promising since it has been able to develop its trade towards products creating more added value and which have a constellation of auxiliary sectors behind. The introduction of new export products since 2000 is estimated to have contributed more than $1,000 per capita[16]. Also, based on this pattern of exports, continuing fast growth is predicted. Newman et al. (2017) found evidence at the firm level that a learning-by-exporting process was taking place by which exporting firms become more productive over time as they become more aware of international standards and trends.

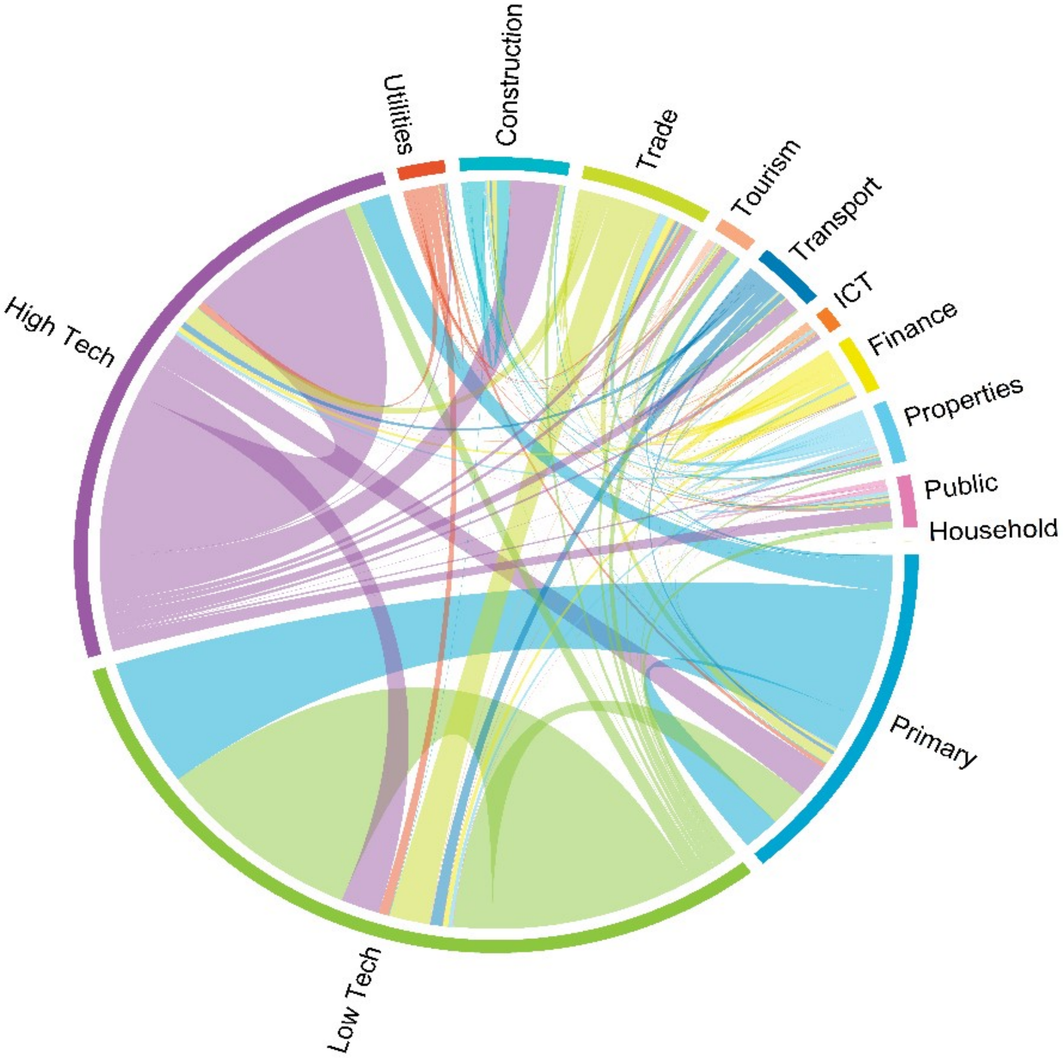
A second type of exports belong to a traditional sector where Vietnam has kept its advantage, actually increasing its market share over time: textiles. Among textiles, footwear is the top export but knitted and non-knitted apparel are also important. Vietnam's world market share in textiles is an outstanding 5%. Among the rest of products there is a predominance of agricultural products (fish, coffee, tea, fruits and nuts, rice), that were also a traditional Vietnamese export While they have lost importance as a percent of exports as more complex products have started to dominate, it does not mean that exports have declined. In fact, world market share in agricultural products has also increased to 1.5% from levels of 0.44 in 1999..

Based on the constellation of sectoral links, the *Atlas of Economic Diversity* is able to highlight sectors where fast growth is expected in the near future These sectors include auxiliary sectors in

16 https://atlas.cid.harvard.edu/countries/239/new-products

manufacture such as glass, electromagnets or pumps[17]. Figure 1.3 shows the interindustry linkages among sectors based on ADB Input-Output values The strategic role and the size of the high-tech sector stands out in the graph. Also the interlinkages between the agricultural (primary) sector and the low tech agri-food industry that is one of the sectors chosen for the pilot observatory. Food products and beverages are the main user of agricultural inputs and the biggest subsector in manufacturing with a share of total industrial output around 20% (Nguyen et al. 2016).

Figure 1.3: Patterns of Interindustry Transactions Based on Input-Output table, 2017



Source: Asian Development Bank Multiregional Input–Output Database[18]

17 https://atlas.cid.harvard.edu/countries/239/product-table

18 https://data.adb.org/dataset/viet-nam-input-output-economic-indicators

In the near future, to develop and achieve high growth, it is necessary to keep reestucturing the economy from least productive sectors such as agriculture to more productive sectors and, at the same time, increase the productivity, quality and efficiency associated with international economic integration. It has been found, for instance, that SMEs embracing international management standards and certification experience a large productivity premium (Elisa et al., 2019).

There is also room for internal restructuring, even within low productivity sectors such as agriculture. We have seen that productivity gains in agriculture have been close to the national average in recent years, with an increasing world market share in exports. It is, therefore, necessary to continue restructuring agriculture, transforming rural areas, in the direction of improved quality and internationally certified products of more added value, including adaptation to climate change. This can be done developing high-tech agriculture models, smart agriculture; adopting policies and creating a favorable environment for investing in agriculture and rural areas. Industry plays a central role in the economy of Vietnam at both the high-tech and low-tech ends. The IT sector is an example of the former, while agri-food an example of the latter. Growth strategies include focusing on a number of foundational industries, with competitive advantages and sustainable growth paths associated with environmental protection; These strategic priority industries should be capable of deeply engaging in global production networks and value chains; using clean and environmentally friendly technologies. More importantly, industry is characterized by high added value, particularly in the high-tech end. For these reasons Vietnam will focus until 2030 on the development of information technology and telecommunications, electronics industry; clean energy industry, renewable energy, intelligent energy; processing and manufacturing industries to serve agriculture to meet international standards. At the same time, the country should not leave behind traditional competitive advantages in the textile and footwear industry, prioritizing high-value production and newly improved intelligent and automated production processes. Mechanical sectors such as: cars, agricultural machines, industrial equipment, electricity, and medical equipment are also perceived as strategic. From 2030 to 2045, Vietnam will prioritize the development of new generations of information technology and telecommunications industry; digital technology, automation, advanced technology, new materials, biotechnology.

For the service industry, it is necessary to promote the development of services both in width and depth and in the direction of modernization. Services activities need to improve regarding the quality and diversity of services; focus on developing a number of potential service industries with high levels of knowledge and technology such as finance, banking, maritime, logistics, petroleum technical services, education, and training services, medical services, health care, all kinds of audit, consulting services or legal services. Tourism is also one of the key services to develop. While it is not fully developed yet, it shows great promise given a varied top-class offer combining cultural heritage, nature, beaches and exciting cities in a context of growing infrastructure. Still, professionalism and quality of tourism services need to improve together with investment in tourism development.

Another key sector for potential growth is the financial sector. While a dynamic small and medium enterprise environment has fueled growth, recent studies have found that more productive small and medium enterprises face problems in access to credit (Rand and Tarp, 2020) and that misallocation of resources might be connected to easier access to credit based on political connections or location.

4. Driving geographical areas

Key economic regions (KER) have been identified by the Party and the State as the motivating regions to drive the development of other regions across the country. At present, there are 4 KERs in the country, namely the Northern KER, the Central KER, the Southern KER, and the Mekong KER, with a total of 24 provinces and cities under a central authority. The KERs cover an area of over 90,000 km2 (accounting for 27.41% of the country's area) with a total population (in 2009) of about 43.9 million people (51% of the national population); the population density is 483 people per km2 (compared to the national density of 260 people per km^2), and the urbanization rate reaches 40.2% (the national rate is 29.6%). The territorial scope of each key economic region is as follows:

1) The Northern key economic region includes Hanoi, Hai Phong, Quang Ninh, Hung Yen, Hai Duong, Bac Ninh, and Vinh Phuc provinces with a total area of 15,594 km^2 (accounting for 4.71% of the country’s area).

2) The Central key economic region includes Da Nang, Thua Thien-Hue, Quang Nam, Quang Ngai, and Binh Dinh with a total area of 27,976.7 km^2 (8.45% of the country's area).
3) The Southern key economic region includes Ho Chi Minh City, Ba Ria- Vung Tau (BRVT), Binh Duong, Binh Phuoc, Dong Nai, Tay Ninh, Long An and Tien Giang with an area of 30,585.8 km^2 (9.23% of the country's surface).
4) The key economic region of the Mekong River Delta includes four provinces and the cities of Can Tho, An Giang, Kien Giang and Ca Mau extending over 16,618.4 km^2 (5.02% of the country).

The four key economic regions have a long history of development and great potential for further growth given their connection to international trade and have been the main motor of the economy in the recent past. In these regions lie the trade hubs by sea, rail, and air: the most important ports in the country such as Hai Phong, Cai Lan, Da Nang, Thi Vai-Cai Mep, Chan May, Saigon, Can Tho, and major international airports such as Noi Bai, Tan Son Nhat, Da Nang, Phu Bai, Can Tho and Ca Mau. Key economic regions have great potential for tourism since the most famous domestic and international tourist destinations lie here: Ha Long Bay, Bai Tu Long, Hoi An Ancient Town and My Son Sanctuary recognized by UNESCO as a natural and cultural heritage of the World. In addition, there are many beaches, famous sights, and hundreds of historical, cultural, traditional villages, creating attractive and unique features for tourism development.

There are some important minerals accounting for a large proportion of the whole country such as coal (98% of the whole nation's reserves, mainly in the Northern key economic region), limestone (55%), refractory clay (90%), oil (90%) and gas (80%). Petroleum and minerals are the most valuable in the country. They concentrate mainly in the Southern key economic region. The effective exploitation of oil and gas has created a huge promise for regional development, leading to the development of a series of related industries and services.

In the key economic regions, the urban system has developed significantly more than other regions, creating an infrastructure for growth and international trade. Major economic areas are concentrated in big cities (Hanoi, Hai Phong, Ho Chi Minh City, Da Nang, and Can Tho), of which Hanoi is the capital; Ho Chi Minh City is the major economic center in the south of the country. Due to strong urban development, it has created a strong attraction for foreign investors and labor force from rural areas and other less dynamic regions.

Large industrial facilities also lie in the key economic areas attracting a relatively large number of industrial workers with higher qualifications and skills compared to other regions. By 2009, the key economic regions had about 155.3 thousand enterprises with about 6 million laborers, creating an industrial production value of over 550.6 trillion VND, contributing 91.4% of the country's export value and 94.4% of the country's import value and account for 71.6% of the country's retail market.

5. Employment and the labor force

Along with the positive growth of the economy at home and abroad, the labor market of Vietnam in the past few years has seen a positive shift: the percentage of employees participating in the economy has increased; gradually reducing the use of simple labor and incorporating labor groups with high skills and qualifications. Labor quality has also improved, and labor structure shifted to new economic sectors in the service and technological sectors. The percentage of employees working in agriculture, forestry and fishery has decreased as analyzed above and unemployment rates remain low. In this respect, the 2020 covid19 crisis is a potential threat given its effects on trade. While the epidemic itself has barely affected the country, with 0 confirmed deaths as of may 2020, the economy is expected to experience a slowdown. During the first quarter of 2020 the growth rate has been 3.8% compared to 6.8% the year before.[19], and unemployment is expected to increase, at least temporarily. This puts a temporal slowdown in the very positive economic situation in the period 2017-2019 highlighted in table 1.6.

According to the General Statistics Office's *Report of labor and employment situation in 2017 - 2019*, GDP growth kept very high values, regaining the 7% mark in 2018 and 2109. The number of employees keeps growing by roughly half a million people per year, and unemployment rates remain at levels of frictional unemployment of 2% contributing to supplement resources for the socio-economic development of the country. However, the trained labor force with diplomas and certificates of secondary levels and higher accounted for only 22.8% increasing slowly in the past three years

Table 1.6: Labor and employment situation

	2017	2018	2019*

19 Vietnam Briefing,April 23, 2020. "Vietnam's Economy to Grow Fastest in Southeast Asia Despite COVID-19: ADB" https://www.vietnam-briefing.com/news/vietnams-economy-grow-fastest-southeastasia-despite-covid-19.html/

GDP growth (%)	6.81%	7.08%	7.02%
Total employment (1,000 people)	54.824	55.354	55.8
Trained labor (%)	21.8%	23.7%	22.8%
The unemployment rate of the labor force in working age (%)	2.30%	2.20%	2.17%

(Source: GSO)

Regarding labor force participation, it is very high in Vietnam. Nearly 88% of the population aged 25-59 is in the labor force. The labor force is also extremely young: 54% of the labor force in the 2019 census is below the age of 40. Due to the demographic developments analyzed above, the proportion of the population in the labor force is at maximum levels due to the demographic dividend or demographic bonus (UNFPA, 2010). From 2019 onwards, the proportion not in the labor force is expected to increase due to increasing old-age dependency (Eckardt et al., 2016). The main concern regarding the labor force is the low level of training. According to the 2019 Census the proportion of the labor force with secondary education accounted for 39.1%, and those trained with diplomas and certificates (from elementary level upwards) accounted for 23.1% (in urban areas 2.5 times higher than that in rural areas, respectively 39.3% and 15.6%). As a result, the occupation structure is still characterized by a predominance of low skilled jobs, although seeing improvements in the last two decades according to census statistics (table 1.7)

Table 1. 7: Distribution of the labor force according to occupation

Occupation	Both sexes			Male	Female
	1999	2009	2019	2019	2019
Leaders, managers and administrators	0.6	1.0	0.8	1.2	0.5
High level technicians/professionals	1.9	4.6	7.5	6.4	8.9
Mid level technicians and associate professionals	3.5	3.8	2.8	2.3	3.4
Clerks	0.8	1.6	1.8	1.7	1.9
Service/guard/sale workers	6.7	15.6	18.3	13.8	23.2
Skilled agricultural, forestry and fishery workers	4.9	14.8	7.9	9.7	5.9
Craft and related workers	9.1	12.5	14.5	20.3	7.9

Plant, machine operators and assemblers	3.2	6.7	13.2	13.6	12.7
Elementary occupations	69.4	39.4	33.2	31.0	35.6

Source: GSO, Census Reports.

As we see the proportion of the labor force in managerial tasks is still below 1%. There has been a continuous increase in the percentage of high level professionals, but it still remains a low proportion of 7.5%. Interestingly, this proportion is higher for women (8.9%). The proportion in elementary occupation has declined to 33.2%, when in 1999 they constituted the vast majority of the labor force (69.4%). The occupation distribution is highly connected to the characteristics of employment status where micro household enterprises predominate: 2% of workers are employers, 35.2% work on their own account whereas 19.2% provide unpaid family labor. 0.3% are cooperative workers and only 43.3% are wage workers. There are, however, large geographical differences. For instance, the proportion of wage workers in Hanoi is 53.4% and in Ho Chi Minh City 66.2%., reaching the highest level in neighboring Binh Duong (79.7%). In contrast, in backward areas such as the Northern midlands and mountain areas the proportion is as low as 26.5% indicating a lack of job opportunities in the formal sector.

In this context of fast changes in the economy and lack of skilled workers, intermediary agencies such as the present projected Labor Market Observatory become even more important. The World Bank highlights the need for public employment service systems to move workers into higher quality jobs, something that is currently lacking in Vietnam[20] Regarding employment trends, recruitment in 2018 focused on manufacturing, engineering, and information technology, and in 2019 in digitization and information technology according to Robert Walters Salary Survey[21]. Digitization continues to accelerate in Vietnam, with many companies starting to leverage technology and data to boost their business. The shift in consumer behavior continues to drive cell phone use, e-commerce. Consumer-facing businesses are continually fine-tuning their online and mobile strategies in a competitive environment.

20 World Bank. 2020. *Employment Service Centers in Vietnam : Summary Review (English)*. Washington, DC: World Bank.http://documents.worldbank.org/curated/en/119211588060338962/Employment-Service-Centers-in-Vietnam-Summary-Review

21 https://www.robertwalters.com.vn/salarysurvey.html

Technology is another area of rapid growth, with Vietnam booming as a technology hub area, the so-called *Silicon Valley of Asia*[22]. A number of technology startups from Asia, Europe, and the United States have entered the market, fueling demand for a high-tech role. Information technology is growing strongly. In order to keep up with the world's technological trends, many industries related to this field are also developing. Currently, there are 81,737 employees in the software industry and 533,003 employees in the hardware and electronics industry. Especially, according to Vietnam Works' "*Information Technology Human Resource Market Report 2019*" engineers with expertise in Blockchain and artificial intelligence (AI) are receiving the highest salaries and higher than other professional groups in the IT industry. It has been estimated that the economy demanded 400000 new IT workers in the 2016-2020 whereas the University system can only supply 250000[23]. In this respect, the IT sector is a very good candidate for the pilot study of the Observatory since there is a need to promote the interlinkage of university and firms and for students to acquire knowledge regarding their potential opportunities in a fastly changing environment.

In summary, Vietnam's labor market has had positive changes in the growth of labor participation rate and maintained a low unemployment rate; the labor structure has shifted from agriculture, forestry and fishery to industry and services. Digitalization and information technology fields accelerate in Vietnam's recruitment market. However, the drawback is that the proportion of trained labor is still low, at about 20%, and it has not changed significantly in recent years, at the same time, the rate of labor restructuring is still slow to keep up with the pace of transition of the economic structure.

6. Distribution of enterprises and workers/labor force

6.1. Distribution of enterprises

One of the main features of *Doi-Moi* has been fostering the growth of a market oriented private sector. In a first phase, the number of state-owned entreprises declined from 12000 in 1990 to around 6000 in 1996. In december 2001 a Constitutional Amendment guaranteed equal

22 https://www.cekindo.vn/blog/why-vietnam-can-be-the-next-silicon-valley-for-southeast-asia

23 https://oxfordbusinessgroup.com/overview/moving-toward-maturity-industry-seeing-high-growth-rates-although-some-challenges-such-education-and

treatment of the private and public sectors, and party members were allowed to engage in private business. As a result the number of enterprises roughly doubled in a year from 14000 (Giroud, 2005).By the end of 2018 the number had grown to 714755 acting enterprises. The evolution in the number of enterprises can be tracked based on the Enterprise Registry, and periodically, by Establishment Censuses, later called Economic Census. Information on each of these sources is provided in section 3.

Besides legally registered enterprises, Vietnam's economy has a large informal sector. In 2007, an estimated 11 million jobs (out of 46) were in the informal sector belonging to 8.4 million informal household businesses and producing an estimated 20% of GDP (Cling et al, 2011). Its importance, instead of going down has actually increased according to a recent report (GSO-ILO, 2018): From more than 18 million informal workers in the non-agricultural sector in 2016, 57.2% of the total, to 78.6% of the total if agricultural households are also included. Note that also businesses in the formal sector hire informally: a third of informal workers work for formal businesses. Regarding the sectors where informal workers are engaged, the vast majority (81%) is employed in 4 sectors: manufacturing (including handicrafts and small manufactures), construction, wholesale and retail trade, and hotels and restaurants Workers in the informal sector earn on average 35% less besides lacking benefits such as social insurance. The size of the informal economy is estimated between 15 and 27 percent of GDP. (Nguyen, 2019). In the rest of the analysis we will focus on the formal sector, since most University graduates aspire to formal employment. However, we should not forget that we leave aside a large part of the economy. As Rand and Tarp (2020) put it, the fact that such a large number of businesses remain outside of the formal market must be for a reason, and it is often the case that the more productive informal household businesses opt to remain in the informal market.

Besides the informal sector, a large proportion of the labor force works in household micro enterprises that are numerically far more numerous than the so-called "acting enterprises". All of these types of businesses, together with cooperatives and state-owned enterprises are lumped together as "business units", a subset of "establishments" that also include administrative units and religious institutions. Every five years since 2002 an establishment census, (renamed *economic census* in 2017), analyzes the number, structure and location of establishments. Table 1.8 provides the evolution from 2012 to 2017 in the number of business units by type.

Table 1.8: Number and structure of business units according to Economic Census

	Quantity		Structure (%)		Growth
	2012	2017	2012	2017	
Business units	**4980060**	**5674458**	**100**	**100**	**14**
1. Enterprises	341601	517924	6.9	9.1	52
1.1 State-owned enterprises	3308	2698	0.1	0.0	-18
1.2 Non State-owned enterprises	328832	500654	6.6	8.8	52
1.3 Foreign Direct Invested enterprises	9461	14572	0.2	0.3	54
2. Cooperatives	13574	13556	0.3	0.2	-0
3. Non-farm individual business establishments	4624885	5142978	92.9	90.6	11

Source: GSO, 2017 Economic Census

We see that still in 2017 more than 90% of business units are non-farm individual business establishments, household businesses. They are generally microenterprises using household labor. In the rest of the report we will focus on legally constituted enterprises, since these are the businesses hiring educated wage workers. On the other hand, the large number of individual establishments makes entrepreneurship a fundamental skill to develop in higher education. It is also interesting to see the small and declining number of state-owned enterprises, although they tend to be bigger than the rest of enterprises. FDI enterprises have also increased fast in the period.

6.2. Distribution of enterprises by geographic area

According to nationwide investigation result of General Statistics Office (GSO) as of 31 December 2017, the number of acting enterprises having business outcomes are 560,417, which are distributed in all areas of the country as follows:

Table 1.9: **Number of acting enterprises having business outcomes by geographic area**

Geographic area	No. of Enterprise	% compared to whole country
Nec.	161	0%
Central Highlands	14660	3%
Northern midlands and mountain areas	22665	4%
Mekong River Delta	42768	8%
North Central and Central coastal areas	73705	13%
Red River Delta	179748	32%
South East	226710	40%
Whole country	560417	100%

(Source: GSO 2017)

Figure 1.4: **Distribution of enterprises by area**

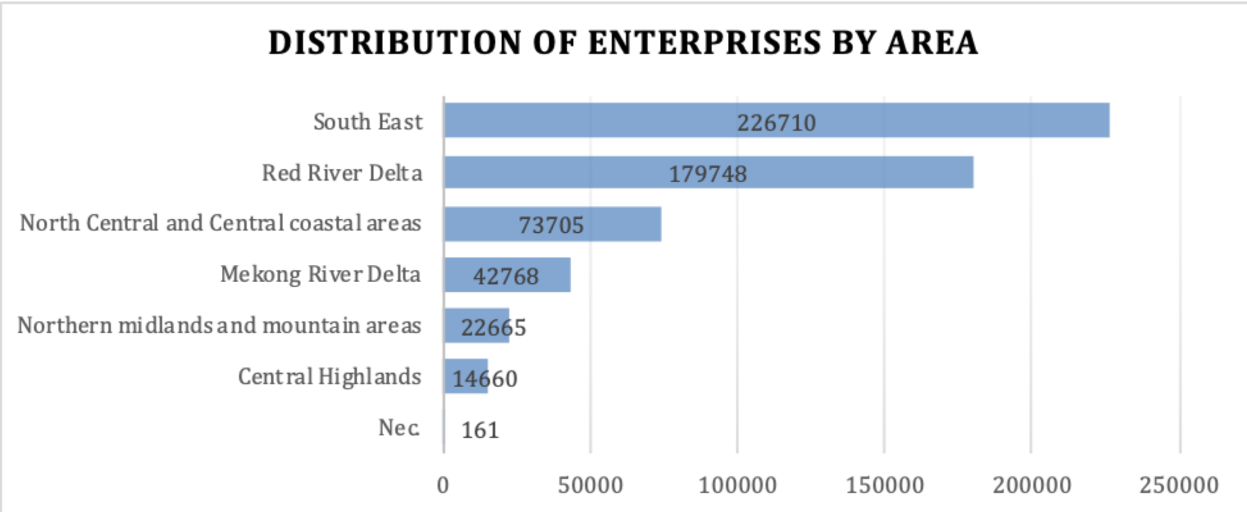
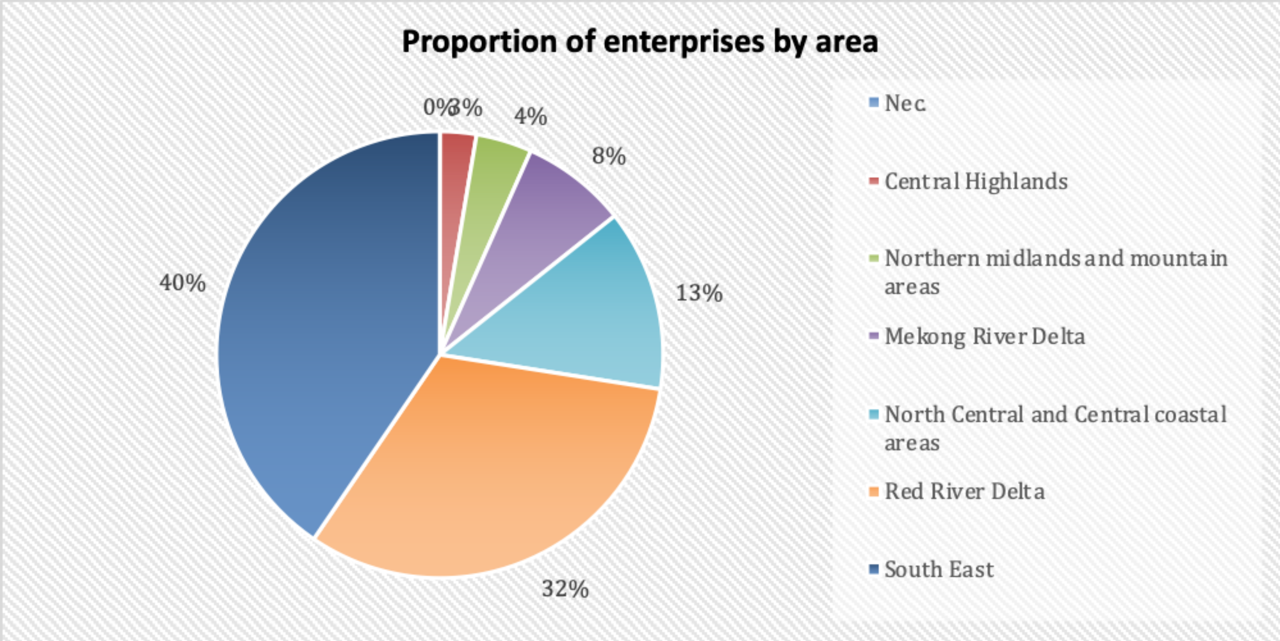


Figure 1.5: Proportion of enterprises by area



South East and Red River Delta are the two areas gathering the largest number of enterprises, accounting for 72% of the whole country. In which, South East area has 226710 enterprises, and Red River Delta has 179748 enterprises, accounting for 40% and 32%, respectively. These two areas attracting most of the enterprises are the economic, political and cultural centers of Vietnam with favorable business conditions and accessibility. North Central and Central Coastal areas have 73705 registered enterprises and Mekong River Delta 42768 . That is a medium proportion of enterprises, accounting for 21% of the whole country. The lowest proportion is in the Northern midlands and mountain areas, with 22665 enterprises, and the Central Highlands with 14660. Together they only account for 7% of Vietnam's enterprises. These mountain regions have a narrow area of land and sparse population, in many cases belonging to ethnic minorities.

Table 1.10 Number of enterprises by city

City	No. of enterprises	%
Hà Nội	121570	22%
Hồ Chí Minh city	180322	32%
Other areas	258525	46%

(Source: GSO 2017)

Figure 1.6: No. of enterprises in Hanoi and Ho Chi Minh city

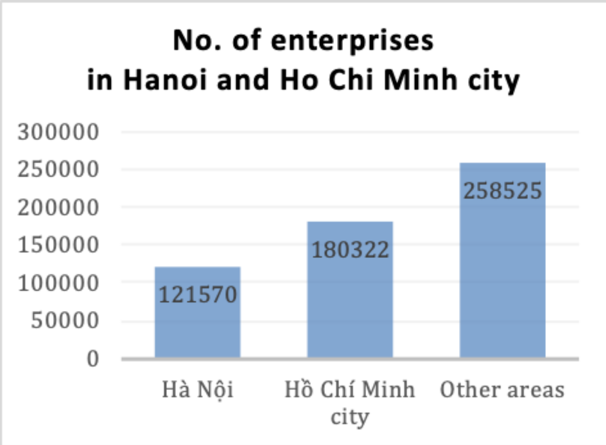
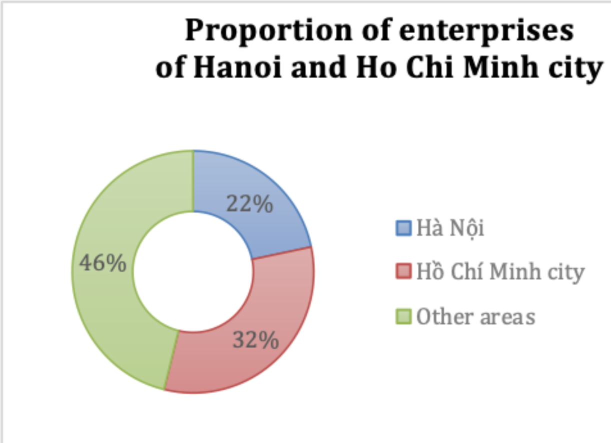


Figure 1.7: Proportion of enterprises of Hanoi and Ho Chi Minh city



Hanoi and Ho Chi Minh cities, the two biggest economic areas of Vietnam, are under central government control. A large number of enterprises operate here, accounting for 52% of enterprises in the whole country. Hanoi has 121570 enterprises representing 22% of the country's Economic census, while Ho Chi Minh city has 180322 (32%). The rest of areas account therefore only for 46% of the enterprises in the whole country.

A complementary view is to look at the number of acting enterprises per 1000 inhabitants. As of 31 December 2018 the country's rate is 7.6. At the regional level a maximum of 17.3‰ is reached in the South East, where Ho Chi Minh city reaches 26,5‰. The Red River delta is the second region with 10,3‰ and again the maximum within this region is at Hanoi province, 19.0‰. The rest of regions have less than 5‰. The only other province with more than 15 enterprises per 1000 people is Đà Nẵng in the North Central and Central Coastal Areas (GSO-SYB2018)..

6.3. Distribution of enterprises by economic sector and year

Vietnam Standard Industrial Classification 2007 (VSIC 2007), is five levels deep. Table 1.11 presents trends in the number of acting enterprises in the 18 sectors out of the 21 first-level sectors that have acting enterprises with business outcomes. The sector with the highest number of enterprises is *wholesale and retail trade* with 219925 enterprises. It has seen an average growth in the 2010-2017 period of 12%. This makes up a large proportion of enterprises in the whole country: 39%. It is the sector having the largest impact on average national growth. The following sectors according to the number of enterprises are manufacturing and construction, accounting for 15% and 13% respectively, with 84142 and 73702 enterprises. These two sectors contribute the most profits to the state budget.

Table 1.11: **Number of acting enterprises with business outcomes by sector and year**

Economic sector	2010	2014	2015	2016	2017	Proportion 2017	Average growth
1. Electricity, gas steam and air conditioning supply	910	1157	1205	1311	1421	0%	7%
2. Water supply; sewerage, waste management	850	1347	1497	1703	1983	0%	14%
3. Human health and social work activities	839	1292	1471	1742	1998	0%	16%
4. Financial, banking and insurance activities	1662	1983	2169	2450	2868	1%	13%
5. Mining and quarrying	2224	2569	2510	2702	2941	1%	5%
6. Arts, entertainment and recreation	1015	2066	2465	2949	3132	1%	15%
7. Other service activities	2250	3066	3266	3824	4132	1%	11%
8. Agriculture, forestry and fishing	2569	3844	3846	4447	5463	1%	13%
9. Education and training	2308	4739	5724	6827	7958	1%	19%
10. Information and communication	4570	9022	9820	11155	12182	2%	11%
11. Real estate activities	5400	7833	8979	11591	13044	2%	19%
12. Accommodation and food service activities	10225	15010	16457	18717	20811	4%	12%
13. Administrative and support service activities	8374	14139	16017	18941	21331	4%	15%
14. Transportation and storage	14424	22442	26449	30969	34249	6%	15%
15. Professional, scientific and technical activities	20766	34607	38339	45431	49135	9%	12%

16. Construction	42901	55198	61264	65306	73702	13%	10%
17. Manufacturing	45472	63251	67490	75351	84142	15%	10%
18. Wholesale and retail trade; repair of motor vehicles	112601	158761	173517	199643	219925	39%	12%
TOTAL	279360	402326	442485	505059	560417		12%

(Source: GSO 2017)

Figure 1.8- Total number of enterprises by year

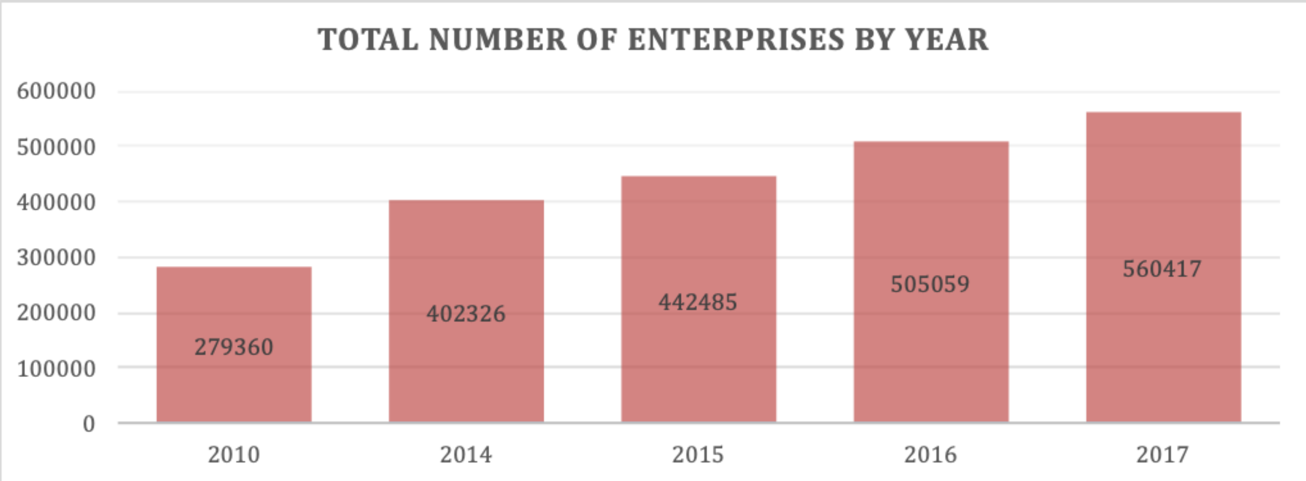
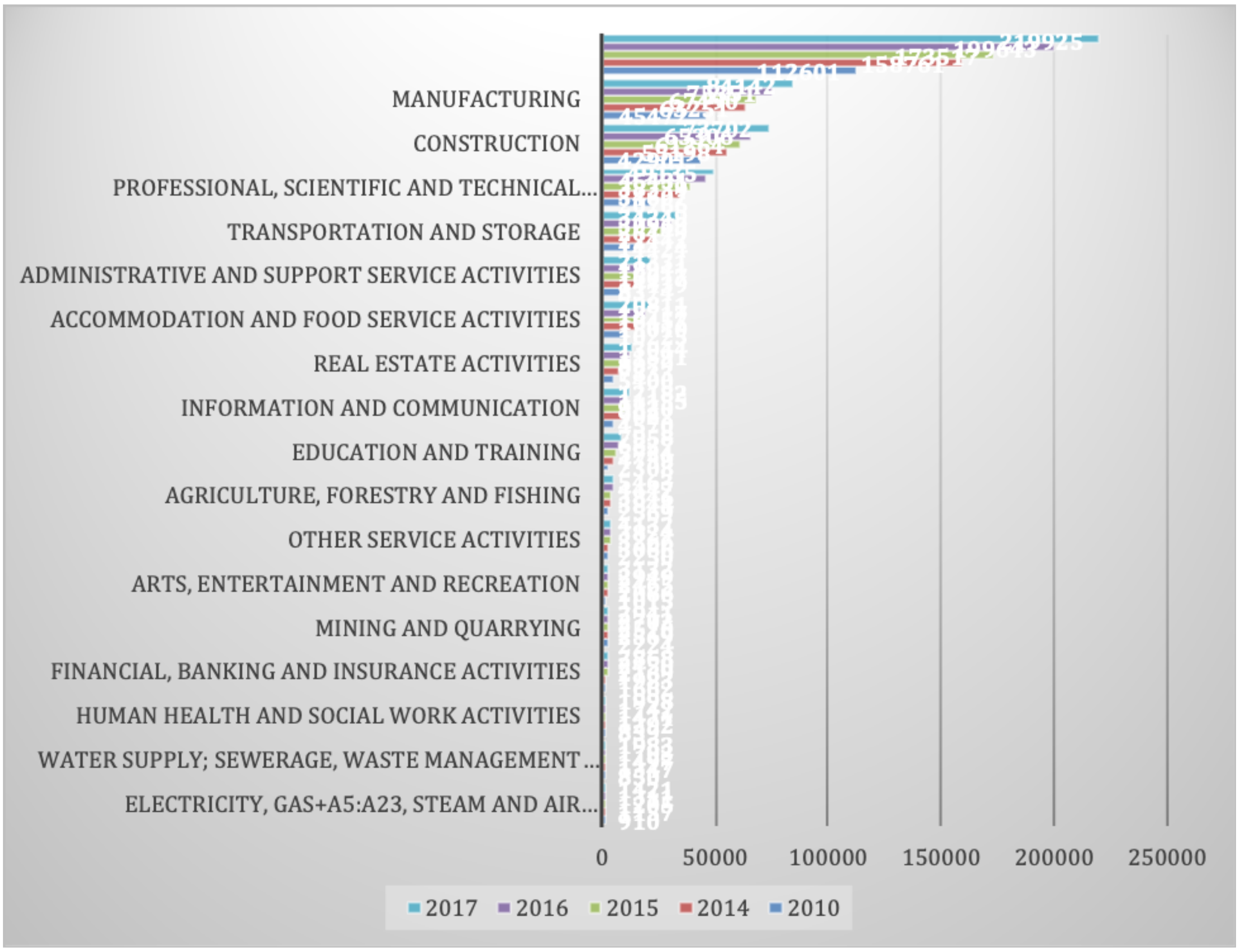


Figure 1.9- Distribution of economic sector over time

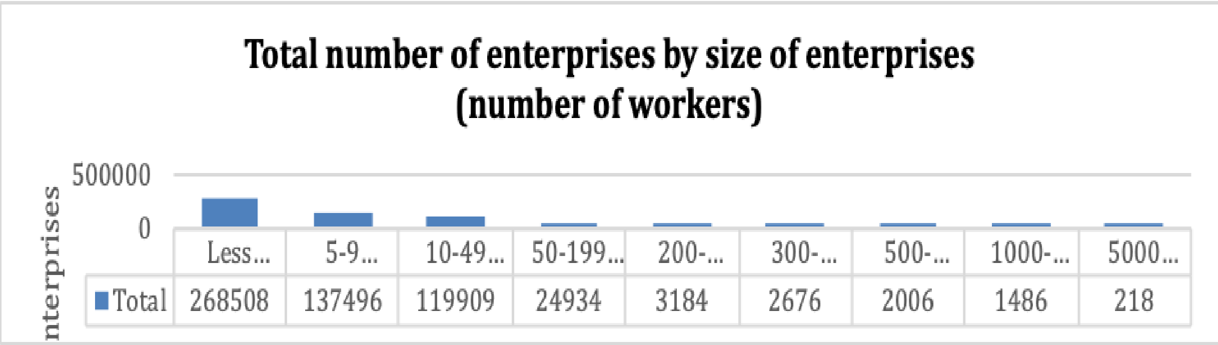


Sectors with the lowest proportion of enterprises (below 1%) are electricity, gas, steam and air conditioning supply, water supply, and human health and social work activities. Sectors with the highest average growth are real estate activities (19% per year); (No.9) Education and training (19% per year); (No.3) Human health and social work activities (16% per year). Sectors with an average growth of 15% per year are arts, entertainment and recreation; administrative and support service activities and transportation and storage. Average annual growth of Vietnamese enterprises in total is 12%, as shown in Figure 1.8.

6.4. Distribution of enterprises by economic sector and size of enterprises

According to enterprise statistics by economic sector, and size (number of workers) there are large differences from sector to sector as illustrated in table 1.12. In term of number of enterprises, wholesale and retail trade have the highest number of enterprises as well as proportion among economic sectors of the whole country. Next, manufacturing and construction have 84,142 and 73,702 enterprises, respectively. Sectors with the least number of enterprises are electricity, gas, steam and air conditioning supply, water supply and human health and social work activities. In terms of size of enterprises (number of workers): small and medium enterprises, less than 200 workers account for 98%, while micro-enterprises of under five workers account up for 48% of the total number of enterprises in Vietnam. Some sectors such as retail-trade, education or finances, have a majority of enterprises hiring less than 5 persons. Enterprises in the Manufacturing and Construction sectors are heterogeneous in size, with similar number of enterprises having less than 5 workers, 5 to 9, and 10 to 49.

Figure 1.10:-Total number of enterprises by the size of enterprises (number of workers)



Most of the enterprises have less than 200 workers. Sectors of more than 200 workers mainly focus on manufacturing, construction, wholesale and retail, services, transportation, and storage. Sectors of over 1000 workers mainly concentrate on manufacturing, construction, wholesale and retail, agriculture, services, banking.

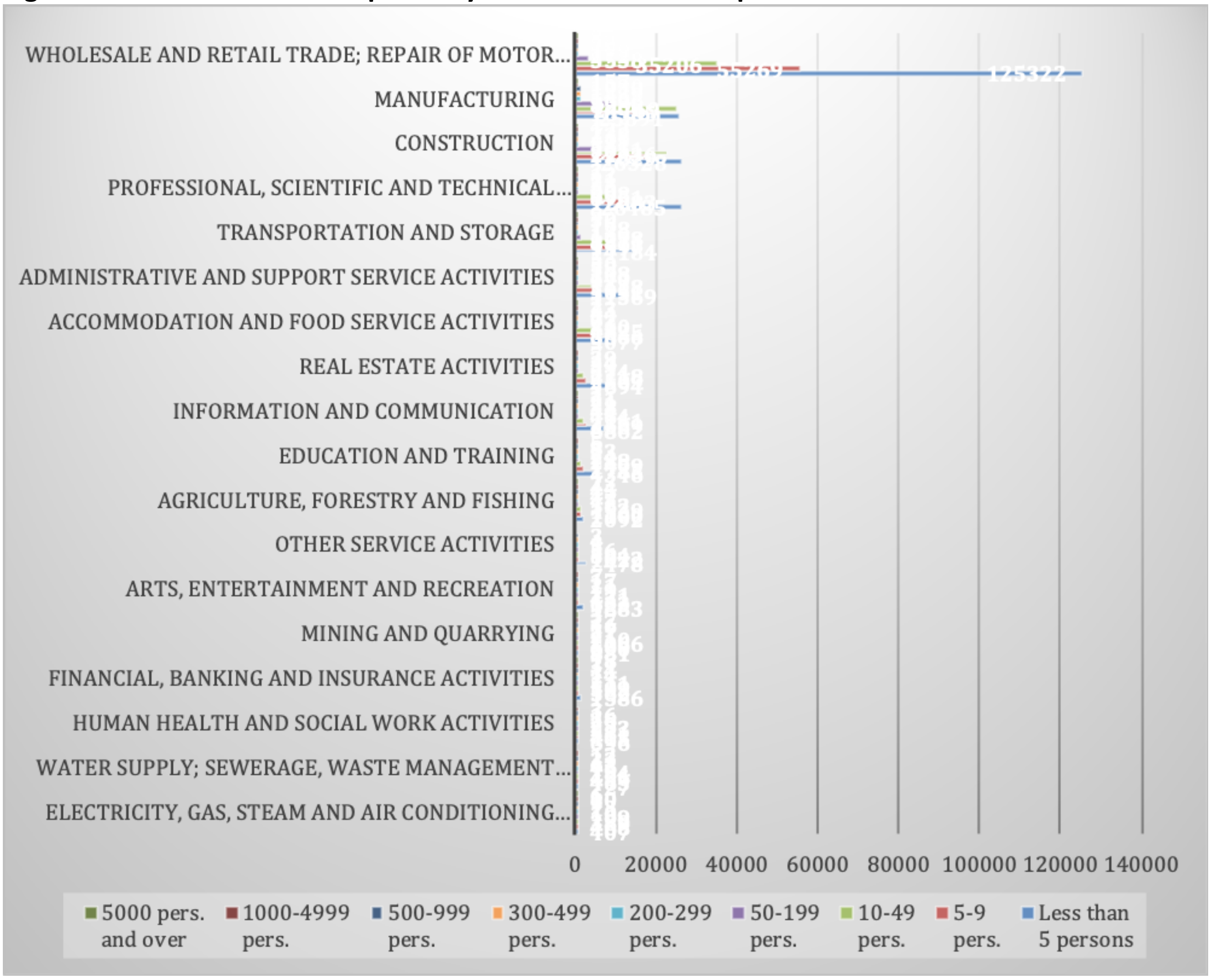
Table 1.12: **Distribution of enterprises by economic sector and number of employees**

Economic sectors	Less than 5 persons	5-9 pers.	10-49 pers.	50-199 pers.	200-299 pers.	300-499 pers.	500-999 pers.	1000-4999 pers.	5000 pers. and over	Total
1. Electricity, gas, steam and air conditioning supply	407	468	389	109	10	13	9	10	6	1421
2. Water supply; sewerage,waste management	727	463	456	184	46	62	33	12		1983
3. Human health and social work	696	415	581	232	29	26	16	3		1998
4. Financial, banking and insurance	1586	562	509	111	23	14	14	31	18	2868
5. Mining and quarrying	881	690	1066	210	21	27	16	27	3	2941
6. Arts, entertainment and recreation	1883	633	431	121	19	21	17	7		3132
7. Other service activities	2478	1022	564	56	5	4	3			4132
8. Agriculture, forestry and fishing	2092	1100	1529	562	47	42	45	44	2	5463
9. Education and training	4346	1785	1479	288	24	23	8	5		7958
10. Information &communication	6862	2569	2161	464	44	38	21	21	2	12182
11. Real estate activities	7694	2509	2218	514	39	34	29	7		13044
12. Accommodation and food service	9077	5866	4825	810	92	72	44	23	2	20811
13. Administrative and support service activities	11369	5051	3628	922	140	108	58	50	5	21331
14. Transportation and storage	14184	9597	8811	1278	136	128	76	30	9	34249
15. Professional, scientific and technical activities	26485	12683	8951	898	50	33	21	12	2	49135
16. Construction	26528	17829	22336	5651	581	413	238	122	4	73702
17. Manufacturing	25891	18985	24769	8986	1606	1439	1279	1030	157	84142

18. Wholesale and retail trade; repair of motor vehicles	125322	55269	35206	3538	272	179	79	52	8	219925
Total	268508	137496	119909	24934	3184	2676	2006	1486	218	560417

(Source: GSO 2017)

Figure 1.11- Number of enterprises by the size of the enterprise and economic sector



6.5. Distribution of enterprises by size of the enterprise and geographic area

In terms of geographic area: as analyzed in table 1.13, South East and Red River Delta host most of the enterprises in the whole country. While mountainous areas and Central Highlands have the least number of enterprises due to disadvantages of terrain and lower development. In terms of the number of workers: enterprises less than five workers mainly gather in the South East area, while the Red River Delta area attracts more enterprises from 5 to 9 and up to 199 workers.

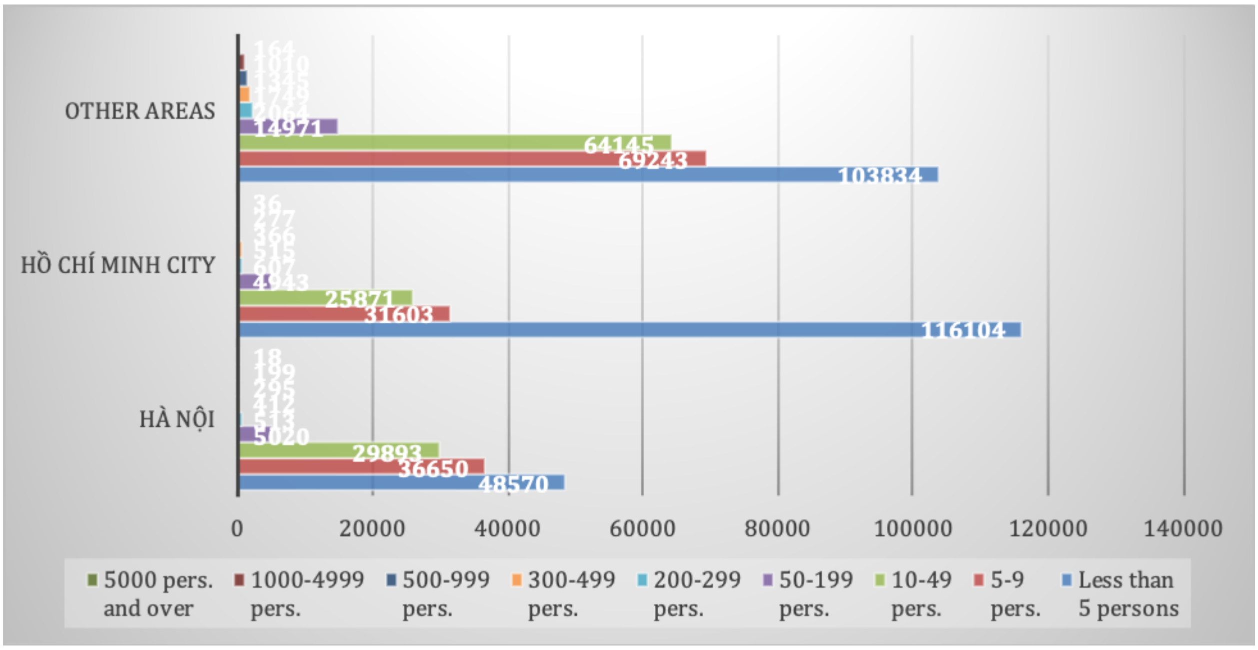
Most enterprises have less than 100 workers, in which the highest proportion belongs to enterprises under five workers. This proportion gradually decreases by the size of enterprise for a big number of workers.

Table 1.13: **Distribution of enterprises by the size of the enterprise and geographic area**

Geographic area	Less than 5 persons	5-9 pers.	10-49 pers.	50-199 pers.	200-299 pers.	300-499 pers.	500-999 pers.	1000-4999 pers.	5000 pers. and over	Total
Nec.		1	15	24	15	18	30	39	19	161
Central Highlands	7454	3547	2938	567	57	51	26	19	1	14660
Northern midlands and mountain areas	7811	5596	6878	1791	232	160	101	85	11	22665
Mekong River Delta	19202	11584	9321	1936	226	190	167	120	22	42768
North Central and Central coastal areas	30052	21006	18002	3531	391	350	222	134	17	73705
Red River Delta	68624	52699	46413	8850	1038	896	665	508	55	179748
South East	135365	43063	36342	8235	1225	1011	795	581	93	226710
WHOLE COUNTRY	268508	137496	119909	24934	3184	2676	2006	1486	218	560417
Hà Nội	48570	36650	29893	5020	513	412	295	199	18	121570
Hồ Chí Minh city	116104	31603	25871	4943	607	515	366	277	36	180322
Other areas	103834	69243	64145	14971	2064	1749	1345	1010	164	258525

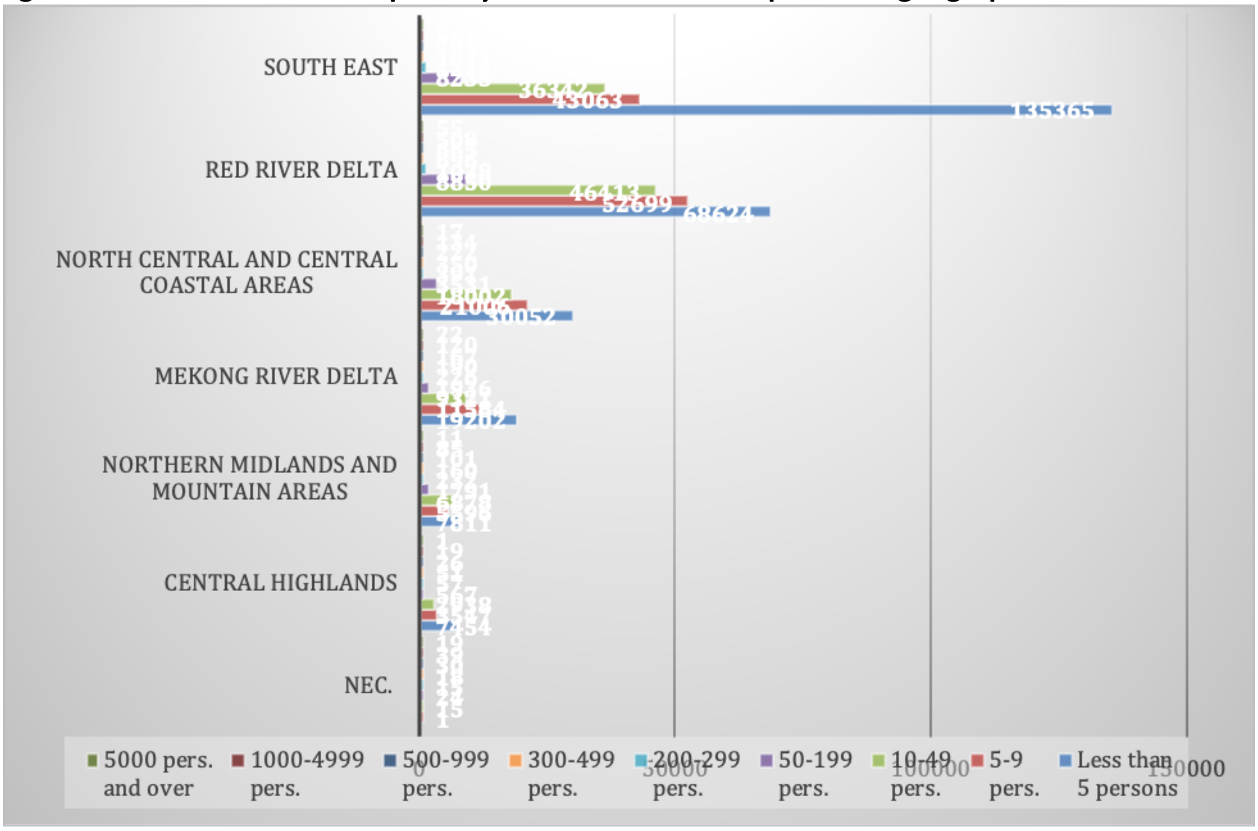
(Source: GSO 2017)

Figure 1.9: **Number of enterprises by size of enterprise and city**



In terms of the two biggest cities in Vietnam, Ho Chi Minh city takes the highest proportion compared to other areas regarding the number of micro-enterprises under five workers. The micro, small, and medium enterprises have quickly increased in recent years at South East and Red River Delta areas as following Figure 1.10:

Figure 1. 10: Number of enterprise by the size of the enterprise and geographic area



6.6. Distribution of enterprises within manufacturing: Agri-food and ICT industry

While the Labor Market Observatory is expected to extend to all the sectors where University Graduates get employed, the pilot study will be based on three sectors: Agri-food, ICT and tourism. They are all sectors that are expected to grow, where new occupations are being created, and that are key in terms of the country's Socio-Economic Development Strategy. However, these sectors are not directly covered in the previous analysis that provided disaggregation at level 1 of the VSIC. For that purpose, it is needed to go at least to level 2 of the VSIC.

There are different ways of conceiving the agri-food sector (Ramaschiello, 2015). For the pilot project we adopt a somewhat restrictive view of considering the manufacture of food and beverages, corresponding to levels 10 (manufacture of food) and 11 (manufacture of beverages) of the second level VSIC, although there could be grounds to include the agriculture sector, and other sectors in manufacture connected to agricultural products such as textiles, and some services such as wholesale trade of agricultural products.

Regarding the ITC sector there is an OECD standard definition corresponding to three different activities: an ITC industry, part of the manufacturing sector, corresponding to sector 26 and 27 in VSIC (manufacture of computers, electronic and optical products, and manufacture of electrical equipment), an ICT service sector corresponding to wholesale of ICT products, software, telecommunications, and an ICT media and content sector (Duc and Linh, 2018).

Table 1.14: Agrifood and ITC industry enterprises within the manufacturing sector

	Enterprises		Structure (%)		Growth (%)
	2012	2017	2012	2017	2012-17
Manufacturing total	55921	84142	100	100	50%
Food and Beverages (agri-food)	7751	10034	13.9	11.9	29%
ITC industry	1867	3257	3.3	3.9	74%
Computer & Electronics	739	1755	1.3	2.1	137%
Electrical equipment	1128	1502	2.0	1.8	33%

(Source: UNIDO INDSTAT database)

In table 1.14 we look at the agrifood and IT industry sectors as part of the manufacturing sector.using data from UNIDO INDSTAT database. Several things standout: Agrifood enterprises are much more numerous reaching 10 thousand in 2017, but ITC industry is growing faster. In particular, in 5 year the number of enterprises in computer and electronics increased more than twofold from 739 to 1755. This is complemented in table 1.15 with the perspective from the point of view of labor. The fast growth in the number of enterprises in the manufacturing sector goes together with the growth in employment of 44% in five years. The agri-food sector has increased modestly in employment loosing share within the manufacturing sector from 11 to 8% in five years. In contrast, growth of employment in the ITC industry has been spectacular, even faster than the growth in the number of enterprises. The number of employees in computer and electronics has gone in five years from less than 300 thousand to almost 750 thousand multiplying by 2.5. As a result the share in employment within the manufacturing sector has almost doubled reaching more than 10%. Computer and electronics are the sole subsector responsible for this since employment in electrical equipment is growing slower than the manufacturing total.

Table 1.15: Agrifood and ITC industry employees within the manufacturing sector

	Employees (1000s)		Structure (%)		Growth (%)
	2012	2017	2012	2017	2012-17
Manufacturing total	4913	7082	100	100	44%
Food and Beverages (agri-food)	553	597	11.3	8.4	8%
ITC industry	435	923	8.9	13.0	112%
Computer & Electronics	294	736	5.9	10.4	154%
Electrical equipment	146	187	3.0	2.6	28%

(Source: UNIDO INDSTAT database)

6.7. Number of employees per geographical area

At the end of 2018, the average labor force of the whole country (aged 15 and over) was 55.35 million people, the geographical distribution of the labor force is given in table 1.16. The economic region with the biggest share of the labor force is the Red River delta in the North with 22% of the labor force, including the capital, Hanoi. It is followed closely by the North Central and Central coastal areas where the Central key economic zone is located also with 22% and the

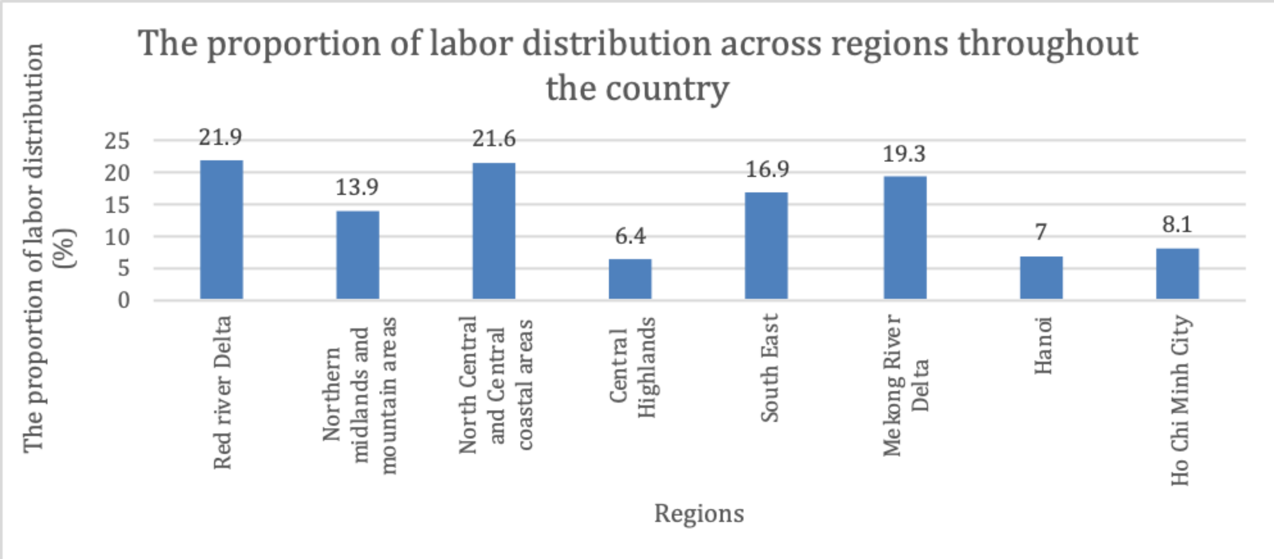
Mekong river delta in the South with 19%. The South-East region represents 17% including Ho Chi Minh City, the largest urban economy in the country.

Table 1.16: Table of distribution of labor force by geographical area

Geographical areas	Labour force (thousand people)	Total (%)	Male (%)	Female (%)
Red river Delta	12095.5	21.9	20.7	23.1
Northern midlands and mountain areas	7684.4	13.9	13.4	14.4
North Central and Central coastal areas	11959.6	21.6	21.2	22.1
Central Highlands	3596	6.4	6.4	6.4
South East	9351.6	16.9	16.9	17.5
Mekong River Delta	10667	19.3	20.7	17.8
Hanoi	3851	7.0	6.8	7.2
Ho Chi Minh City	4469	8.1	8.5	7.6

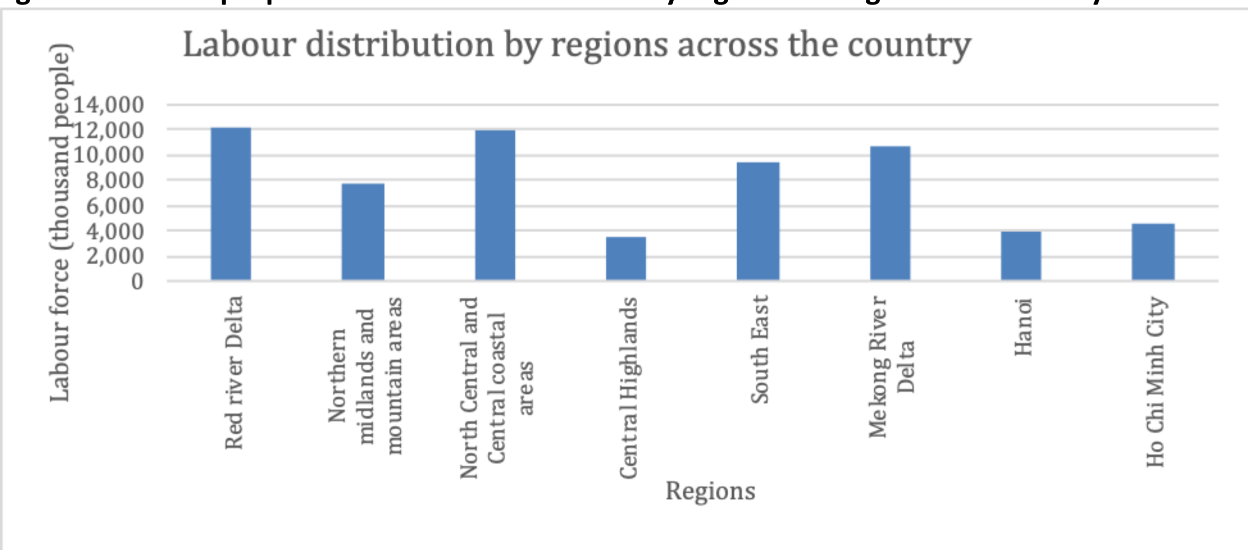
(Source: GSO 2017)

Figure 1. 11: **Chart of labor distribution by geographical area**



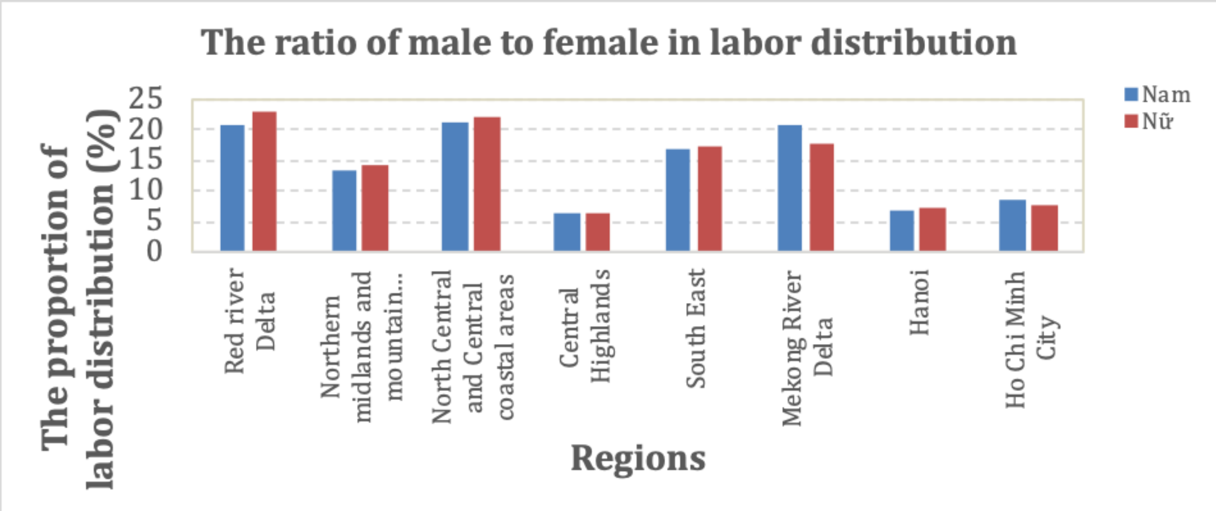
In the Red River Delta, the labor force in Hanoi is about 4.0 million people (accounting for 30% of the labor force of the whole region). In the Southeast region, the labor force in Ho Chi Minh City is about 4,5 million people (accounting for about 50% of the labor force of the whole region). The Central Highlands is the region with the smallest labor force, about 3.5 million, accounting for only 5% of the total labor force of the country.

Figure 1. 12: The proportion of labor distribution by regions throughout the country



The gender ratios in labor distribution can be observed in figure 1.13 below:

Figure 1. 13: **The ratio of male to female in labor distribution**



The percentage of females in the labor force varies across regions. The Mekong River Delta is the lowest (44.1%), and the highest is 50.5%, in the Red River Delta. The data also indicate that there is a reverse in the level of labor force participation between the sexes in the two major deltas of Vietnam, the Red River Delta, and the Mekong Delta, with a higher proportion of females than males at the Red River Delta; and opposite in the Mekong Delta.

6.8. Number of employees per company dimension and economic sector

According to enterprise statistics from 2010 to 2017, the number of employees by each economic sector is as follows:

Regarding the total number of companies by size, the majority of Vietnamese companies are small and medium-sized (under 200 employees), accounting for 98% of the total number of companies in the country. In which, the number of micros (under five employees) accounts for 48% of all businesses in the country.

From the economic field, the wholesale and retail trade; repair of motor vehicles and motorcycles clearly shows that the number of micro-companies accounts for a very large number. Manufacturing industries have the largest number of employees, with high annual growth, followed by construction and wholesale, retail, repair of automobiles, motors, and motorcycles. Other industries account for a relatively small number of employees and do not change the number of employees much over the years.

Table 1. 17: **Table of allocation of the number of employees by economic sectors**

Economic Sector	Number of employees (thousand people)				
	2010	2014	2015	2016	2017
Agriculture, forestry and fishing	267278	264485	263494	250835	256683
Mining and quarrying	192040	195664	180087	171908	161425
Manufacturing	4441800	5807577	6234593	6758015	7082889
Electricity, gas, steam and air condition supply	79205	124275	128854	132752	129827
Water supply; sewerage, waste management and remediation activities	68728	98977	99387	107057	109372
Construction	1622423	1713193	1809705	1919447	1858932
Wholesale and retail trade; repair or motor vehicles and motorcycles	1369448	1550659	1695124	1898827	1974486
Transportation and storage	433359	555035	584448	630380	645208
Accommodation and food service activities	201035	285885	297513	337900	360078
Information and Communication	183315	215856	215093	235641	238621
Financial, banking and insurance activities	211876	257731	266730	300082	339547
Real estate activities	79582	114440	131341	169767	174675
Professional, scientific and technical activities	267663	372372	394890	429259	454459
Administrative and support service activities	205802	309444	349337	429124	454934
Education and training	38817	67375	79810	94284	105360
Human health and social work activities	24912	46349	51250	60891	72593
Arts, entertainment and recreation	34246	46521	52568	58104	61019

Other service activities	20253	22996	22632	28003	31971

(Source: GSO 2017)

6.9. Labor distribution by region and some economic sectors

By geographic region and economic sector, the distribution of labor is shown as the table below:

Table 1. 18: **Labor distribution by region and some economic sectors**

Geographical areas	Agriculture, forestry and fishing	Industry and Construction	Services	Number of employees (thousand people)	Total (%)
Red river Delta	24.1	36	39.9	12095.5	21.9
Northern midlands and mountain areas	59.2	18.7	22.1	7684.4	13.9
North Central and Central coastal areas	42.8	23.2	34	11959.6	21.6
Central Highlands	7.2	6.5	21.5	3596	6.4
South East	12.4	38.1	49.5	9351.6	16.9
Mekong River Delta	42.4	22.7	34.9	10667	19.3
Hanoi	11.5	27.8	60.7	3851	7
Ho Chi Minh City	1.3	35.4	63.3	4469	8.1

(Source: GSO 2017)

Figure 1. 14: **Chart of labor distribution by region and some economic sectors**

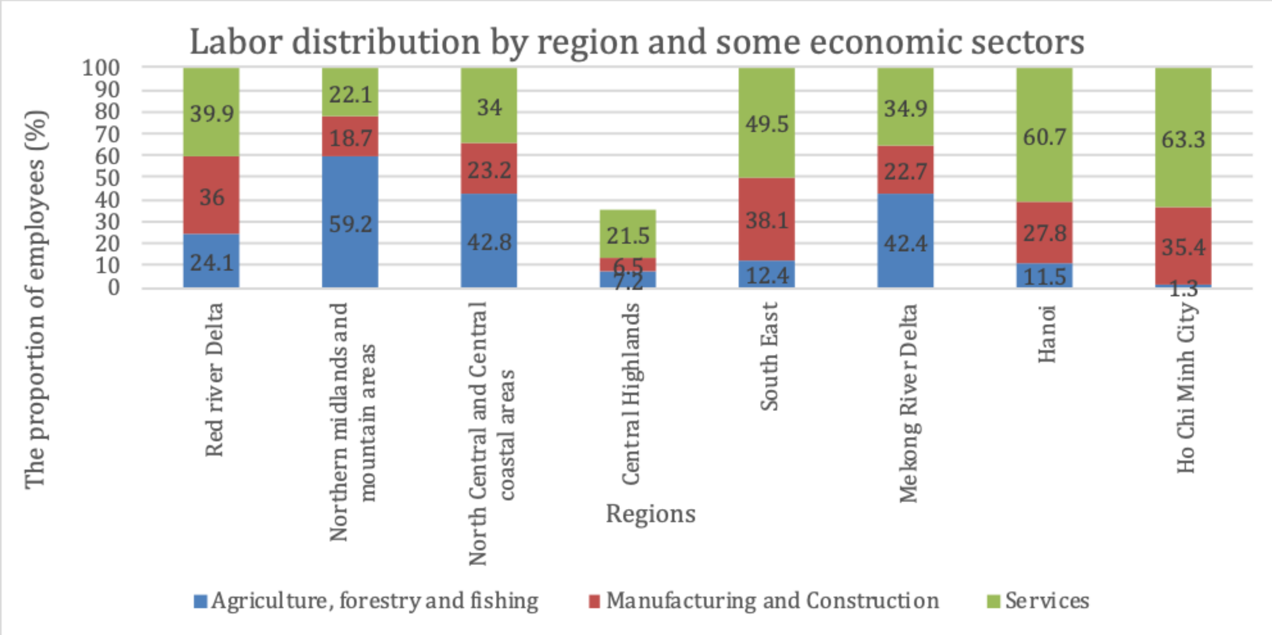
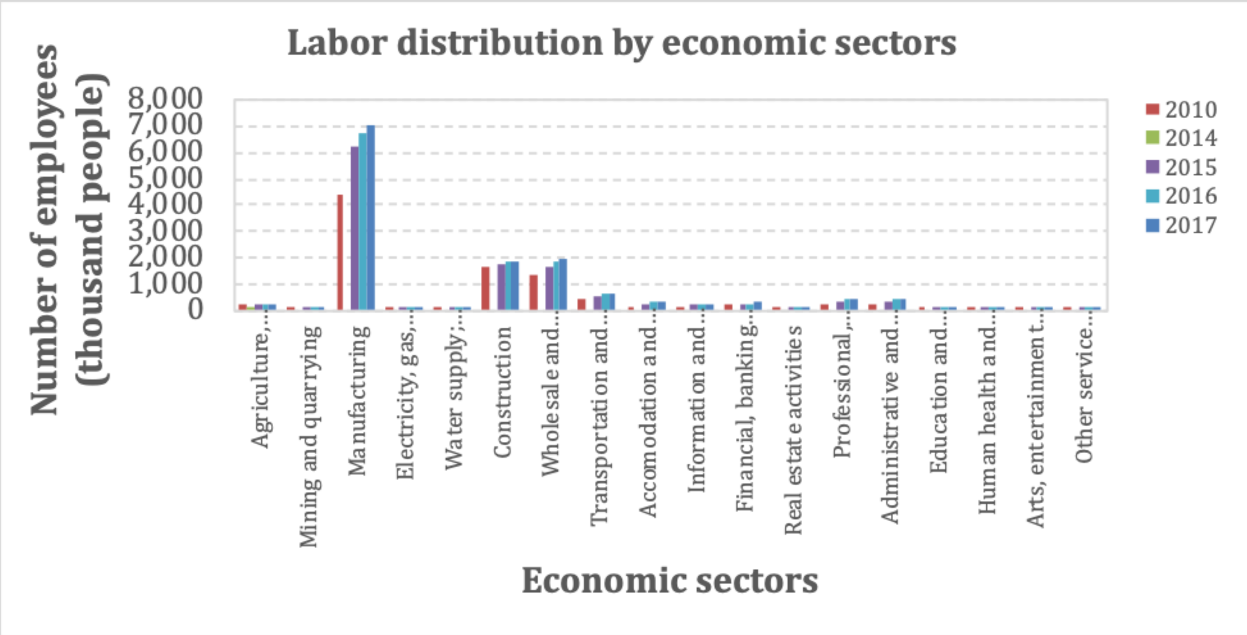


Figure 1.14 shows the proportion of the employed population by economic sector of each region. Indicators show that there is suitability for some typical geographical conditions in each region. In mountainous and coastal areas, the employment rate in agriculture, forestry, and fishery is quite high. This figure in the Central Highlands is 72%, the Northern Midlands and Mountains area is 59.2%, the North Central and Central Coast area is 42.8%. The data show that Ho Chi Minh City has a more developed economic structure than Hanoi, with 98.7% of employees working in Industry, construction, and services. In the two major cities of Vietnam - Hanoi and Ho Chi Minh City, the proportion of labor in the service sector accounts for more than 60%, followed by the industry and construction sectors are 27.8% and 35.4%, respectively. Labor in agriculture, forestry, and fishery in these two cities is very small, especially in Ho Chi Minh City, only 1.3%, while Hanoi is still about 11.5%.

6.10. Number of employees per year and the economic sector

The chart below shows the distribution of labor by overall 18 economic sectors of the country in 5 years 2010, 2014, 2015, 2016 and 2017.

Figure 1. 15: **The distribution of labor by economic sectors**



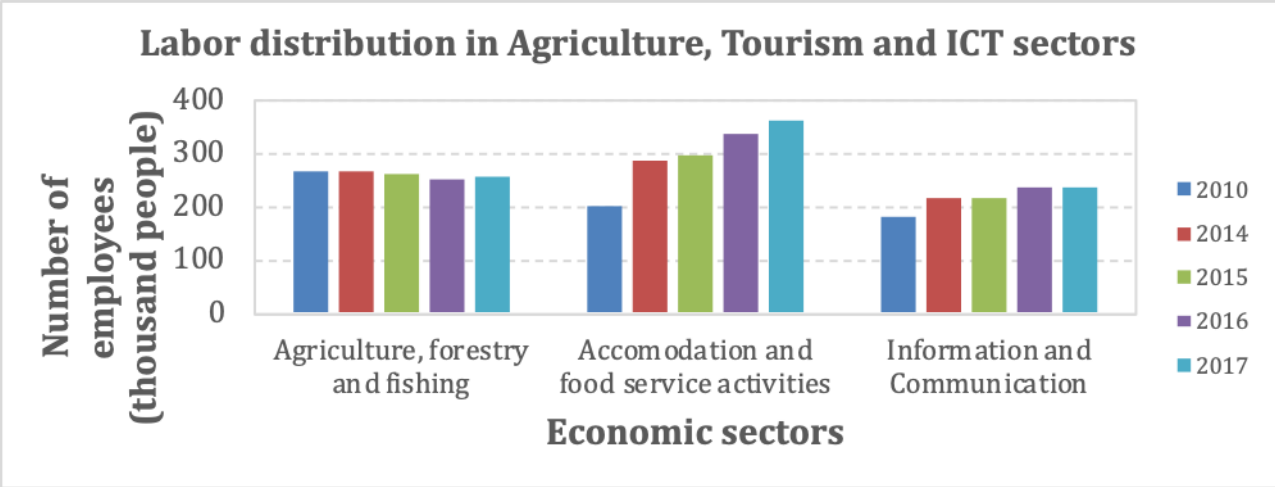
In all five years, the number of laborers involved in the processing and manufacturing industry is superior to other fields. The next field that attracts a significant number of employees is the construction and wholesale and retail sectors. The fields of education and training or health care and entertainment are the ones with the smallest labor force, Information and communication, accommodation and food, agriculture, forestry, and fishery processing have relatively balanced labor concentration, with about two hundred thousand employees in each field.

The manufacturing and processing industry shows the fastest growth in the labor force. For example, in 2010 there were about 4.4 million employees reaching by the end of 2017, 7.1 million, meaning an increase within seven years of about 40%. The annual increase from 2014 to 2017 is about 10% per year. As we commented above, this is the result of the number of manufacturing enterprises increasing rapidly in Vietnam from 2010 to 2017, attracting a large number of employees to the field.

6.11. Labor force distribution in three areas: Agriculture, Tourism, and ICT services

In the fields of Agriculture, Tourism and ICT services in particular, the labor force has evenly distributed approximately 200,000 employees in each field.

Figure 1. 16: **Labor force distribution in three areas: Agriculture, Tourism, and ICT services**



In the agricultural sector, the number of employees changed over the seven years from 2010 to 2017 without much change and tended to decrease, from 267,000 employees in 2010 to 256 thousand in 2017. In the years from 2014 to 2017, the number of employees was almost unchanged, remained stable at over 250 thousand employees. This shows that the agriculture and fishery sectors have had little change in the number of businesses in the last 5 or 6 years, making the number of employees less volatile or shifting. Note, however, that people working in formal enterprises are a minority in agriculture, most people working within a household enterprise.

For the tourism sector broadly defined, within seven years, the labor force continued to increase. From 2010 to 2017, the number of employees increased from 200,000 to 360,000. The number of people working in the tourism sector increased year by year higher than the previous year, each year increased by about 10 to 20 thousand employees, especially from 2016 to 2017, the number of employees increased by about 30,000 people. This shows that tourism is a very developing economic sector in Vietnam recently, attracting many employees. If we look at accommodation and food services separately, we find that food and beverage service activities employs more people (197,000 compared to 163,000), and has been growing faster from 2010 to 2017 (58% compared to 101%). However, the monthly salary is higher is accommodation, 6.4M dong, compared to 5.6M Dong in food services.

Regarding the information and communication services, average growth in employment is not high for the whole sector, 20000 people per year, but not all of it corresponds to ICT services and growth is uneven by subsector. While employment in telecommunication went down from

117 to 73 thousand people in the 2010-2017 period, probably due to the adoption of more efficient technology, growth in computer programming was spectacular, from 39 to 114 thousand, almost threefold. The same can be said regarding information service activities, that only employed 4 thousand people in 2010 and grew to 13 thousand in 2017. This is also a sector highly paid, with an average monthly salary of 15M Dong, almost double the average salary. Changes in monthly salary are telling of the internal restructuring process. While telecommunication had the lowest salary in 2010 (4,7M), after restructuring the new employees are the most highly paid (19,5M). Salaries have not grown so fast in computer programming (8,7M to 13,8M). It is precisely changes like this that make ICT services and interesting sector from the point of view of a labor market observatory since job profiles and the skills associated are changing fast.

SECTION 2 - VIETNAM LABOR MARKET FOR THE THREE ECONOMIC SECTORS

1. Vietnam labor market for the tourism sector

1.1. Driving activities of the specific economic sector.

Vietnam's tourism sector witnesses a booming period over the past decade, leveraging on the surging global and regional demand for travel and tourism.

The Resolution No.08/NQ-TW of the Political Bureau released in January 2017 has determined tourism as a key economic sector of Vietnam. The strategic direction set out by the Politburo has built on the remarkable growth of the tourism sector in Vietnam. The average growth rate of the tourism industry over the three consecutive years reaches 22% per annum. The high growth rate of tourism is mainly attributed to the soar in international visitors. For the period 2015-2018, the number of international visitors grows by an average of 25% per year, a record rate in the history of the Vietnam tourism sector. Over the past five years, the growth in Vietnam's international visitors has outpaced that of other ASEAN peers[24]. By the end of 2019, Vietnam has surpassed Indonesia, ranking fourth in the ASEAN region international arrivals. Vietnam is predicted to lead Asia Pacific destination in terms of average annual growth rate over the coming five years[25]. The volume of domestic visitors also accelerates over the period, with the average growth rate of about 10%.

Table 2. 1: **Number of international and domestic visitors period 2015-2018**

Thousands of people	2019 (estimated)	2018	2017	2016	2015
International visitors	18,000	15,498	12,922	10,013	7,943
Domestic visitors	85,000	80,000	73,200	62,000	57,000

(Source: Vietnam National Administration of Tourism)

The tourism sector creates an important driver for economic growths, job creation, and tax revenue. Revenues from the tourism sector achieve double-digit growth over the period. Revenues from international visitors have consistently outweighed those of domestic visitors,

24 World Bank. 2019. Vietnam Tourism Developments

25 PATA. 2019. Asia Pacific Visitor Forecasts 2019-2023

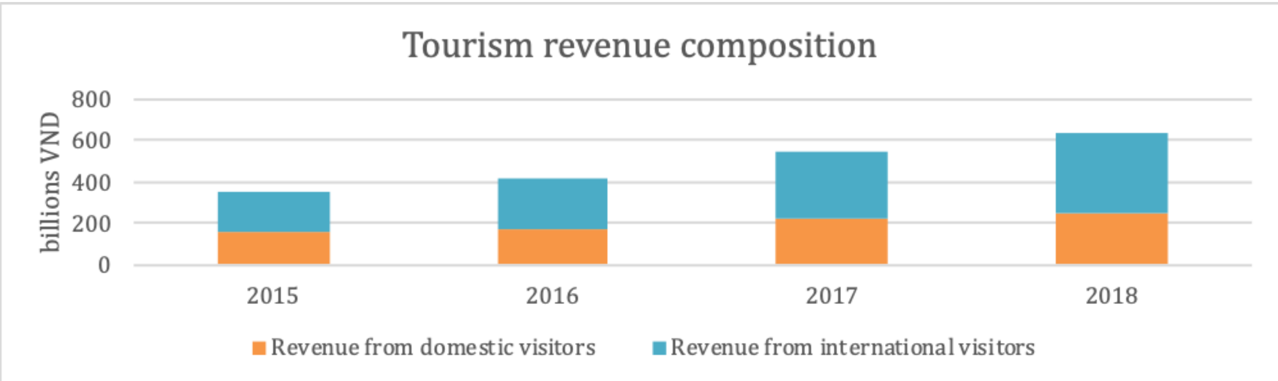
and the gap between the two sources of revenue continues to widen. The direct contribution of tourism to GDP has been increasing over the years, achieving 8.39% in 2018. Total contributions to GDP of the sector including both direct and indirect reach approximately 15.86% in 2018[26]. Travel and tourism sector also creates more than four millions job, which is approximately 7.4% of total employment in 2018[27].

Table 2. 2: **Direct contribution to GDP of the tourism sector, period 2015-2018**

	2018	2017	2016	2015
Total revenue from tourism (thousand billions dong)	637.00	541	417.2	355.5
Direct contribution to GDP (%)	8.39	7.9	6.96	6.33

(Source: Vietnam Tourism Annual Reports 2015-2018)

Figure 2. 1: **Structure of tourism revenue, period 2015-2018**



Vietnam tourism sector has benefited from the diverse natural landscape and rich culture. Vietnam ranks 26th globally (out of 140 countries) and 3rd regionally (out of 9 ASEAN countries) in terms of natural and cultural resources. International visitors come to Vietnam, mostly for leisure. Data from WTTC show that 90% of visitors' spending is for leisure, only 10% for business. Tourism revenues achieved double-digit growth over the period 2015-2018, and international spending consistently outweighs domestic spending despite the smaller volume.

The competitiveness of Vietnamese tourism has significantly improved from 75th/141 in 2015 to the 63rd/140 position in 2019[28] . The significant improvement in the Tourism Competitive Index indicates Vietnam's efforts in developing the tourism sector and the strong growth in the

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26 Vietnam Tourism Annual Report. 2018

27 World Travel and Tourism Council. Vietnam 2019

28 WEF.2019. The Travel and Tourism Competitive Report

number of visitors over the years. Vietnam has been diversifying tourism products, investing in infrastructure, increasing promotional activities, strengthening travel operations, tourism transportation, and training of the labor force.

1.2. Driving geographical areas

1.3. The tourism sector in Vietnam

In 2018, the Vietnam tourism sector received an award for "Asia's Leading Destination" by World Travel Award. Vietnam ranked third out of 10 nations that have the highest growth in the number of international arrivals, according to UNWTO Tourism Highlight Report 2018. The tourism sector has offered a wide variety of options to tourists, including cultural and historical tours, sea-based tours, adventure tours, eco-tours, and luxurious vacations. Ho Chi Minh is the leading city in tourism, followed by Hanoi, Quang Ninh, and Da Nang. In 2018, Ho Chi Minh city attracted 36.5 million visitors. Hanoi ranked second with 26 million tourists, including 6 million international visitors. Other major destinations of tourists are Quang Ninh with 12.5 million and Da Nang with 7.7 million.

The international tourism market to Vietnam is characterized by the concentration of a limited number of source markets. Ten source markets accounted for 83% of the total number of international arrivals to Vietnam in 2018. Northeast Asia is the major source market accounting for 64 % of international visitors to Vietnam. Chinese arrivals make up the largest share of the total with 32%, followed by the Republic of Korea with 22.4%, Japan, and Taiwan account for 5.3% and 4.6%, respectively. There is also a rapid growth in domestic tourism. Domestic tourists are generally peaked in the summer period and also concentrated in popular destinations including Ho Chi Minh city, Hanoi, Da Nang, Quang Ninh, Quang Nam.

Data from table 2.3 indicates that among the six key economic regions, South East is driving the whole country's tourism output. Revenue from the travel activities of South East accounts for 60% of Vietnam's total output. The dominant position of the South East region is attributed to the leading destination of Ho Chi Minh city. Red River Delta ranks second in tourism revenue, with more than 26% of the total. Hanoi and Quang Ninh are the two main destinations of the Red River Delta region, attracting a large number of international and domestic visitors. Other regions make up a small proportion of the total revenue of the tourism sector. Nevertheless, there is an increasing trend in output of North Central and Central coastal areas and Mekong River Delta over the period 2014-2017.

Table 2. 3: **Structure of tourism output, period 2014-2017**

Region	2014	2015	2016	2017
Red River Delta	29.3%	28.1%	27.9%	26.5%
Northern midlands and mountain areas	0.7%	0.8%	0.9%	0.9%
North Central and Central coastal areas	6.5%	7.3%	8.5%	8.8%
Central Highlands	0.3%	0.4%	0.3%	0.3%
South East	61.5%	61.7%	60.1%	61.2%
Mekong River Delta	1.6%	1.7%	2.3%	2.3%
TOTAL	100.0%	100.0%	100.0%	100.0%

In 2016, Vietnam introduced a Strategy for Vietnam's tourism products to 2025 [29], Orientation to 2030. The strategy evaluates Vietnam's competitive advantages in tourism and outlines directions for tourism products in 7 different geographical areas.

- The Northern mountainous region is featured with eco-cultural tourism associated with the exploration of cultural identities of ethnic minorities.
- Red River Delta and Northeast Coast region is characterized by natural heritage associated with values of the wet rice civilization and local traditional activities, urban tourism, MICE tourism.
- North Central region is characterized by tours to explore world cultural and natural heritage sites.
- South Central Coast region is distinguished in marine and resort tourism.
- Central Highlands has eco-tourism and cultural tourism exploiting the unique cultural values of indigenous ethnic groups.
- Southeast region is featured with urban tourism, MICE tourism, culture, and history exploration, marine ecological, and resort tourism.
- Mekong Delta has eco-tourism, river life culture, and ecological gardens.

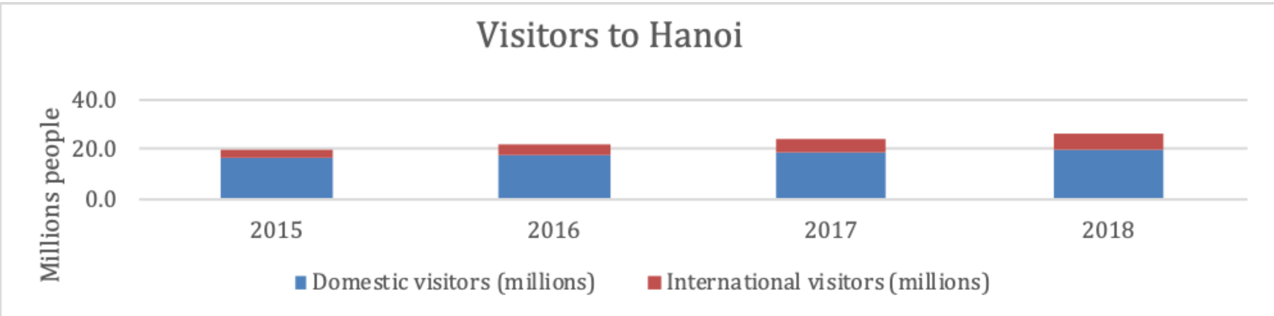
29 Decision 2714/QĐ-BVHTTDL dated 3rd August 2016

1.4. Tourism in Hanoi

The capital of Hanoi receives the second largest number of tourists in the country in current years. Hanoi, as the capital city, has many cultural attractions and historic sites. In addition, it is also a tourist hub and gateway for the Northern region. International tourists to Hanoi have been growing at a double-digit rate while domestic visitors increase at a steady rate of an average of 8%. In 2019, Hanoi was in the list of World Leading City Destination by Business Insider and World Travel Awards. Hanoi's key tourism markets include China, the Republic of Korea, Japan, France, the US, the UK, Germany, Thailand, Malaysia, Singapore, and Canada. Tourists from Asian nations make up about 60 percent of the total number of international visitors to the capital, Europe 24 percent, the Americas 9 percent, and the remaining from Oceania and Asia[30].

The tourism sector contributed 10.15% to the GDP of Hanoi in 2018, in which direct contributions are 4.12%, and indirect contributions are 6.03%. This shows a significant increase from 2017, with an 8.07% contribution to the GDP of the city[31].

Figure 2. 2: **Number of visitors to Hanoi**



(Source: Hanoi Tourism Department)

1.5. Tourism in Thai Nguyen

In Thai Nguyen, the number of tourists has maintained a higher growth rate every year. Annual tourism revenue increased by 10-15%, tourist accommodation by 18-20%, domestic tourists by 8-10%, international tourists by over 5%. With over 400 accommodation establishments (about 50 hotels meet the standards of 2 stars or higher), 25 travel agencies (3 international ones), and hundreds of restaurants, the tourism facilities of the province have

30 http://dtinews.vn/en/news/019/59944/-hanoi-welcomes-5-74-million-international-tourists-in-2018.html

31 http://baodulich.net.vn/Du-lich-Ha-Noi-giu-vung-toc-do-tang-truong-03-19674.html

strongly developed to meet the needs of domestic and international tourists. With more than 2,000 rooms, the tourism industry has contributed to the local socio-economic development, creating jobs for 3,500 employees. In 2018, tourism contributed more than VND 400 billion to the local budget.

Table 2. 4: Tourism Results in Thai Nguyen in 2017, 2018, 2019

Criteria	2016	2017	2018	2019 (estimates)
1. Total number of tourists (people)	2,064,537	2,229,700	2,506,481	2,900,000
By nationality				
- International visitors	64,055	66,297	70,297	75,300
- Domestic visitors	2,000,482	2,163,403	2,436,184	2,824,700
By type of serving entities				
- Tourists served by accommodation establishments	903,362	947,625	1,023,435	1,000,000
- Tourists served at sights	1,065,523	1,172,075	1,347,986	1,750,000
- Tourists serviced by travel agencies	95,652	110,000	135,060	150,000
2. Total revenue (billion VND)	250	310	405	430

(Source: Department of Culture, Sports and Tourism of Thai Nguyen Province)

The table above shows that the total number of visitors and revenue from tourism activities in Thai Nguyen has steadily increased over the years. Specifically, in 2017, the total number of visitors to Thai Nguyen increased by 8% compared to 2016, of which international visitors increased by 3.5%. Visitors served by accommodation establishments increased by nearly 5%, tourists served at sites by 10%, guests served by travel agencies increased by 15% compared to 2016; total revenue from tourism businesses increased by 24% compared to 2016. In 2018, the total number of visitors reached 2,506,481, of which international visitors increased by 6% compared to 2017. Tourists served by accommodation establishments increased by 8%, tourists served at sights increased by 16%, tourists serviced by travel agencies increased by 22% compared to 2017; total revenue from tourism businesses increased by 30% compared to 2017. In 2019, the total number of visitors increased by 15%, of which international visitors increased by 7.1%, visitors served by accommodation establishments reached 97.7% over the same period in 2018, tourists served at sights increased by 29.8%, tourists serviced by travel agencies increased by 11% compared to 2018; total revenue from tourism businesses is estimated at VND 430 billion, up 6.2% over the same period.

Based on the identification of potential for tourism activities, Thai Nguyen has set a target to welcome about 3.6 million tourist arrivals by 2020; in the period of 2021-2030, it is projected that the average growth rate of tourism will reach 10% per year, contributing 6% GRDP, making tourism a key economic sector. Accordingly, in recent years, the Provincial Party Committee, People's Council and People's Committee have issued many policies for the development of tourism. Thai Nguyen takes advantage of central and local capital sources to invest in the development of tourism infrastructure and material facilities, raise people's awareness of tourism development, promote tourism events; create a favorable environment for businesses and the community to develop tourism, create new tourism products, improve product quality as well as human tourism resources.

1.6. Tourism employment situation

1.7. Tourism employment situation of Vietnam

Tourism is one of the industries that creates many jobs, especially in remote areas. According to statistics of the Ministry of Culture, Sports and Tourism, and the Vietnam National Administration of Tourism (VNAT), as of 2015, the tourism industry had 750,000 direct employees (an average increase of 11% in the period of 2010-2015) and 1.5 million indirect workers. By 2016, the tourism industry had about 900,000 direct jobs, out of a total of more than 2.5 million jobs related to tourism.

According to the World Economic Forum's assessment of Vietnam's Human Resources and Labour (WEF, 2017), Vietnam ranked 67th out of 136 countries in terms of competitiveness in tourism, in which Vietnam ranked 37th in the competition index on human resources and labor market, higher than many countries in the region such as Thailand (40), the Philippines (50), Indonesia (64), Laos (65), and Cambodia (110). WEF (2016) reported that Vietnam's tourism sector created a total of 4,003,000 jobs (accounting for 7.3% of total employment in economic sectors), including 1,959,500 direct employees (accounting for 3.6% of total employment in economic sectors). This corresponding figure increased by 2.3% (reaching 4,095,000) and 2.5% (reaching 2,009,500) in 2017. It is expected to keep growing by 1.0% and 1.3% each year to reach 4,544,000 total employment by 2027 of which 2,295,000 would be direct employees in Vietnam's tourism and travel industry.

Rapid growth in the number of international and domestic visitors in the last few years has created a shortage of qualified labor. The country has more than 15,000 international and 9,000 domestic guides, concentrated mainly in big cities and major tourist destinations. The ratio between the number of tourists and guides in Vietnam is almost double the international average, 10. According to the Vietnam National Administration of Tourism, each year, the tourism sector needs 40,000 workers. However, tourism schools churn out only 15,000 every year, in which 12% are graduates from universities and colleges. This indicate a continuing shortfall in the tourism labor force, particularly skilled labor.

The Vietnam National Administration of Tourism (2015) stated that tourism workers had relatively low education and training levels. In particular, employees with university and graduate training in tourism represented only 7.4% of the direct labor force in the tourism industry while labor force with primary, intermediate and college training in tourism represented 47.3%, and unskilled labor force with less than three months of vocational training accounted for 45.3%. In the industry as a whole, only 23% had, at least, basic training. If counting the number of vocational workers with less than three months training, the trained labor force of the tourism industry reaches about 42% of the whole industry.

The survey also showed that tour guides who graduated from university accounted for 65.5% of the total number of guides. The percentage of graduates in tourism marketing and reception staff was also a majority of 84.2% and 65.3% percent. In contrast less-skilled labor represents the majority in the fields of room service, bars, tables, and kitchens, where the proportions having only intermediate and primary qualifications represent 70.7%, 75.5%, 72.4%, and 85.61%, respectively.

Regarding foreign language skills, 60% of labor in the tourism industry can use a foreign language for work, but the characteristics of the industry demand for higher requirements. The most commonly used foreign language by tourism labors is English, which accounts for about 42%. The workforce using Chinese, French, and other languages accounts only for 5%, 4%, and 9%, respectively, of the whole industry's human resources. Regarding those who can use English, 85% of them have only basic knowledge with average ability in oral communication. Nevertheless, 15% of them (mainly tourist guides and hotel receptionists) are proficient in English communication and have obtained university education. Despite the relatively high rate of foreign language use, the share of the labor force proficient in two or more foreign languages is low, accounting for only about 3.8%.

In terms of information technology of the whole tourism industry, a survey shows that 434,854 people are computer literates, accounting for 72.04% of the total labor force directly working in the industry. This means that there are 168,746 people who do not know how to use computers, a prerequisite to meet their work qualification.

According to the Strategy for tourism development of Vietnam up to 2030, the government sets out a target for the tourism sector as one of the spearhead industries for the sustainable development of the country. The target is to create 5.5-6 million jobs, including 2 million direct workers, with an average growth of 12-14% per annum by 2025.

1.8. Tourism employment situation of Hanoi

According to the Hanoi Tourism Department, in the period 2016-2019, direct employment in the Hanoi tourism sector is around 90,500 workers, accounting for 11% of total employment of the Vietnam tourism sector. The percentage of trained workers in accommodations, tourist destinations, tourist officers has improved over the years. Direct labor that has gone through training reached 90% in 2019, a significant increase from 62% in 2016. Hanoi target is to have 100% trained direct labor in the tourism sector by 2020, trained through targeted technical and professional training programs [32]. By 2020, it is estimated that Hanoi will have 126,700 direct workers, accounting for 13.5% of the total employment of the whole sector. To achieve this number of trained workers, Hanoi needs to provide training to approximately 50,000 laborers in the two years 2019-2020. This objective can be achieved with the collaborative efforts of the city administrator, training institutions, and enterprises.

1.9. The tourism employment situation of Thai Nguyen

Based on the report of the Department of Culture, Sports and Tourism of Thai Nguyen Province, there are 2,462 tourism employees working in 421 accommodation establishments in Thai Nguyen province, as of 16/03/2020. In which, 1,478 employees work for 49 hotels, and 984 employees work for 372 rented houses.

1.10. Distribution of enterprises and labor force of the tourism sector

1.11. Vietnam tourism

The tourism industry has witnessed significant growth over the four-year period 2014 to 2017, corresponding to a substantial rise in the number of both international and domestic

32 Resolution 06/NQ-TU dated 26th June 2016 of Hanoi Standing Committee on the development of Hanoi tourism for the period 2016-2020 and years after.

visitors. The number of enterprises operating in the sector has increased by 28% in which the accommodation segment grows by 23%, and the tourist services segment achieves a higher growth rate of 36%. With regards to the labor force in the sector, the growth rate is lower compared to the number of enterprises with 16.3% for the whole sector, 15% growth in accommodation, and 21% in tourist services. The sector is dominated by small and micro businesses accounting for 80% of the number of enterprises.

Table 2. 5: **Number of enterprises in the tourism sector over the period 2014-2017**

Economic activity	VSIC code	2014	2015	2016	2017
Accommodation services	55	7,577	7,871	8,654	9,333
Travel agency, tour operator and other reservation service activities	79	4,322	4,879	5,236	5,883
Total tourism sector		11,899	12,750	13,890	15,216

(Source: GSO - Enterprise survey, 2018)

Table 2. 6: **Number of employees in the tourism sector over the period 2014-2017**

Economic activity	VSIC code	2014	2015	2016	2017
Accommodation services	55	141,322	136,343	151,387	162,683
Travel agency, tour operator and other reservation service activities	79	33,489	35,136	35,870	40,675
Total tourism sector		174,811	171,479	187,257	203,358

(Source: GSO - Enterprise survey, 2018)

Table 2. 7: **Number of enterprises in the tourism sector as of 31 Dec 2017 by the size of employees**

Economic activity	Total	<5 pers	5-9 pers	10-49 pers	50-199	200-299	300-499	500-999	1000-4999	> 5000
Accommodation services	9,333	4,960	2,268	1,542	432	54	42	28	6	1
Travel agency, tour operator and other reservation service activities	5,883	3,549	1,535	717	70	7	3	-	2	-
Total tourism sector								28	8	1

	15,216	8,509	3,803	2,259	502	61	45			

(Source: GSO - Enterprise survey, 2018)

Based on the statistics of the Vietnam National Administration of Tourism as of 2018, there were 2,022 licensed tour operators. The number of tour operators is increasing every year, with a growth rate ranging from 7% to 9%. Table 2.8 shows that by 2018 60% of businesses belong to limited-liability enterprises, 39% are joint-stock enterprises, 1% are foreign-invested enterprises, approximately 0.3% are private enterprises. The fluctuation of enterprises in international travel service business mainly occurred in the group of joint-stock and limited liability enterprises, while the number of state-owned enterprises under the equitization process has decreased over the period.

Table 2. 8: **Number of tour operators by types of business**

Types of enterprises	2014	2015	2016	2017
State owned enterprises	8	7	5	5
Limited liability companies	949	1,012	1,081	1,164
Joint stock companies	474	475	489	556
Private enterprises	9	10	10	11
Foreign invested enterprises	15	15	15	16
Total	1,456	1,519	1,600	1,752

(Source: Vietnam National Administration of Tourism)

In recent years, the system of tourist accommodation establishments in Vietnam has changed dramatically in quantity and quality. In terms of quantity, the average growth rate is about 18.4% per year, with growth rates in the number of available rooms of about 16% per year. The number of tourist accommodation establishments and rooms has increased over time. With the supply of rooms from new accommodation establishments, the average occupancy rate has declined from 69% in 2014 to 56.5% in 2017. By the end of 2017, the number of accommodation establishments nationwide was 17,422, with over 370,000 rooms.

In total, there are 116 five-star hotels with 33,700 rooms, 259 four-star hotels with 33,500 rooms, 488 three-star hotels with 34,200 rooms, 4 five-star apartment areas with 882 rooms, 3 tourist apartments with 494 rooms, 2 luxury tourist apartments with 262 rooms, 3 luxury tourist villas with 75 rooms, and 1 three-star tourist village with 62 rooms.

Of the total classified tourist accommodation establishments, hotels and motels account for the largest proportion, respectively 45% and 44.6%. The type of housing business with rooms for tourists (homestays) accounts for about 8.6%. Other types such as tourist villages, tourist ships, tourist villas, tourist apartments, tourist camping sites only account for 1.7%.

Table 2. 9: **Number of tourist accommodations**

	2014	2015	2016	2017
Number of accommodations	12,376	13,029	14,453	17,422
Number of rooms	263,468	288,935	318,237	370,907
Average occupancy	69	55	57	56.5

(Source: Vietnam National Administration of Tourism)

Table 2. 10: Facilities of 3- to 5-star class accommodation establishments from 2013-2017

Year	Total		5-star class		4-star class		3-star class	
	Number of est.	Number of rooms	Number of est.	Number of rooms	Number of est.	Number of rooms	Number of est.	Number of rooms
2013	598	62.002	64	15.385	159	20.27	375	26.347
2014	640	66.728	72	17.659	187	22.569	381	26.5
2015	747	82.325	91	24.212	215	27.379	441	30.734
2016	784	91.250	107	30.624	230	29.387	442	30.902
2017	863	101.400	116	33.700	259	33.500	488	34.200

(Source: Vietnam National Administration of Tourism)

By region, the Red River Delta and Northeast Coast region leads the country in the number of ranked tourist accommodation establishments with 3,226 establishments, accounting for 22.3%. Followed by the Southeast region with 3,028 establishments, accounting for 21%. In terms of the number of rooms, the Southeast region leads the country with 70,805 rooms, accounting for 22.2%. Ranked last in 7 tourist regions is the Central Highlands with 1,219 establishments (accounting for 8.4%) and 20,903 accommodations (accounting for 6.6%).

Table 2. 11: Distribution of tourist accommodations by region 2016

Region	Number of accommodations		Number of rooms	
	Quantity	%	Quantity	%
Red River Delta & Northeast Coast	3,226	22.3	62,385	19.6
Northern Midland & Mountainous Region	2,871	20	37,610	11.8
North Central Coast	1,225	8.5	41,318	13
South Central Coast	1,383	9.6	55,011	17.3
Central Highland	1,219	8.4	20,903	6.6
Southeast	3,028	21	70,805	22.2
Mekong River Delta	1,501	10.3	30,205	9.5
Total	14,453	100	318,237	100

(Source: Vietnam National Administration of Tourism)

1.12. Hanoi tourism

The number of enterprises in accommodation and food services accounts for 3.6% of the total number of enterprises in Hanoi. The number of enterprises in this sector has grown significantly in 2017 at 11% and slow down at 8% in 2018. The number of firms in tourist services makes up about 2.3% of the total enterprises in Hanoi. The quantity of tourist firms experiences similar trends with the accommodation and food sector with a substantial growth rate of 15% in 2017 and a reduction to 9.5% in 2018. Both sectors are dominated by non-state enterprises.

Table 2. 12: Number of enterprises in tourism and accommodation services in Hanoi

Unit: Enterprise	2015	2016	2017	2018
Accommodation and food service activities	2,599	2,768	3,078	3,326
- State enterprises	19	14	16	16
+ Central	12	8	10	10
+ Local	7	6	6	6
- Non-state enterprises	2,513	2,657	2,959	3,200
- Foreign invested enterprises	67	97	103	110
Tourist services	1,807	1,685	1,937	2,121
- State enterprises	8	6	6	6
+ Central	4	3	3	3
+ Local	4	3	3	3
- Non-state enterprises	1,790	1,666	1,918	2,100
- Foreign invested enterprises	9	13	13	15

(Source: Hanoi Statistics Office – Hanoi Statistical Yearbook 2018)

Workers in the two sectors of accommodation and food services and tourism account for approximately 5.9% and 1.3% of the total labor force of Hanoi, respectively. Non-state enterprises use the highest proportion of labor in the sectors, with 78% in accommodation and food services and 93% in tourism. State-owned and foreign-invested enterprises use more labor as compared to the private sector.

Table 2. 13: Number of employees in tourism and accommodation service in Hanoi

Unit: Person	2015	2016	2017	2018
Accommodation and food service activities	58,633	60,146	63,334	66,559
- State enterprises	3,119	2,083	1,859	1,859
+ Central	2,409	1,412	1,506	1,506
+ Local	710	671	353	353
- Non-state enterprises	45,300	46,489	49,451	52,000
- Foreign invested enterprises	10,214	11,574	12,024	12,700

Tourist services	11,975	11,858	14,404	15,096
- State enterprises	505	290	346	346
+ Central	337	185	278	278
+ Local	168	105	68	68
- Non-state enterprises	11,251	11,148	13,356	14,000
- Foreign invested enterprises	219	420	702	750

(Source: Hanoi Statistics Office – Hanoi Statistical Yearbook 2018)

The accommodation sector in Hanoi also has the presence of private establishments with a small number of workers accounting for only 5% of workers in this sector.

Table 2. 14: Private establishments in accommodation services in Hanoi

	Unit	2015	2016	2017	2018
Number of private establishments in accommodation services	establishment	1,507	1,609	1,971	1,645
Number of employees in private establishments in accommodation services	person	3,616	3,719	4,469	3,616

(Source: Hanoi Statistics Office – Hanoi Statistical Yearbook 2018)

Table 2. 15: Tourism activities in Hanoi as of 31 December

	Unit	2015	2016	2017	2018
Number of hotels, guest houses	Hotel, guest house	647	723	726	733
- Sector of domestic economy	Hotel, guest house	629	706	709	715
+ State economy	Hotel, guest house	13	19	19	20
Room	Room	1,316	1,361	1,220	1,280
Bed	Bed	2,497	2,647	2,375	2,510
+ Non-state economy	Hotel, guest house	616	687	690	695
Room	Room	16,038	17,939	17,240	17,360
Bed	Bed	25,061	27,958	26,900	27,090
- Sector of foreign invested establishments	Hotel, guest house	18	17	17	18
Room	Room	5,114	3,805	3,360	3,560
Bed	Bed	6,633	5,694	5,030	5,325

Tourists					
- Visitors to Hanoi's hotels	1000 visits	11,667	12,661	4,053	16,369
Of which: Foreign visitors	1000 visits	2,477	3,050	4,024	4,589
- Visitors to foreign countries	1000 visits	108	152	160	170

(Source: Hanoi Statistics Office – Hanoi Statistical Yearbook 2018)

1.13. Thai Nguyen tourism

Travel activities in Thai Nguyen have been improving through the years. Table 2.16 shows that in 2017, there were 33 tourist guide cards (five international cards and 28 domestic cards and also 11 new passenger cars eligible for carriage. The whole province had 22 domestic travel businesses and two international travel businesses. In 2018, 02 more domestic travel agencies started operating; 39 new tour guide cards were issued or renewed (09 international cards, 14 domestic guide cards, and 16 tour guide cards at sights). The province has a total of 26 travel agencies, of which 02 are international travel agencies. In 2019, the total domestic and international travel agencies increased to 28, in which international travel agencies increased significantly; 38 new tour guide cards were renewed and issued.

Table 2. 16: Travel business activities in Thai Nguyen province, 2017 - 2019

	2017	2018	2019
1. Total number of travel agencies	24	26	28
- Domestic	22	24	21
- International	2	2	7
2. Tour guide cards issued and renewed	33	39	38
- Domestic	28	9	5
- International	5	14	24
- At sights	0	16	9

(Source: Department of Culture, Sports and Tourism of Thai Nguyen Province)

These travel agencies have significantly contributed to the development of the province. Table 2.17 shows the output brought by types of travel agencies to Thai Nguyen through the years. It can be seen that in the period 2015-2018, most of the revenues came from private agencies (accounting for about 90% of total revenue from travel agencies). Moreover, revenue has been increasing over the years: by 10.02% in 2016, 40.1% in 2017, and 9.98% in 2018. However, the values are still small compared to the tourism potential of the province.

Table 2. 17: Output of travel agencies in Thai Nguyen

Unit: Billion VND	2015	2016	2017	2018 (prel.)
- State	4.3	4.8	2.8	3.0
- Non-state	39.6	43.5	65.3	71.9
+ Collective	-	-	-	-
+ Private	39.6	43.5	65.3	71.9
+ Household	-	-	-	-
- FDI sector	-	-	-	-
Total	43.9	48.3	68.1	74.9

(Source: Thai Nguyen Statistical Yearbook, 2019)

In terms of travel activities in Thai Nguyen, several limitations and shortcomings occurred. For example, no collective, household, or FDI travel agencies are currently operating in Thai Nguyen.

Together with the development of tourism in Thai Nguyen recently, the accommodation businesses in the province have significantly increased in both the number of establishments and the number of rooms and beds available. Table 2.18 shows the increasing trends of these criteria in both hotels and rented houses over the years.

Table 2. 18: Accommodation establishments in Thai Nguyen

	2013	2015	2016	2017	2018 (prel.)
1. Number of accommodation estabs.	212	335	393	435	451
- Hotel	34	45	46	49	51
- Rented house	178	290	347	386	400
2. Number of rooms	3,320	4,881	4,800	6,082	6,499
- Hotel	1,222	1,974	1,770	1,952	2,113
- Rented house	2,098	3,087	3,030	4,130	4,386
3. Number of beds	4,947	7,390	8,546	8,460	8,744
- Hotel	2,097	3,248	3,873	3,306	3,405
- Rented house	2,850	4,142	4,673	5,154	5,339

(Source: Thai Nguyen Statistical Yearbook, 2019)

As shown in Table 2.18, hotels accounts for a small percentage of the total number of accommodation establishments (from 11% to 16%), but they provide a comparatively high percentage of rooms and beds (about 30% to 45%). Though the number of rooms slightly decreased in 2016 (by 1.66%), and the number of beds decreased by 1.01% in 2017, the other criteria witnessed significant positive changes. The tourist accommodation establishments had an increase of 17.31% in 2016 and 10.69% in 2017. In which, the number of rented houses increased greatly by 19.66% in 2016 and 11.24% in 2017.

Accommodation establishments have greatly contributed to the gross domestic products of the province. Table 2.19 presents the increasing total revenue from accommodation establishments in Thai Nguyen over the years. Accordingly, most of the revenue came from the non-state sector, particularly the private and household establishments. In which the households have become more and more important, especially in the context of the technological revolution when new types of tourism like homestays, community-based tourism, etc. bring more opportunities for households to serve tourists effectively.

Table 2. 19: **Output of accommodation establishments in Thai Nguyen**

Unit: Billion Dong

	2010	2015	2016	2017	2018 (prel.)
- State	19.0	2.8	3.1	3.1	3.3
- Non-state	86.9	210.8	229.3	235.3	253.4
+ Collective	-	0.5	0.6	0.6	0.7
+ Private	50.8	83.0	90.4	79.9	85.8
+ Household	36.1	127.3	138.4	154.7	167.0
- FDI sector	-	26.1	28.9	35.6	39.2
Total	105.9	239.7	261.3	273.9	295.8

(Source: Thai Nguyen Statistical Yearbook, 2019)

It is noticeable that in 2010, there was no revenue from collective or FDI accommodation establishments, since there were no such establishments in the province. However, collective and FDI accommodation establishments have begun to thrive since 2015. While the contribution from collective establishments is still modest (less than 1% of total revenue), FDI establishments have contributed a higher proportion that keeps increasing from 10.89% in 2015 to 12.06% in 2016, 13% in 2017, and 13.25% in 2018.

1.14. The classification adopted in the sources used

Data sources are collected using VSIC 2007 classification promulgated in Decision 10/2007/QĐ-TTg dated 23rd January 2007.

The tourism sector includes the two sub-sectors with classification code level 2 of 55 – Accommodation services and 79 – Travel agency, tour operator, and other reservation service activities.

2. Vietnam labor market in information technology and telecommunications sector

The world is facing the impact of the Fourth Industrial Revolution (Industrial Revolution 4.0) the background to this being that information technology and digital technology are combining and co-existing together. The rapid development of digital technology has been the foundation for the development of economic, cultural, and social fields that can serve and improve the quality of life. The digital technology trend has had an impact on every aspect of everyday life throughout the world. Internet access in Vietnam has increased dramatically, and through social networks, the exchange of information has developed. Information technology has made possible many new business models recently developed by some pioneering private economic groups in investment and application science (ICT, 2019).

With the goals and orientations set, the information and communication technology (ICT) has determined that Industrial Revolution 4.0 is a revolution in policies and institutions rather than a revolution in conventional technology. Innovative thinking in the way of working and new non-traditional sequential thinking provide the opportunity for a breakthrough in Vietnam. Realizing these opportunities will be the prerequisites to successfully improving Vietnam's ICT position in international rankings (ICT, 2019).

In general, the development of the ICT industry in recent years has continued to play an important position in the process of national digital transformation. This has led to a healthy improvement in employment within the information and communication technology industry.

Since 2018, following the industry trend and the integration of traditional telecommunications services and IT services on the same platform, the Ministry of Information and Communications has changed the way of dividing industry groups. The telecommunications industry as a whole will be divided into two segments. The electronics-oriented segment will be combined into the same group with information technology, and this group will become known as "Information technology - electronics, telecommunications industry". The segments of network infrastructure, telecommunication services, and the internet will be grouped together and called "Telecommunications".

Therefore, for consistency in data citation, the analysis below is displayed according to the above. The data is interpreted as an overview from 2015-2018 on a national scale according to the statistics of ICT (There is no data available from 2019 onwards). It provides an overall picture of the current situation and trends in the IT- electronics and telecommunications industries in Vietnam in general and Ho Chi Minh City in particular.

There is a preliminary analysis of the data in the field of electronics - information technology. However, limitations in the collection of statistical data, (Telecommunications field only presents statistics and forecast trends of the whole country, Ho Chi Minh City area has not yet collected specific data) precludes a more detailed analysis.

2.1. Driving activities in IT & Telecommunication industry

In order to better understand the current situation of Vietnam's labor market in the information technology and telecommunications industry, the following statistics will be presented and analyzed on the key operating areas in this sector in Vietnam. The main areas of activity are categorized based on the concentration and investment of businesses (including large and small and medium-sized enterprises) and the participation of a large number of employees. In addition, these are also activities that occupy high market share in the industry, provide many products and applications to users and are the key in improving Vietnam's economic development, increasing GDP as well as playing an important role in the development of Industry 4.0.

2.2. IT industry

At the present time, IT industry is being evaluated as one of the key industries for Vietnam. There are about 400,000 employees working in the IT industry. More than 153 institutions train about 50,000 employees for the industry every year. Experts have claimed that conditions in Vietnam make it an ideal destination for the leading technology companies in the world to develop their products. In the Vietnam market, there are many large and small start-ups developing potential projects directly related to AI and Machine Learning, creating ideas for the entire technology industry in general and the IT applications industry, in particular. IT applications include the following (1) Hardware (2) Software (3) Digital Contents (4) IT services (excluded wholesale and distribution) (ICT, 2018).

According to the 2019 summary report and the 2020 orientation of the Ministry of Information and Communications, the total revenue of the ICT industry in 2019 is estimated at

112,350 billion USD, of which ICT exports account for 81.5%. Accordingly, the Ministry of Information and Communications also announced that software industry revenue reached 5 billion USD, up 500 million USD compared to 2018.

Table 2. 20: **Statistical data in the ICT industry**

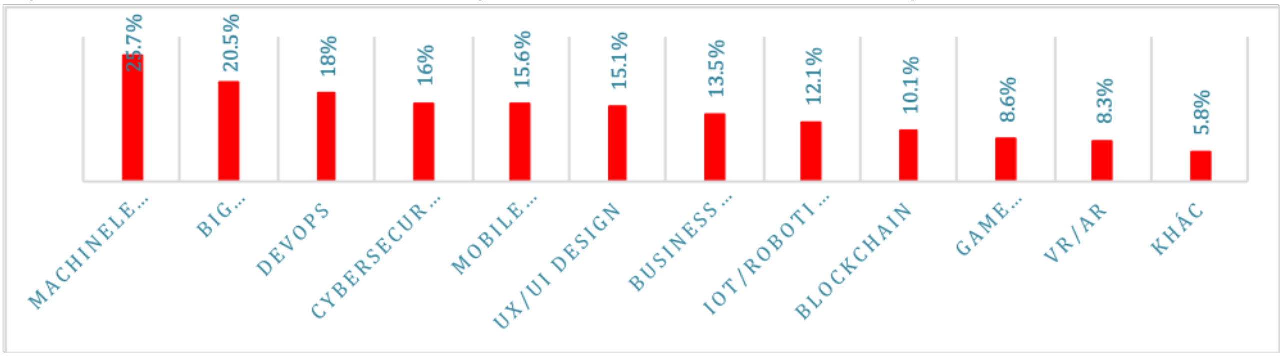
Total revenue in the ICT industry	112.35 billion of USD (estimated in 2019)
ICT export	91.5 billion of USD (estimated in 2019)
Enterprises in the ICT industry	50.000 enterprises

2.3. Software industry

In 2018, the software sector had a output of US $ 4.44 billion, a growth of 17.7% compared to 2017, and an increase of 29.4% in the number of enterprises compared to 2017. The current software sector can be considered as one of the main activities for IT labor. The majority of the software workforce are programmers of varying ages and usually concentrated in the regions of Ho Chi Minh City and Hanoi. In addition, according to the White Paper data provided by the Ministry of Information and Communications, in 2018, the average income of software workers reached US $ 8,578 / person/year and continued to be the field of highest average income and 1.6 times higher than the average income of workers in the electronics hardware sector.

Technologies currently operating in the software field are also very diverse and rich, according to TopDev's 2018 report, AI and Machine Learning is still the leading trend. Up to 25% of programmers want to improve their knowledge and look forward to learning and intensive research on AI in 2019.

Figure 2. 3: **Distribution of technologies used in the software industry**



The Big Data industry is worth hundreds of billions of dollars and is growing at a rate of 10% per year, twice as fast as the overall software industry. Data Scientists salary in Vietnam is currently up to 20,000 USD / year.

2.4. Hardware and electronics industry

The field of hardware and electronics can be considered as one of the main activities of the IT industry. According to data from the Vietnam ICT White Book 2019, by the end of 2018, the total number of employees working in this field was the largest, with a total of 717,955 people, accounting for 73.7% of the total number of employees. The growth rate of hardware and electronics sectors was lower than in 2017 in both revenue (12.2% compared to 38.7%) and in human resources (5.8% compared to 19.5%) because not many new large scale enterprises are launched. By the end of 2018, the electronic hardware industry reached US $ 91.5 billion.

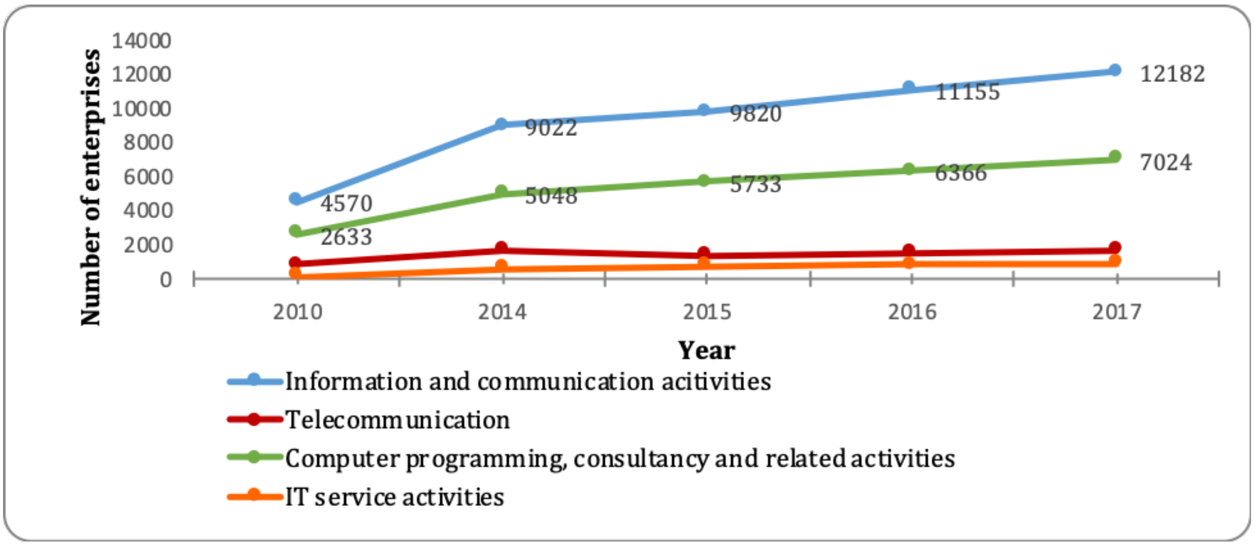
2.5. Services in IT

IT services in 2018 had a output of 6.18 billion USD, up to 13.9% compared to 2017 and 54.6% in the number of enterprises. The average income of IT-service employees in 2018 was 6,932 USD / person / year, an increase of 17.3% compared to the average income in 2017 and an increase of 1.3 times to that of in 2015. The number of employees in IT services in 2018 was 76,419 people, accounting for 7.9% of the total number of employees in the IT industry. Major groups of occupations in this area include: IT consulting service, IT maintenance service, IT survey and market survey service...

2.6. Digital contents

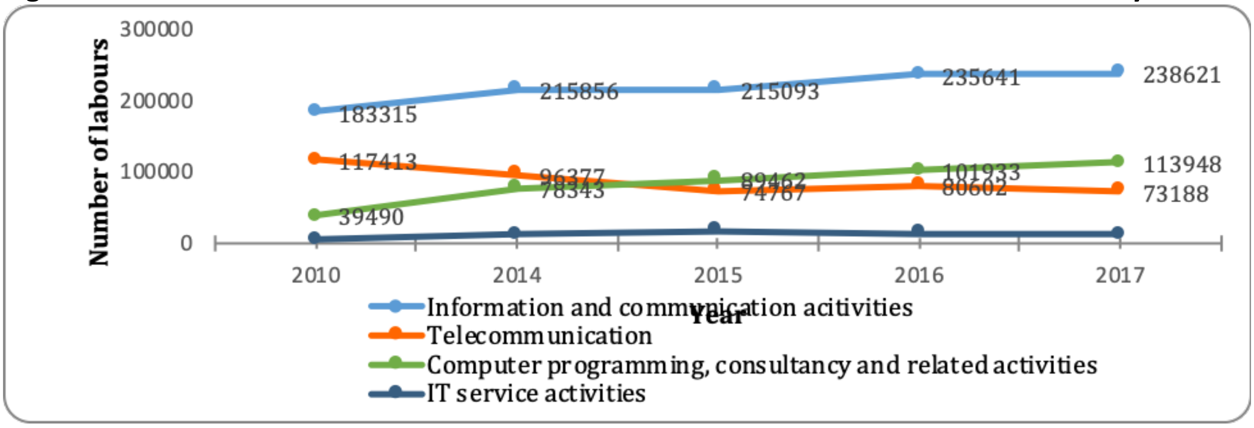
Digital content also experienced a 3.3% growth in revenue and a decrease of 7.1% in human resources due to the trend of moving to other businesses such as software and IT services.

Figure 2. 4: **Number of operating enterprises in IT and Telecommunication Industry**



Number of laborers in some fields of IT and telecommunication industry are showing in figure 2.5.

Figure 2. 5: Distribution of labour in some fields of IT and Telecommunication industry



Important areas of IT include the software field with a wide range of activities that stand out from the BIG 3 of Artificial Intelligence technology (AI), Big Data and the rise of DevOps. Activities in the software field are always highly applicable to life, and therefore widely used, always attracting qualified labor forces. Proof of the importance of the software industry is the average annual income of the programmers. There is an extremely large number of personnel in the hardware sector related to the manufacturing of electronic and telephone components for domestic technology development, which enhances export potential to areas of high tech IT such as Japan, China...

2.7. Telecommunication industry

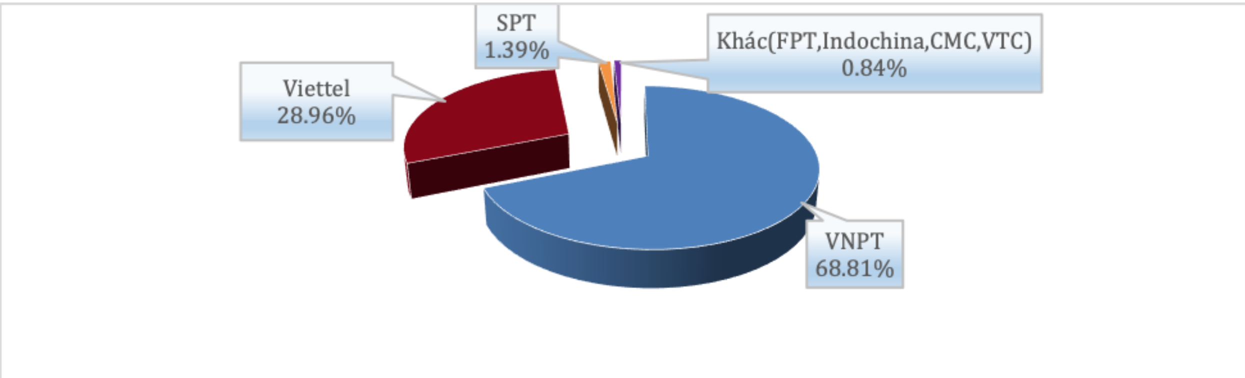
According to the White book on IT and Telecommunication of the Ministry of Information and Communication (2019), Telecommunication includes the following sub sectors:

- *Telephone services*

a) Fixed-telephone lines:

According to the Ministry of Information and Communications, Vietnam's fixed telephone lines until the end of June 2019 had only 4.1 million subscribers. The market share of subscribers of landline telephone services in Vietnam is provided by key operators such as VNPT, Viettel, Saigon Postel-SPT, etc. In particular, VNPT accounts occupied the highest market share of 68.81% and ranking second is Viettel with 28.96% (Figure 2.6). The trend of using mobile phones has brought landline phones into a state of decline and gradual replacement.

Figure 2. 6: **Market share of fixed telephone lines of operators in Vietnam**



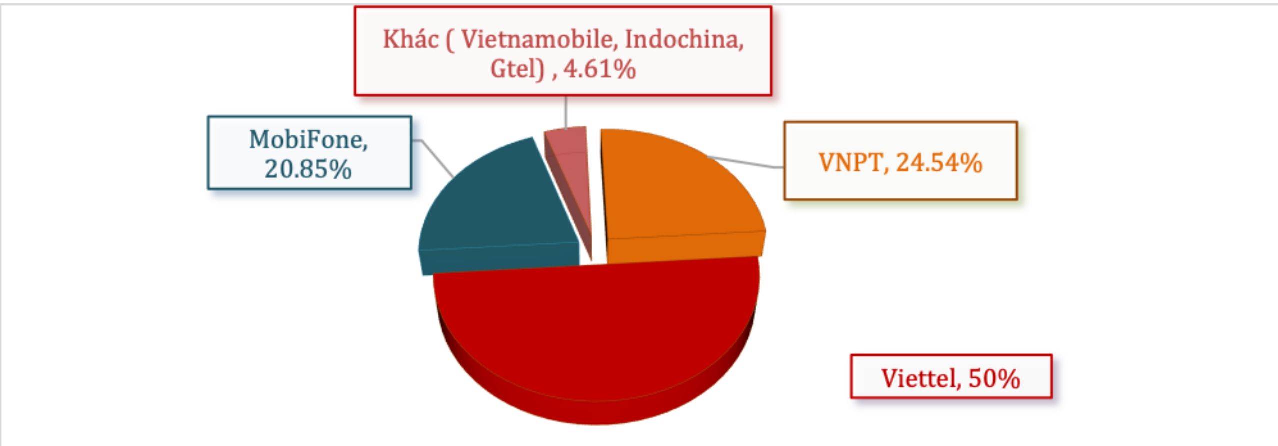
(Source: MIC)

b) Mobile-cellular phone services:

The market share of mobile services provided by operators is also very competitive. According to the latest statistics of the Ministry of Information and Communications, by the end of June 2019, the number of mobile phones operating in the country was over 138.2 million subscribers, equal to 106.88% over the same period of 2018. There are five major mobile telecommunications service providers including Viettel, Vinaphone, Mobilephone, VietNammobile and G-tel. In recent years, it is recogized that the mobile market has begun to show signs of saturation. Service providers have begun to reduce investment in development of new subscribers while increasing quality of service, infrastructure and added value instead.

By the end of 2019, the market share of subscribers of operators providing cellular mobile services shows important changes. Viettel is still one of the pioneering providers and holds a huge market share with 50%, followed by VNPT with 24.54% and MobileFone with 20.85%, as shown in figure 2.7.

Figure 2. 7: **Mobile phone subscriptions of providers in Vietnam**



(Source: MIC)

Table 2. 21*:* **Number of mobile phone subscribers in four years**

Target	Unit	2015	2016	2017	2018
Number of mobile phone suscribers generating traffic	account	126.499.499	128.996.179	120.016.181	136.088.885
Number of mobile phone subscribers generating traffic/100 inhatbitants	%	137,9	139,2	128,08	142,73
Total number of registered mobile phone subscribers	Accounts	123.924.576	125.454.516	115.014.658	130.385.371
Acvitve mobile phone subsribers with regular calls and text messages	Accounts	94.552.934	92.807.762	75.161.627	75.369.742
Acvitve mobile phone subsribers with data usage	Accounts	29.371.642	32.646.754	39.853.031	55.015.629
Number of mobile phone subscribers /100 inhatbitants	%	132.44	132,66	124,08	136,74

According to aggregate data provided by the Ministry of Information and Communications, the number of mobile subscribers generating traffic, including regular calls, phones and data packages is always on the rise: The number of active mobile phone subscribers using voice, text messages and data showed an increase in 2018 of more than 5 million subscribers compared to

2017, equivalent to an increase of 12% in the number of mobile phone subscribers per 100 inhabitants. Table 2.21 shows the statistical data of number of mobile phone subscriptions in Vietnam

- *Internet service*

In 2019, Internet activity in Vietnam increased sharply to 64 million Internet users, a growth of 28% compared to 2017. Vietnamese users spent an average of 6 hours 42 minutes a day participating in Internet-related activities. The report also mentions that Vietnamese users spend an average of 2 hours and 32 minutes on social networks, 2 hours and 31 minutes watching streaming or online videos and 1 hour and 11 minutes listening to music.

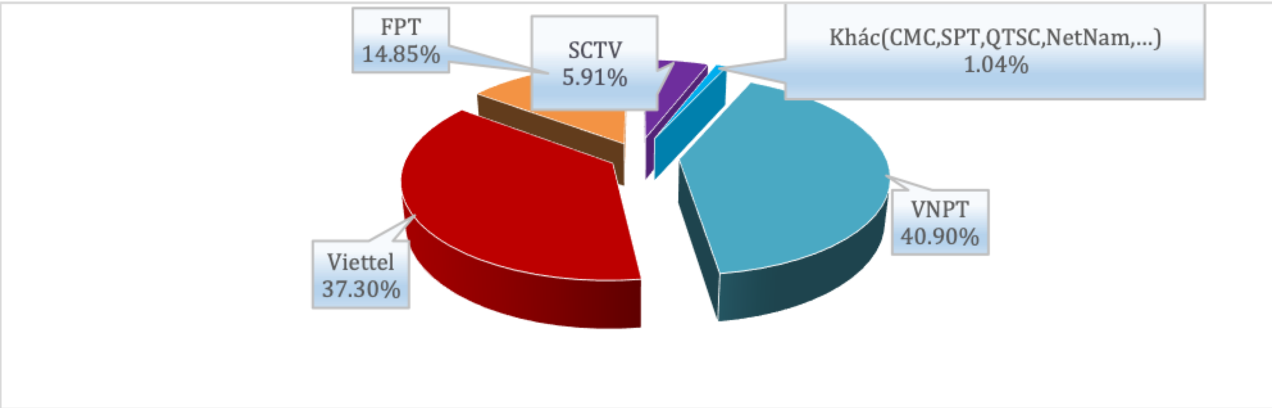
In terms of infrastructure, the speed of Internet access is growing every year. Specifically, the average speed of internet access on phones was 21.56 MBPS (up by 6.1% compared to last year) and on computers was 27.18 MBPS (up by 9.7%).

Among the 64 million internet users in Vietnam, users accessing via mobile devices is 61.73 million (96% of internet users). Among the 138 million registered mobile phone subscribers, 45% have subscribed to 3G & 4G. According to 2019 statistics, there are more than 2.7 billion downloads of applications on the mobile phone and the amount spent by consumers on these applications is $ 161.6 million. The average user touches the phone more than 150 times a day, and only from 2018 to 2019, the number of social networking users on mobile devices increased by 16%.

The proportion of Internet users has increased yearly from 2015 to the present from 54% to 70% in 2018. The total international bandwidth connected to the Internet was nearly 7.8 million Mbit / s in 2018 that is twice as much as in 2016.

For fixed land broadband activities, the number of broadband subscribers increases rapidly, especially the number of fixed broadband Internet subscribers via FTTH with 11,893,980 subscribers in 2018. The total number of fixed broadband subscribers as of 2018 was 12,994,451 subscribers, an increase of 15.3% compared to 2017. The market share of subscribers of fixed land broadband service providers is still the leading VNPT with 40.90%, followed by Viettel with 37.30%, followed by FPT and Saigon Cable TV - SCTV respectively .

Table 2. 22: Market share of providers for fixed-land broadband internet



In 2018, the number of subscribers was 52,819,001 an increase of 17.75% compared to 2017. The subscriber market share of providers in the fixed land broadband has also changed, with Viettel being the enterprise holding the number one market share with 50.16%, the second is VNPT with 22.93%.

- *Telecommunication equipment manufacturing*

Currently, Vietnamese mobile phone operators have invested in the research and manufacturing of telecommunications equipment for specific networks, and currently produce over 70% of the range of telecommunications equipment. The target of producing 100% of the range and becoming the 4th largest exporter in the world is well within reach. In 2019, VNPT Group output in the field of manufacturing telecommunications equipment reached VND 8,500 billion.

2.8. Key regions developing IT and Telecommunication industry in Vietnam

According to Vietnam's economic development plan to 2020, Information Technology and telecommunication industry will become key technologies for Vietnam to quickly achieve the goal of industrialization and modernization in all fields of industry IT and telecommunication human resources geographical distribution

The distribution of ICT human resources by locality (province / city) shows that the concentration is always mainly located in the big provinces / cities with high economic conditions and developed infrastructure. Bac Ninh and Thai Nguyen have always been the leading provinces in IT revenue in recent years due to investment from large enterprises from foreign countries such as SamSung. Table 2.23 shows ther ranking of the top 20 localities in terms of IT revenue.

Table 2. 23: List of top 20 provinces leading in IT revenue

	Province/City		
	Bac Ninh		Ninh Binh
	Thai Nguyen		Hung Yen
	Hanoi city		Long An
	Ho Chi Minh city		Phu Tho
	Bac Giang		Ha Nam
	Vinh Phuc		Hoa Binh
	Hai Phong		An Giang
	Da Nang		Can Tho
	Quang Ninh		Binh Duong
	Hai Duong		Nghe An

Examining the location of IT enterprises, they are mainly concentrated in big cities like Hanoi City, Ho Chi Minh City and Danang. Large cities have a high population, so there will be many technological needs to be met. These are the basis for attracting IT businesses that have large scale investment strategies. It is reported in Table 2.24

Table 2. 24: List of 20 provinces leading in numbers of IT enterprises

	Provinces/City		
	Ha Noi		Binh Duong
	Ho Chi Minh		Hai Phong
	Da Nang		Hai Duong
	Bac Ninh		Binh Dinh
	Lam Dong		Bac Giang
	Tay Ninh		Lang Son
	Đong Nai		Can Tho
	Thua Thien – Hue		Ninh Thuan
	Ba Ria – Vung Tau		Kien Giang
	Binh Thuan		Quang Ninh

Table 2. 25: Provinces leading in labour forces in IT

	Provinces/Cities		
	Bac Ninh		Hoa Binh
	Hanoi		Phu Tho
	Ho Chi Minh		Ha Nam
	Thai Nguyen		Lam Đong
	Bac Giang		Quang Nam
	Vinh Phuc		Thua Thien – Hue
	Đa Nang		Nghe An
	Hai Phong		Long An
	Hung Yen		Can Tho

	Ninh Binh		Quang Ninh

2.9. Distribution of IT and Telecommunication human resources in major cities

Facing the fast growth in terms of IT and telecommunication personnel at the present time, Vietnam has attracted the attention of technology companies in the region seeking to hire or build a team to develop products, applications and equipment for the purpose of each company. Along with that is a wave of start-up companies in the field of technology and the transformation of traditional businesses in areas such as tourism and agriculture which need IT support.

- ***IT and telecommunications human resources in Ho Chi Minh city***

Ho Chi Minh City is considered as the key city for the labor market in the southern economic region. The IT industry in this city has a human resource demand that accounts for 4% of the total labor demand. According to statistics on the demand of recruiting IT industry in Ho Chi Minh City, the demand in 2020 is higher than in 2019, requiring many intermediate, college and university levels such as programmers, system engineers, network engineer, hardware engineer, tester, software development staff, web programming designer... However, the majority of human resources come from university and college graduates. They represent 40% and 50% respectively of labourers in about 3,000 startups of the country based in Ho Chi Minh City.

Many startups have successfully raised funds with a total value of more than 670 million USD for about 50 projects, Ho Chi Minh City alone accounts for half with 23 projects equivalent to more than 300 million USD. The above figures shows that the potential for developing IT businesses through innovative startup projects is huge.

According to 2019 figures, by the end of 2018, the number of enterprises specialized in information technology and telecommunications in Ho Chi Minh City was about 5,636, an increase of 23% compared to 2016. Despite its rapid growth and the use of a highly qualified workforce compared to other industries, information technology and telecommunications still account for a modest share of the city's economy. Currently, the labor productivity of information technology compared with the overall productivity of Ho Chi Minh City is 1.96%, contributing to the domestic product of Ho Chi Minh City is 4.44%, accounting for approximately 3% of the total businesses are operating in the city. If having more 1,000 companies with about

17,000 information technology employees, the industry will account for about 5.12% of Ho Chi Minh City's domestic products and will become the city's key economic sector.

- ***IT and telecommunication's human resources in Hanoi city***

For Hanoi City, the People's Committee of Hanoi City is in charge of overseeing the implementation of the objectives in the Hanoi IT Development Master Plan 2020-2030. According to this plan, Hanoi needs about 700,000 IT human resources in the period. Only the FPT Software Company branch in Hanoi recruited 2,000-2,500 employees in 2013 for the positions of software engineers, project managers and bridge engineers. In 2015, FPT still needs to recruit more than 9,000 employees for IT-related fields and telecommunications.

2016 also marked a turning point in IT development issues in Hanoi. By the end of June 2016, Hanoi City has granted investment registration certificates to 98 foreign-invested enterprises in the IT field outside the centralized IT area in the city. Among them 29 projects were granted new investment certificates with a total capital of over US $ 1.55 billion.

Other large IT and telecommunication enterprises such as Viettel, VNPT, CMC, etc. also opened many branches in Hanoi to attract human resources, as these companies are seriously experiencing shortages of manpower. According to a report by the Hanoi Department of Information and Communications, in 2017, Hanoi has about 9,700 IT enterprises, an increase of 31.6% compared to the same period of 2016. Total revenue of enterprises reached more than 10 billion USD and it is going up by 32.4% annually.

- Comments

Ho Chi Minh City and Hanoi are both big cities. They are focused on developing IT and telecommunications and investing human resources for IT and telecommunications due to the following reasons;

Ho Chi Minh City and Hanoi are both cities with the most prestigious universities in the country regarding training in information technology. Due to the Curriculums at the Technical Universities following the requirements of the relevant Companies, Students are always in demand. Companies can fully rely that the knowledge learned in the universities will be beneficial to their business operations

The population of the Cities continues to rise. As the prosperity of the City increases, more of the country dwellers migrate and bring extra demand for services. The larger cities offer incentives for Companies to invest in Manufacturing facilities.

It can be clearly seen that the government has favored the concentration of the of IT and telecommunication development in Ho Chi Minh City and Hanoi, to make them leaders of industry 4.0. advancement

Information technology impacts on many features. Fintech's initiatives have a great influence on the fields of commerce, banking and financial consulting. In medicine and business, information technology emerges with artificial intelligence, machine learning, big data analysis to solve complex problems. Recognizing the importance of AI and big data analytics, Ho Chi Minh City and Hanoi also open more disciplines related to AI and Data Science. For example, Hanoi University of Science and Technology in 2019 has opened up the field of artificial intelligence and data analysis which is attracting many students and lecturers.

2.10. Employment situation in TC&IT

The rapid development of IT & Telecommunication indicated the high potential of this field for Vietnam’s economy. Although there is some signal of the saturation in Telecommunication, the current data on this field shows an uptrend, forecasting that IT and Telecommunication will be driving economic sectors in the near future.

2.11. IT – electronics and telecommunications industry

According to a report by the Ministry of Information and Communications (MIC), in 2018, total revenue in the IT-electronics and telecommunications industry nationwide reached 102,973 million USD, an annual increase of 16.15%. Of this total, hardware revenue is 91,916 million USD. The IT sector contributes almost 1 billion USD. In particular, IT exports increased year by year, reaching 89,188 million USD in 2018, up 16.21% over the same period in 2017. Of which, hardware reached 51,182 million USD (ICT, 2019 page 38).

The number of enterprises registered in the field of information technology - electronics and telecommunications has increased sharply each year, from 21,658 enterprises in 2015 to 38,861 enterprises in 2018 (ICT, 2019), all business sectors show increases over the years, even nearly doubling in the number of businesses registered within just 4 years from 2015-2018 (ICT, 2019).

Table 2. 26: Number of enterprises registered to operate in ICT

Target	2015	2016	2017	2018

Total number of enterprises operating in the field of information technology - electronics and telecommunications	21,658	24,502	28,424	38,861
Hardware and electronics enterprises	2,980	3.404	4,001	4,730
Software enterprises	6,143	7,433	8,883	11,496
Digital content enterprises	2,339	2,700	3,202	3,561
IT services enterprises (except for trade, distribution)	10,196	10,965	12,338	19,074

(ICT source, 2019)

The increase in the number of enterprises in the industry group has also led to a sharp increase in the number of employees in the field of IT - electronics and telecommunications, the total number of employees in the country in 2015 was 721,594 increasing to 973,692 in 2018. (ICT, 2019). At the same time, the data in Table 2.27 shows that the number of employees in each field of hardware, electronics, software, digital content and IT services has also increased steadily over the years.

Table 2. 27: Labor in IT-electronics and telecommunications field by year

Target	2015	2016	2017	2018
Total number of employees	721,584	780,926	922,521	973,692
Number of hardware, electronics industry workers	533,003	568,288	678,917	717,955
Number of software industry workers	81,373	97,387	112,004	127,366
Number of digital content industry workers	44,320	46,647	55,908	51,952
Number of IT service workers (except for trading, distribution)	62,888	68,605	75,692	76,419

(ICT source, 2019)

Particularly in Ho Chi Minh City, the labor force in the field of electronics - information technology in 2017 was 37,407 people, and is expected to increase to 43,907 people in 2020 (Center for Forecasting Labor Needs and Labor Market Information HCMC, 2019)

Statistics therefore show that the IT - electronics and telecommunications industry is experiencing strong growth, especially in the hardware, software and digital content industries, all maintaining high growth, on average nearly 30% year on year. In particular, Vietnam's outsourcing market has a certain place on the world map. Vietnam has been ranked by the famous consulting firm A.T.Kearney 6th in the list of outsourcing destinations in the world. In addition, research firm Tholons also rated Vietnam as the eighth leading country providing IT services. HCMC and Hanoi City also rank in the "top" 20 among the 100 most attractive cities for outsourcing. (kinhtevn.com.vn, 2018)

- ***Employment situation and trends***

According to Topdev, in 2019, there is a strong increase in the demand for highly specialized IT personnel nationwide with Fintech-related fields such as AI (artificial intelligence), Data Science, Big Data, Cyber Security. In the ongoing trend of digital transformation, any company needs to recruit IT personnel. Particularly in Ho Chi Minh City, the electronics - information technology industry is one of the four key industries creating high added value. The demand for human resources in 2019 and 2020 continues to increase sharply in all positions: network security, programming, application development, web design and operation, technology process design and implementation, electronic engineers, IC design, electronic technician, maintenance of electronic systems... (Center for Forecasting Labor Needs and Labor Market Information HCMC, 2019).

The demand for recruiting IT industry in the country in 2019 is 62,829 jobs, 5 times the recruitment demand in 2015 (12,550 jobs) and growing 56% compared to 2018. TopDev data also shows that this is the highest growth in IT recruitment needs since 2015. By location, Ho Chi Minh City and Hanoi have the largest IT personnel demand in the country, accounting for 59% and 39% of the total, respectively. And in terms of rank, up to 78% of IT jobs require experienced personnel; 10% required new personnel to graduate; 9% need managerial staffs and 1% need directors. (Ministry of Industry and Trade of Vietnam, 2020).

However, according to statistics, each year, the market can only provide 32,000 IT graduates to the related industries. This number does not meet the needs of businesses due to a number of reasons: (1) The quality of graduates has not met the requirements of employers, (2) There are many shortcomings in training and career guidance in human resource training, (3) The number of lecturers teaching IT is limited, (4) There is limited human resource preparation for the industry (Do Thi Ngoc Anh, 2016). Therefore, a serious shortage of human resources in the IT field is not being addressed and will continue to last in the near future. According to data published by TopDev, the forecast of demand and shortage of IT human resources in Vietnam, in 2019, the number of IT human resources needed will be 350,000 with a shortfall of 90,000. By 2020, the number of personnel required would be 400,000 and a shortfall of 100,000. In 2021 industry requirements would be 500,000, the shortfall rising to190,000. (Ministry of Industry and Trade of Vietnam, 2020).

2.12. Telecommunications field

The telecommunications industry has been the "golden egg" for Vietnam's economy with a healthy rise year by year (vietnamfinance.vn, 2020), but in recent years, Vietnam's telecommunications market has had signals of saturation when revenue is still concentrated in traditional telecommunication services such as voice call and SMS with fierce competition from Internet-based services (OTT). Saturation index is shown by the statistics on the number of businesses and personnel in the years 2015-2018 of ICT.

The statistics in table 3 below show that the number of enterprises in the telecommunications industry is quite stable over the years, the service areas: fixed broadband internet access, satellite telecommunications, land mobile telecommunications and satellite mobile telecommunications are on the increase in the number of businesses but not significantly, while maritime mobile and fixed land mobile telecommunications services show signs of strong saturation and even decrease in number.

Table 2. 28: **Enterprises in the telecommunications field**

("-"without figures)

Target	2015	2016	2017	2018
Number of enterprises providing fixed land telecommunication services	80	74	73	64
Number of enterprises providing fixed broadband Internet access	-	-	61	58
Number of enterprises providing satellite fixed telecommunication services	1	1	2	2
Number of enterprises providing terrestrial mobile telecommunications services	5	5	6	6
Number of enterprises providing satellite mobile telecommunications services	1	3	3	3
Number of enterprises providing maritime mobile telecommunications services	1	1	1	1

(Source: ICT, 2019)

The number of telecom personnel in the country also saw a significant decrease in the period from 2015 to 2017 (from 72,609 people to 68,094 people). However, since 2018, there have been signs of growth again.

Table 2. 29: **Personnel of telecommunications field by years**

Target	2015	2016	2017	2018
Number of personnel working in telecommunications field	72,609	71,298	68,094	77,205

(ICT source, 2019)

According to experts' forecasts, in the near future, Vietnam's telecommunications market is expected to grow further as providers are racing to test and deploy 5G services. Government plans on the fourth industrial revolution, smart city building, startup issues and national innovation network program, enabled by 4G and 5G networks, IoT and advanced mobile telecommunications, will help Vietnam's telecommunications industry continue to grow after a period of saturation (ICTvietnam.vn, 2019).

2.13. The distribution of enterprises and the labor force in the ICT industry

The information and communication technology industry in Vietnam has changed rapidly year by year, as evidenced by the total number of enterprises registered to operate in the field of information, electronics and telecommunications.

The ICT industry is associated with digital technology, contributing to profound changes in the economic, cultural and social life of the country. The growth rate of the industry's total output is higher than the GDP growth for the whole country, reaching approximately VND 2.65 million billion, up 112.6% compared to 2017. Vietnam has now produced over 70% of telecommunications equipment and is determined to become the 4th country in the world producing telecommunication equipment and exporting it to the world.

The IT industry continues to be one of the fastest growing economic sectors in the country, always maintaining a double-digit growth rate in the past 5 years. By the end of 2018, the total number of IT businesses reached about 40,000 businesses (up 36.7% compared to 2017). Total revenue of IT industry reached nearly US $ 103 billion (up 12.43% compared to 2017). In which, electronic hardware industry reached USD 91.5 billion, software reached USD 4.45 billion, IT services reached USD 6.18 billion and digital content reached USD 825 million, exports over USD 89 billion, contributed nearly VND 50,000 billion to the state budget. Some industrial products such as mobile phones exported US $ 49.08 billion, ranked second in the world.

According to the White Paper of the Ministry of Information and Communications in 2019, the statistics show that there are 38,861 enterprises operating in this field, an increase of 197% over the same period in 2015. In 2018, there were 4,730 hardware and electronics businesses, 11,496 software businesses, 3,561 digital content businesses, 19,074 IT services businesses (except for trading and distribution). Statistics show a rapid growth in the number of software businesses (6,143 businesses in 2015 and currently 11,496 businesses in 2018).

In Ho Chi Minh City, the number of ICT enterprises registered was 5,636, an increase of 23% compared to the same period in 2016 (4,333 enterprises) and accounting for 3% of the total number of enterprises that operates in all areas of the city. Specifically, the hardware business currently has 327 companies, software technology 3,441, digital content 617 and IT services 1,251 firms. Software manufacturing enterprises now account for 60% of the whole industry. Service businesses account for 22%, and the rest are hardware, electronics, and digital content businesses.

In addition, Ho Chi Minh City has more than 900 startups in the field of information technology and accounts for 70% of startups out of 1920. The amount of capital raised from the beginning of the year to July 2019 was over US$300 million for 23 deals, and 90% of them were IT startups.

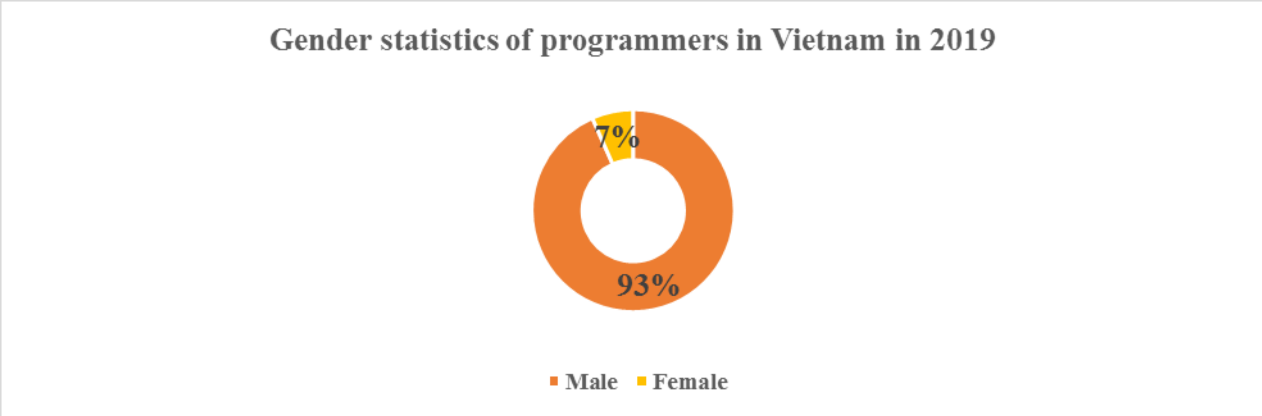
Table 2. 30: Figures of enterprises operating in ITC Vietnam

Target	2015	2016	2017	2018
Total number of enterprises operating in the field of IT - electronics and telecommunications industries	21,658	24,502	28,424	38,861
Hardware and electronics enterprises	2,980	3,404	4,001	4,730
Software enterprises	6,143	7,433	8,883	11,496
Digital content enterprises	2,339	2,700	3,202	3,561
IT services enterprises (except for trading, distribution)	10,196	10,965	12,338	19,074

(Source: Ministry of Information and Communications White Book 2019)

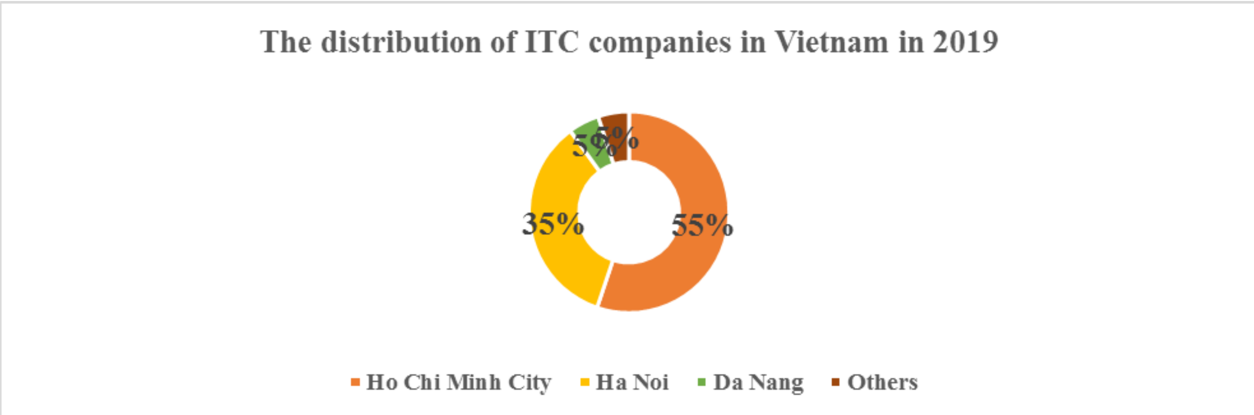
Along with the rapid increase in the number of IT businesses, human resources in the field of ICT also change and increase according to the needs of the labor market. As of 2018, there are currently 973,692 employees working in this field and divided into separate fields such as electronic hardware industry: 717,955 employees, software industry: 127,366 employees, digital content industry: 51,952 employees and IT services (except for trading, distribution): 76,419 employees.

Figure 2. 8: Gender statistics of programmers in Vietnam in 2019



According to a report by Topdev Vietnam, the sex ratio of men and women in the programming field has a big imbalance when over 90% of programmers are male, and only 7% are female. However, the optimism shows that the number of female programmers in the software sector tends to increase year by year.

Figure 2. 9: Distribution of ITC companies in Vietnam in 2019



Information technology enterprises are concentrated mainly in centralized IT parks. The first IT park started in Ho Chi Minh city in 1991. Currently, Vietnam has seven IT parks, mainly located in Ho Chi Minh City, Hanoi, and Da Nang.

+ Total land area: 705,656 m^2

+ Total office area: 203,638 m^2

+ Total number of active IT businesses: over 200

+ Total workforce: over 35,000 people

Quang Trung Software Park

Land area: 430,000 m^2

Office area: 86,000 m^2

Number of human resources: 23,859 people, of which the total number of IT engineers and specialists is 4,752 people

Hanoi IT transaction center

Land area: 1,700 m^2

Office area: 2,500 m^2

Number of active IT enterprises: 38

Number of human resources: 600 people, including 500 IT-specialized workers.

Ho Chi Minh City Software Technology Center

Headquarters: 123 Truong Dinh, District 3, Ho Chi Minh City

Land area: 3,000 m^2

Number of active IT enterprises: 28

Number of human resources: 500 people

Danang Software Park

Headquarters: 02 Quang Trung, Hai Chau District, Da Nang

Land area: 4,300 m^2

Office area: 22,000 m^2

Number of active IT enterprises: 42

Number of human resources: 2,000 people

Software Technology Park, National University of Ho Chi Minh City

Land area: 23 ha

Office area: 8,482 m^2

E-TOWN

Land area: 35,000 m^2

Office area: 80,000 m^2

Trung tâm Công nghệ Phần mềm Cần Thơ

Office area: 1,656 m^2

Regarding personnel, Ho Chi Minh City also shows a record number of IT personnel in 2018 at 100,403. Corresponding to hardware technology they are distributed in electronics (20,822 employees), software technology (59,049 employees), digital content technology (4,715 employees), and IT services (15,817 employees). Regarding labor qualifications, according to the results of the 2017 Economic Census: college and university qualifications account for the main proportion of 67.4%; Masters account for nearly 2%.

Regarding average income, the employee reaches VND 152 million /year; VND 156 million/year; VND 174 million/year corresponding to the years 2016-2017-2018. The average level of the whole city in 2017 was VND 117 million/year.

2.14. Revenue of the ICT industry

IT revenue and scale are also divided by IT sub-sectors. Total revenue for the information technology industry was USD 102,973 million, with the hardware technology was USD 91,516 million, the software technology was USD 4,447 million, the digital content technology was USD 825 million, and the IT services produced USD 6,185 million.

Figure 2. 10: **Total revenue of the ICT industry**

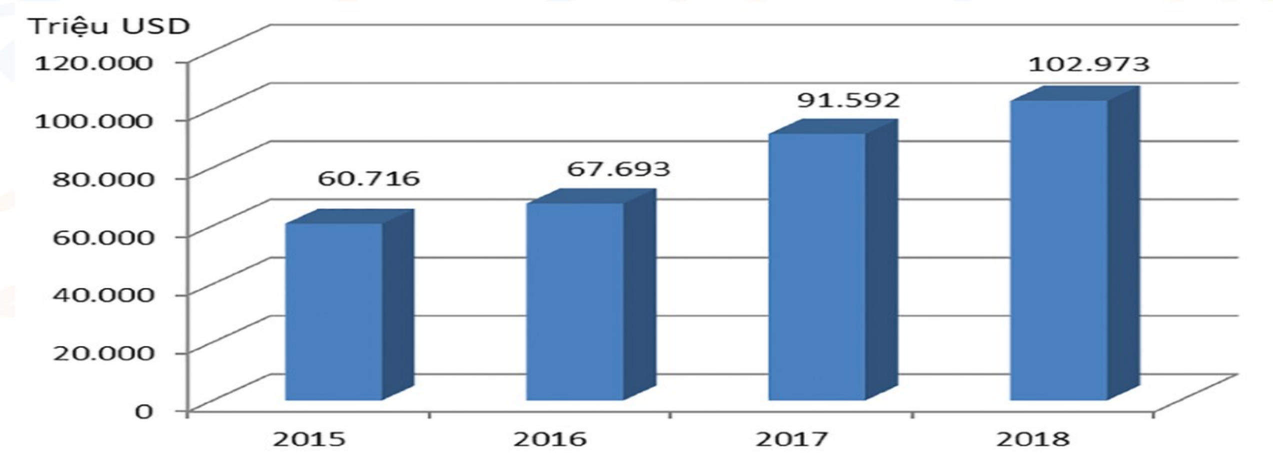


Figure 2. 11: **Revenue of hardware and electronics industries**

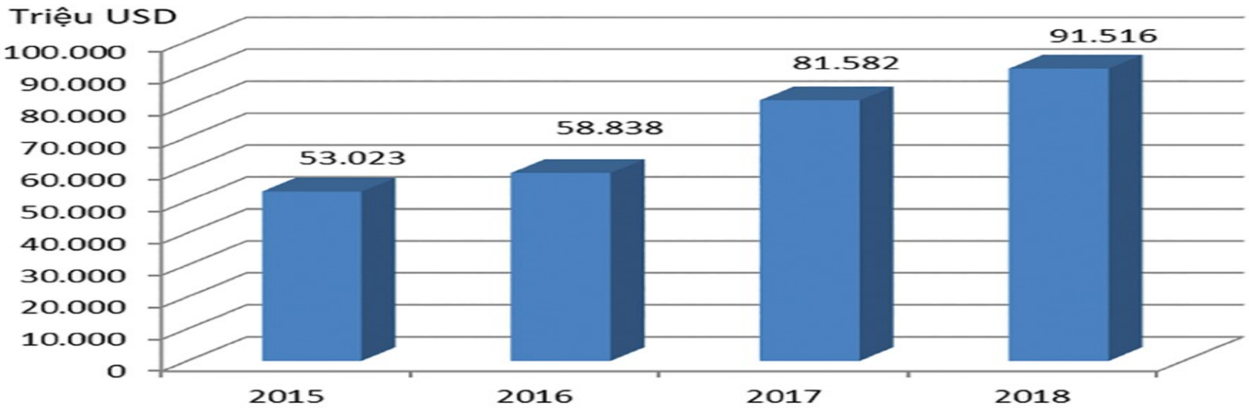
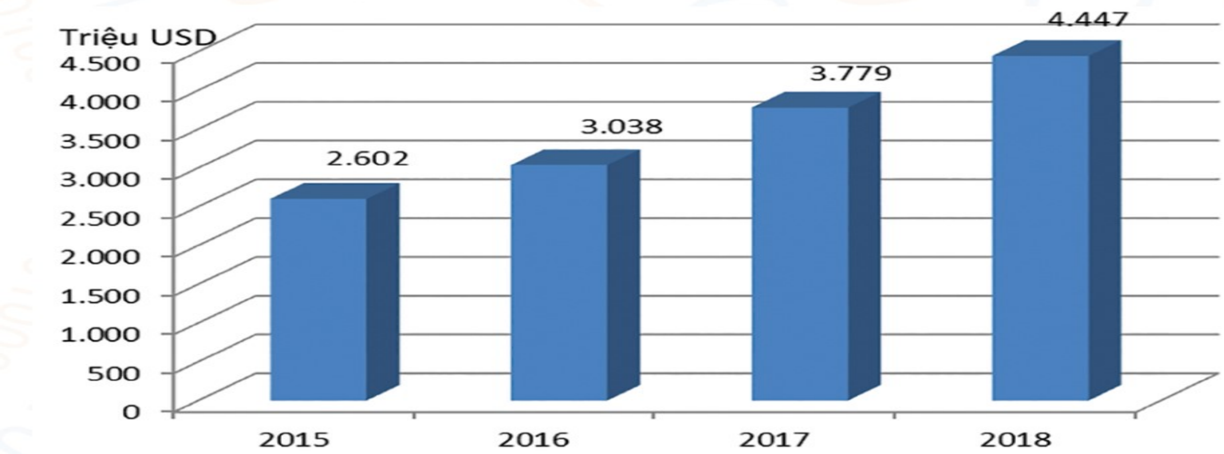
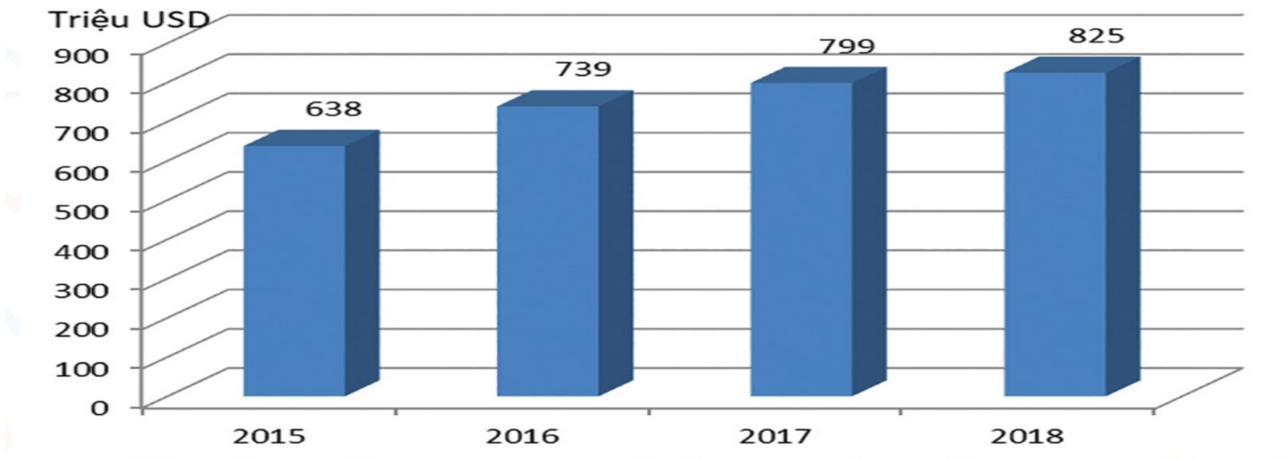


Figure 2. 12: **Revenue of software industry**



Despite the rapid development and use of a highly qualified workforce compared to other industries, electronics and IT still account for a modest proportion in Ho Chi Minh City's economy: data in 2017 showed that businesses and labor accounted for approximately 3% of the entire city. Compared with some sectors: Industry revenue is 7.1% of the processing industry's revenue, 23.6% of the construction industry, 30.9% of the transport industry, 62% of the banking industry (annual figures 2016 according to the 2017 Economic Census). IT industry revenue by sector is shown in figures 2.10 to 2.14.

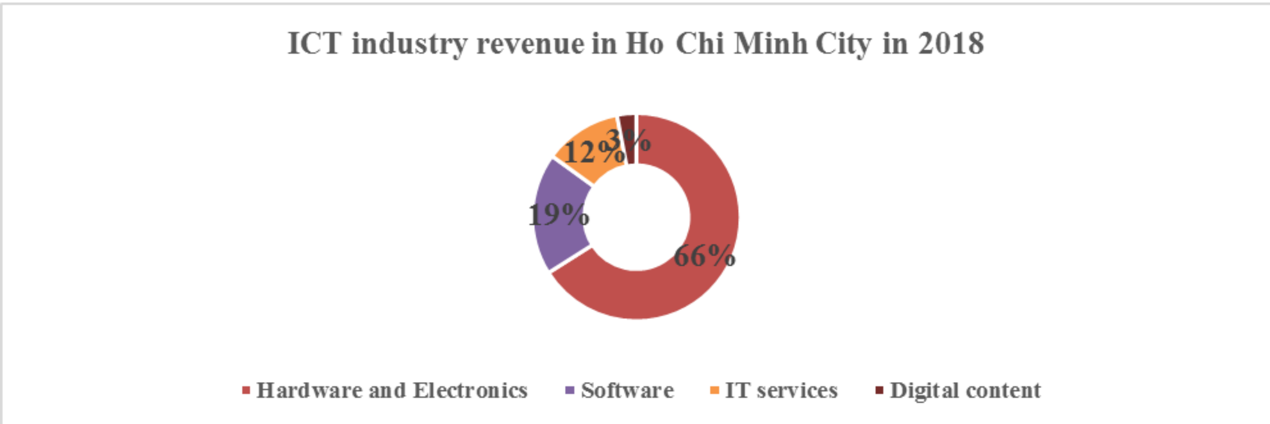
Figure 2. 13: **Revenue of digital content industry**



Currently, the total revenue of the ICT industry in Ho Chi Minh City is VND 117,638,125 billion, up 29.7% compared to 2017 (In 2017, it is estimated at VND 82,704,415 billion). In which: Quang Trung Software Park has 160 software and digital content enterprises, revenue in 2018 is estimated at 10,107.37 billion VND (approximately 432.7 million USD), increasing by 25.1% over the same period. Accounting for nearly 8% of total industry revenue.

The revenue is concentrated on the Top of large enterprises with over 1,000 employees such as FPT Corporation, MISA Joint Stock Company, Sao Bac Dau Joint Stock Company, VNG Joint Stock Company... estimated to account for 35% of the industry's total revenue and the sub-sectors are shown in the chart:

Figure 2. 14: ICT industry revenue in Ho Chi Minh City in 2018



2.15. The classification adopted in the sources used

This report uses data published in the White book of Information and Communication. The classification followed by this publication does not fully match the classification of the Vietnam Standard Industrial Classification, as shown in the table below:

The comparison of classification from White Book and VSIC

	White Book	**VSIC (2018)**
Information Technology	Hardware, Software, Digital Contents.	6201: Computer programming activities. 6202: Computer consultancy and computer system management. 6209: Other information technology and computer service activities.
Telecommunication	Terrestrial Fixed Telecommunication Services, Satellite Fixed Telecommunication Service, Terrestrial Mobile cellular Telecommunication Services, Satellite Mobile cellular Telecommunication Services, Coast Mobile cellular Telecommunication Services.	611: Wired telecommunication activities. 612: Wireless telecommunication activities. 613: Satellite telecommunication activities. 619: Other telecommunication activities.

3. Vietnam labor market for the agrifood sector

Vietnam's agrifood industry is based on a particularly strong export-oriented food processing industry. It is one of the major areas of focus of Vietnam's development strategy approaching 2025 and it is incorporated as well into the new Vietnam 2035 vision.(MPI, 2016). For the purposes of the pilot study we focus on a narrowly defined agrifood sector composed of food processing and beverage processing subsectors in manufacturing.

3.1. Driving activities of the agrifood sector

Vietnam produces a large number of food commodities supplied for domestic consumption and exported to the world. Table 2.31 displays Vietnamese food production over recent years.

Table 2. 31: Production of selected food commodities in Vietnam

Code		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018
C1010	Canned meat	ton	4677	5209.2	5520	4568	4086	4384	4314	4092	3946
C10209	Canned fishery products	ton	76.9	86.2	96.6	107.5	103.5	100.6	102.3	105.1	109.2
C10201	Frozen fishery products	1000 ton	1278.3	1362.9	1372.1	1463.4	1586.7	1666	1763.1	1946.2	2133.1
C10203	Fish sauce	million litre	257.1	280.2	306	325.8	334.4	339.5	372.2	373.7	374.2
C10309	Canned vegetable	ton	48411	55680	60423	62371	63062	65096	69132	74262	79058
C10309	Canned grain and fruit	1000 ton	60.1	53.6	50	48.9	47.8	49.2	53.7	56.2	56.9
C10402	Cooking oil	1000 ton	565.9	568.7	631.6	826.5	862.9	966.1	1034.7	1078.6	1166.3
C10500	Fresh milk	million litre	520.6	645.3	701.3	760.7	846.5	1027.9	1105.5	1211.4	1258.4
C10500	Milk powder	1000 ton	58.9	76.1	81.2	87	90.2	99.3	107.7	111.7	121
C10611	Milled rice	1000 ton	33473	38289	39748	41017	42165	40770	38920	39326	41743
C10720	Sugar	1000 ton	1141.5	1306.8	1634.3	1860.3	1863.4	1842.1	1695.3	1747.5	1927.9
C10770	Powder and instance coffee	1000 ton	68.1	80.5	92	91.5	90.7	87.6	95.4	99.4	106.9
C10760	Processed tea	1000 ton	211	207.4	193.3	187.6	179.8	167.8	165.4	170.5	169.4
C11010	Spirit and traditional alcohol	million litre	349.4	337.1	330.9	318.1	312.7	310.3	306.8	309.7	316.3
C11030	Beer	million litre	2420.2	2625.7	2978.7	3004.1	3287.2	3526.8	3845.1	4004.8	4214.3
C11041	Mineral water	million litre	458.5	528	566.4	645.8	763.7	877.3	1016.6	1027.7	1121.8

(Source: GSO)

Milled rice and fishery frozen products are the most important food products. The production of milled rice has remained almost constant in the past 3 years from 2016-2018, approximately 40000 thousand tons. Meanwhile, fishery frozen products reached 2133 thousand tons in 2018, increasing by 6.1% compared to 2017. In beverage industry, beer production is a largest sector with 4214.3 million litres, growing by 5.2%. This economic sector may be affected in the next years by Decree 100/2019/NĐ-CP on the alcohol drinking ban when driving.

The development of the narrowly defined agrifood sector since 2000 can be grasped from table 2.32, We see that both the number of establishments and value added grew faster in the 2000-2010 period, with lower growth during 2010-15 and even a decline in value added in 2017. Output per establishment has been growing, but the ration of value-added to output has been going down indicating a possible reduction in profit margins.

Table 2. 32: Key indicators of agrifood sector

Year	Establishments	Output	Value Added	Output per establishment	Value added to Output
	Number	Billion Dong	Billion Dong	Billion Dong	%
2000	3480	77491	15499	22.268	20.0
2005	5076	201524	30131	39.701	15.0
2010	7518	582720	106955	77.510	18.4
2015	8820	1077255	186932	122.138	17.4
2016	9428	1362701	210223	144.538	15.4
2017	10034	1597043	206282	159.163	12.9
Period	Annual growth rates (%)				
2000-05	7.8	21.1	14.2	12.3	-5.7
2005-10	8.2	23.7	28.8	14.3	4.2
2010-15	3.2	13.1	11.8	9.5	-1.1
2016	6.9	26.5	12.5	18.3	-11.1
2017	6.4	17.2	-1.9	10.1	-16.3

(Source: UNIDO INDSTAT)

The agri-food sector narrowly defined includes two subsectors within the manufacturing sector: food processing and beverages processing. The main characteristics of the two subsectors can be grasped from table 2.33. We can see that the food subsector is much larger than the beverages subsector both in terms of employment and value added. It is also much more export oriented. In terms of dynamics, growth has also been faster for the food subsector in 2011-2016. While employment has grown modestly, 1% in the 2011-2016 period, value added has increased much faster by 8%. In contrast, labor productivity is much higher in the beverage subsector at 33,083 US$ per employee compared to 14.243 US$ For the sector as a whole, total Value added grew from USD 1.128 billion in 2006 to USD 4.465 billion in 2016, a fast annual growth rate of 14.7%, faster than PIB growth.

Table 2. 33: Key indicators of Food and Beverages subsectors

	Employment	Value Added	Exports	Employment	Value Added	Exports	Labor productivity	Export capacity
Subsector	1000s	Millions USD	Million USD	Annual Growth Rate 2011-2016			USD per worker	USD per worker
Food	734	10,457	9,376	1%	8%	4%	14,243	12,771
Beverages	99	3,259	242	0%	2%	13%	33,083	2,457

(Source: Ministry of Industry and Trade-UNIDO, Vietnam Industry White Paper 2019)

By subsectors this growth rate was made possible by the expansion of fruit and vegetables at 22.6% annually, vegetable/animal oils and fat, at 28.3% and grain mill products at 21.2%. In contrast to value added, average establishment size declined over the period in most subsectors with the exception of grain mill products, suggesting that growth was driven by small businesses.

Table 2. 34: Annual growth rate per subsector, food processing, 2006-2016 (%)

Food products	Employment	Value added	Average size establishment	Average productivity
Processing/preserving of meat	4.0%	9.7%	-6.8%	5.5%
Processing/preserving of fish, etc	2.3%	14.7%	-2.5%	12.1%
Processing/preserving of fruit, vegetable	-0.9%	22.6%	-10.2%	23.6%
Vegetable/animal oils/fat	3.5%	28.3%	-8.0%	24.0%
Dairy products	12.4%	10.6%	-2.9%	-1.6%
Grain mill products	0.7%	21.2%	3.6%	20.4%
Sugar	-3.2%	1.0%	-4.6%	4.3%
Overall	1.8%	14.7%	-2.2%	12.7%

(Source: UNIDO INDSTAT)

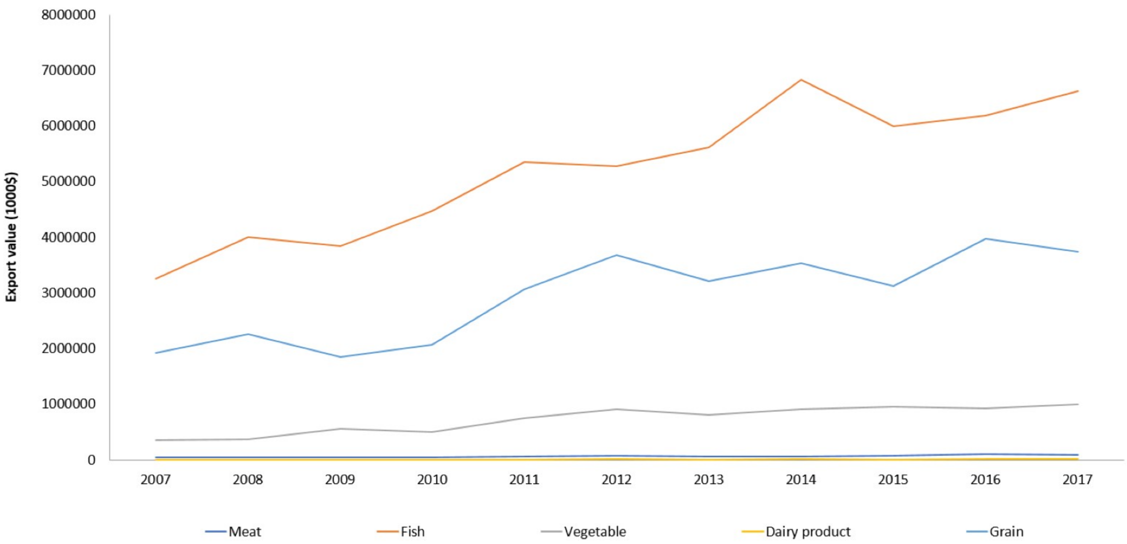
In terms of employment, the fastest growth was observed in dairy products (12.4%), a sector where value added did not grow as fast, with average productivity declining as a result. There were also relatively fast increases in employment in the processing of meat (4% annually) and oils and fat (3.5%). Average productivity growth in the sector as a whole has been fast, 12.7%, the result of value added increasing faster than employment. There are three subsectors where productivity has grown faster than 20% annually in the 2006-2016 period: fruit and vegetables, oils and fat, and grain mill products.

The largest of the subsectors is fishing, which employed almost 60% in the food processing subsector. While growth figures are not as high as the subsectors highlighted, it has shown a positive development both in term of employment, exports and value-added. Shell fish, live-fish and crustaceans are the main products and the United States, Japan and the Republic of Korea the main countries of destination.

Given the reliance of the sector in exports, figure 2.15 displays the trends in exports by subsector. The importance of fish exports emerges from the graph. It is not only the main export but also the fastest growing exports. Hoever, there is an uneven development over the period: 13.3 per cent in the period 2007-2011, and only 4.66 per cent in the subsequent period. An even starker contrast in these two periods characterized the food processing sector as a whole. In 2017, Viet Nam's food processing industry exported a record USD 8.8 billion. However, the exceptional growth rate of 22.8 per cent in the period 2007-2011 was followed by a moderate growth of 1.73 per cent in 2011-2017..

In 2017 fish processing exports peaked at USD 6.6 billion. The other two main export sectors are meat processing and fruits and vegetables.

Figure 2. 15: Food processing export values, 2007-2017 (million USD)



(Source: Ministry of Industry and Trade-UNIDO, Vietnam Industry White Paper 2019)

From a planning perspective, the agri-food sector has been selected as a key strategic sector. Changes in the production sphere, modernizing production methods and shifting towards more value-added crops should go hand in hand with modernization of the food processing sector processing agricultural commodities into value-added food products (MPI 2016).

3.2. Driving geographical areas

The agrifood sector is conditioned by the location of agricultural production. In the case of Vietnam, we have seen that the main subsector is fish processing. The fish industry in Vietnam is connected to the long coastline and the extensive river systems. The Mekong Delta and the coastline are the two main locations. Regarding rice, while it was traditionally dominated by the Red River delta, the industry has grown faster in the Mekong Delta that has become more important. Table 2.34 provides information regarding the location of production, looking at agricultural enterprises by region and use of land. We see the clear predominance of the Mekong Delta and the North Central and Central Coastal Areas in fishing. In agriculture, the South East region has the highest number of enterprises followed by the Red River Delta.

Table 2. 35: Number of enterprises in agriculture and fishery by region and size of land area

	Number of enterprises						
	Total	No use of land	< 0,5 ha	0,5 to < 2 ha	2 to < 5 ha	5 to < 10 ha	10 ha and over
Whole country							
Agriculture	1 740	983	91	108	127	71	360
Fishery	1 461	1 072	169	44	45	30	101
Red River Delta							
Agriculture	443	286	42	31	30	10	44
Fishery	110	45	2	10	11	9	33
Northern midlands and mountain areas							
Agriculture	134	68	6	11	21	9	19
Fishery	16	10	-	2	3	-	1
North Central and Central coastal areas							
Agriculture	266	134	7	19	22	20	64
Fishery	365	122	164	22	19	10	28
Central Highlands							
Agriculture	226	59	18	17	14	15	103
Fishery	11	2	-	3	2	3	1
South East							
Agriculture	589	391	9	27	35	15	112

Fishery	87	75	-	4	3	2	3
Mekong River Delta							
Agriculture	82	45	9	3	5	2	18
Fishery	872	819	3	3	7	6	35

(Source: Results of the rural, agricultural and fishery census 2016, GSO)

In terms of the food processing sector, it is growing fast in both Ho Chi Minh and Hanoi, although there are stark differences from sector to sector.

In Hanoi, in 2018 some manufacturing industries achieved a higher growth rate than the general growth rate of the whole industry such as: Beverage increased by 12.2% over the same period last year. Industrial production index of food production and processing increased by 3.3% over the same period last year (Statistical Yearbook of Hanoi, 2018). The main food products in Hanoi are presented in Table 2.34. The table shows the process of transformation by which some traditional products such as fish sauce production in Hanoi have steadily decreased over the years. In 2018, the number of fish sauce volume decreased by 93% compared to 2010. Feed has been growing all over the period, meanwhile beer production has increased fast from 2010 to 2015 to stagnate since. ,Cake and candy production has roughly kept constant in recent years.

Table 2. 36: Main food production in Hanoi

Code		Unit	2010	2015	2016	2017	2018
C10203	Fish sauce	1000 litres	2885	388	216	182	175
C11030	Beer	Million litres	375	455	462	453	465
	Cake and Candy	1000 tons	55	53	54	54	55
	Feed	Ton	369851	385116	391107	438112	450216

(Source: Statistical Yearbook of Hanoi, 2018)

3.3. Employment situation

Regarding the employment situation, table 2.37 provides key indicators. We see an initial fast expansion of employment from 2000-2005 that slows down and almost halts in the period since 2010, with a reduction in the number of employees in 2017. This decline was probably short-lived, but it provides a word of caution. Regarding the composition of the labor force we see that there was a clear majority of females in the initial years up to 2010, whereas at present there is a majority of males. Average firm size in terms of employees initially increased to 84 workers per establishment, but has been going down since then to 60 workers per establishment. While output per worker has been growing relatively fast, the reduction in margins that we observed before has meant that labor productivity has slowed down with a small reduction in 2017.

Table 2. 37: Key indicators of employment in the agrifood sector

	Employees	Female employees	Average Size	Output per worker	Value added per worker
Year	Number	%	Workers/Est.	Million Dong	Million Dong
2000	265876	56.7	76	291.5	58.3
2005	427775	57.1	84	471.1	70.4
2010	550007	52.2	73	1059.5	194.5
2015	591448	48.2	67	1821.4	316.1
2016	603139	48.5	64	2259.3	348.5
2017	597451	47.4	60	2673.1	345.3
Period	Annual growth rates (%)				
2000-05	10.0	0.1	2.0	10.1	3.9
2005-10	5.2	-1.8	-2.8	17.6	22.5
2010-15	1.5	-1.6	-1.7	11.4	10.2
2016	2.0	0.6	-4.6	24.0	10.3
2017	-0.9	-2.4	-6.9	18.3	-0.9

(Source: UNIDO INDSTAT)

3.4. Distribution of enterprises and workers/labor force for agrifood sector

According to GSO (2018), there was annually remarkable increase in enterprises performing food production in the past 7 years (2010-2017). The number of food enterprises rapidly increased to 7661 in 2017, growing by 53.9% and 7.3% compared to 2010 and 2016, respectively. This activity created approximately 547335 jobs in 2017, however this figure decreased by 1.2% compared to a previous year (Table 2.38). However, the number of beverage enterprises continued to increase over recent years and this industry created the opportunity for 50116 employees, increasing by 1.7% and 7.7% compared to 2016 and 2010, respectively. GSO (2018) also showed that enterprises operating in these sectors were mainly small ones which could employ less than 49 employees (Table 2.39).

Table 2. 38: Number of acting enterprises and employees in the agrifood sector

	2010	2014	2015	2016	2017
Manufacture of food products					
Enterprises	4977	6275	6630	7137	7661
Employees	496446	527593	542339	553879	547335
Manufacture of beverages					

Enterprises	1711	2116	2190	2291	2373
Employees	46539	47064	49109	49260	50116

(Source: Statistical Yearbook of Vietnam, 2018-GSO)

Table 2. 39: Number of enterprises in food manufacture by the size of enterprise at 31/12/2017

	Manufacture of food products	Manufacture of beverages
< 5 employees	2142	1306
5 - 9 employees	1528	657
10 – 49 employees	2487	271
50-199 employees	977	97
200-299 employees	163	13
300-499 employees	148	11
500-999 employees	129	13
1000-4999 employees	82	5
> 5000 employees	5	-
Total	7661	2373

(Source: Statistical Yearbook of Vietnam 2018, GSO)

Hanoi is one of the biggest economic regions with many industrial zones. According to Hanoi Statistical Office (2018), enterprises operating in food sector includes state, non-state and foreign invested enterprises, in which non-state enterprises accounts for 99.8%. The number of enterprises slightly increased over recent years. In total, this activity created approximately 48911 jobs in 2018, and this figure slight increased over recent years. However, in recent years the number of beverage enterprises remarkably increased and in 2018 this industry created the opportunity for 4939 employees, increasing by 25% and 40.1% compared to 2016 and 2010, respectively (Table 2.40).

Table 2. 40: Number of acting enterprises, establishments and employees in agrifood in Hanoi

	2010	2014	2015	2016	2017	2018
1. Manufacture of food products						
Total enterprises	14024	n/a	13738	13737	14215	14303
State enterprises	6	n/a	7	7	5	5
Non-state enterprises	14003	n/a	13716	13712	14192	14279
Foreign invested enterprises	15	n/a	15	18	18	19
Total employees	47096	n/a	14749	47250	47798	48991
State enterprises	3195	n/a	5555	5771	3337	3120
Non-state enterprises	42669	n/a	40131	38952	42345	43358
Foreign invested enterprises	1232	n/a	1805	2527	2116	2513
2. Manufacture of beverages						
Total enterprises	3511	n/a	3926	3928	5059	4939
State enterprises	4	n/a	4	4	4	4
Non-state enterprise	3500	n/a	3916	3918	5049	4929
Foreign invested enterprises	7	n/a	6	6	6	6
Total employees	12948	n/a	10881	10544	12126	12113
State enterprises	1800		1020	1014	1278	1295
Non-state enterprise	10411	n/a	8993	8855	10265	10223

Foreign invested enterprises	737	n/a	868	675	583	595

(Source: Statistical Yearbook of Hanoi, 2018)

3.5. The classification adopted in the sources used

As commented in section 1, there is not a single definition of what is meant by agri-food. Ramaschiello (2015) provides a good discussion of the issues at hand. For our purposes, we have preferred to initially restrict the sector to the manufacture of food and beverages, corresponding to levels 10 (manufacture of food) and 11 (manufacture of beverages) of the second level VSIC. The main reason is our interest in providing labor market services to university graduates and we have preferred to focus on the agri-food industry. There could be grounds to include the agriculture sector itself and understanding trends in the agriculture sector is necessary in understanding developments in the agrifood sector. We have also explored activities in more detail as provided by subsector in table 2.31

Regarding data sources, the Economic Census and the establishment statistics produced by the GSO are the main element of information. UNIDO provides the INDSTAT database that is based on the same data and some modelling exercises for specific indicators. The Ministry of Industry and Trade produces grey books on manufacturing including the agrifood sector.

SECTION 3 – TOOLS AND INSTRUMENTS TO GATHER INFORMATION ABOUT THE LABOUR MARKET

There is a variety of sources, National and International, that include information useful for the analysis of the Vietnamese Labor Market. For the purpose of the LAB-MOVIE project we can group sources in two groups: sample surveys / Censuses.

1. Administrative reports including statistical reports produced by the GSO, regional/city governments and Ministries. Most of these reports are available online and published regularly. They generally compile data from primary sources.
2. Primary sources: They can be classified according to two dimensions:
    a. Exhaustivity: Censuses cover the complete population, while sample surveys are based on a representative sample from the universe.
    b. Units of study: *Enterprise level data* provide information regarding current labor structure and labor needs of businesses, including skills and qualification: the demand side of the labor market. *Individual and household level* studies provide information on labor market participation of individuals: the supply side of the labor market. Both provide complementary angles for the Lab-MOVIE project whose purpose is to stimulate the connection of both sides of the market.

    For each of these primary sources there is aggregate information available, generally in the form of a *Report*, and some have available *microdata*, that can be freely available or have restricted access. The advantage of microdata is that it is possible to produce detailed tabulations at will, while reports offer a limited choice. The inconvenience of microdata is that it requires statistical and computing skills to analyze.

In all cases the GSO produces most of the relevant sources but access to microdata is generally restricted. Brian McCaig, a scholar from Wilfrid Laurier University that have studied extensively the Vietnamese economy, provides helpful hints regarding contact persons and limitations/potential of some of the relevant sources from the GSO[33]. International data sources generally provide easier access to microdata.

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33 https://sites.google.com/site/briandmccaig/notes-on-vhlsss

Regarding enterprise data the main operation is the Economic Census / Establishment Census that is connected to the establishment registry. Some aggregate information is regularly published, but, more importantly, it is exhaustive and could conform the basis for representative enterprise surveys. There are two alternative enterprise sources that have the advantage of providing access to the microdata, but the inconvenient of being sample surveys: World Bank's *Enterprise Survey* and UN WIDER *Small and Medium Enterprise Survey*.(*SMES*) The latter is not representative of the whole country, but it covers the main areas of interest including Hanoi and Ho Chi Minh city. It also has a panel dimension.

Regarding individual and household data, the population and housing census is the main exhaustive source and it has been recently carried out in 2019. There is available microdata from https://ipums.org/projects/ipums-international but it does not include the 2019 Census yet. Some other sample surveys provide more thorough information regarding the labor market. In particular the *Vietnam Household Living Standard Surveys* produced by the GSO provides detailed information.

The following templates provide information regarding each of the sources starting with administrative sources and continuing with primary enterprise data and primary household/individual data. When available, information is provided on how to get access to the data or the (presumed) contact person.

1. Administrative Sources

Name of the Source
Statistical Year Book of Vietnam (SYB)
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
Official information from the General Statistics Office (GSO) of Vietnam.
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Compendium of statistics from administrative sources, sample surveys and censuses.
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- The Statistical Yearbook, an annual publication by General Statistics Office, comprises basic data reflecting the general socio-economic dynamic and situation of the whole country, regions, and provinces. In addition, in this publication, there are also selected statistics of countries and territories in the world to provide reference information for studies and international comparison.
At which geographical level (national, regional, …)
- Information is captured at the National levels, but some tabulations are available at the

regional and province level..
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- All economic sectors, covering 5.86 million establishments in 2017. - Published tabulations only use VSIC2007 level 1 (letter codes), and some data cover level 2 - More detailed classifications should be available at the GSO.
With which frequency (ten-year, annual, every six months, …) - The Statistical Yearbook is published annually by GSO
Does this source provide lists of enterprises (also upon payment)?
Not applicable
References (website or other references, possibly in Vietnamese and in English)
- -Bilingual reports available at the GSO website (https://gso.gov.vn/default.aspx?tabid=460&idmid=5&ItemID=18973) in *pdf* format. - Selected tabulations are available in electronic format in the GSO webpage.

Name of the Source
Statistical Year Book of Hanoi
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
Hanoi Statistics Office (GSO) of Vietnam.
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Varied administrative sources
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- The Hanoi Statistical Yearbook is an annual publication by Hanoi Statistics Office comprising basic data reflecting the general socio-economic dynamics and situation of Hanoi.
At which geographical level (national, regional, …)
- Information is captured at the city administration level.
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- All economic sectors in 2017 and with comparative data of 2010, 2015, 2016, 2017 - Published tabulations use VSIC2007 level 1, and some data use level 2.
With which frequency (ten-year, annual, every 6 months, …) - The Hanoi Statistical Yearbook is published annually by Hanoi Statistics Office
Does this source provide lists of enterprises (also upon payment)?
- Not applicable.
References (website or other references, possibly in Vietnamese and in English)
- Bilingual reports. - No website

Name of the Source
Vietnam Tourism Annual Report
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
Vietnam National Administration of Tourism (VNAT)
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Administrative data
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- The Annual Report on Vietnam tourism is an annual publication by Vietnam National Administration of Tourism, comprising data reflecting the development and current situation of the tourism sector in Vietnam.
At which geographical level (national, regional, …)
- Information is captured at the national level with available information at the regional, provincial and local level.
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- Tourism sector with classification code VSIC 2007 level 2 of 55 (Accommodations) and 79 (Tourist services)
With which frequency (ten-year, annual, every 6 months, …) - The Tourism Report is published annually by the Vietnam National Administration of Tourism
Does this source provide lists of enterprises (also upon payment)?
- No list of enterprises is publicly available. - The VNAT should be contacted to check the possibility of accessing the list, or a sample of enterprises based on the list.
References (website or other references, possibly in Vietnamese and in English)
- Report in Vietnamese. English version is also available - Website http://vietnamtourism.gov.vn/?page=home

Name of the Source
Report on the results of implementing tourism activities
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
Vietnam National Administration of Tourism
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Administrative data
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- Number of international travel agencies by type of business, number of accommodation establishments with a number of beds and rankings, quantity and quality of employees

in tourism sector
At which geographical level (national, regional, …)
National
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
Tourism, 79110, 79120, 551
With which frequency (ten-year, annual, every 6 months, …)
- Annual
Does this source provide lists of enterprises (also upon payment)?
- No list of enterprises is publicly available
References (website or other references, possibly in Vietnamese and in English)
- http://vietnamtourism.gov.vn/?page=home

Name of the Source
Report on the results of implementing tourism activities
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
Department of Culture, Sports and Tourism of Thai Nguyen Province
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Administrative data
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- Number of international and domestic tourists to Thai Nguyen, number of tourists served by travel agents and accommodation establishments, number of tour guide cards issued and renewed.
At which geographical level (national, regional, …)
- Provincial
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
Tourism, 79110, 79120, 551
With which frequency (ten-year, annual, every 6 months, …)
Annual
Does this source provide lists of enterprises (also upon payment)?
- Yes, it provides the lists of hotels and rented houses, with full information on the address, contact number, number of rooms, number of beds, number of employees, and rankings of the accommodation establishments in Thai Nguyen province
References (website or other references, possibly in Vietnamese and in English)

- http://sovhttdl.thainguyen.gov.vn

Name of the Source
Growth of key economic regions in the period of 2011-2017
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
General Statistics Office of Vietnam
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Administrative data
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- Area, population and density of each key economic region, number of labor and productivity by economic sector, GRDP and its structure, investment in the region, revenue from tourism and other economic activities, provincial competitive index of the provinces in the four key economic regions
At which geographical level (national, regional, …)
- Regional
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- Tourism, 79110, 79120, 551
With which frequency (ten-year, annual, every 6 months, …)
- Annual
Does this source provide lists of enterprises (also upon payment)?
No list of enterprises is publicly available
References (website or other references, possibly in Vietnamese and in English)
https://www.gso.gov.vn/Default_en.aspx?tabid=491

Name of the Source
Thai Nguyen Statistical Yearbook 2019
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
Thai Nguyen Statistical Office
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Administrative data
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by

enterprises, …)
- Land, population and number of laborers in the province, data on economic sectors like tourism and trade; industry; agriculture, forestry and fishing; investment and construction; transport, postal services, and telecommunications; education, training and science, technology, the price index
At which geographical level (national, regional, …)
Provincial
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
Tourism, 79110, 79120, 551
With which frequency (ten-year, annual, every 6 months, …)
Annual
Does this source provide lists of enterprises (also upon payment)?
Not applicable
References (website or other references, possibly in Vietnamese and in English)
- http://cucthongkethainguyen.gov.vn

Name of the Source
WHITE BOOK OF VIETNAM INFORMATION AND COMMUNICATION TECHNOLOGY
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
National Official Source: Ministry of Information and Communication.
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
- The figures in the *White Book* are compiled from reports of various ministries, national and local agencies, academic and vocational training institutions, associations, IT enterprises together with units under the Ministry of Information and Communications updated on the 31/12 of the previous year. - The ministries, national and local agencies, agencies, units, associations, enterprises, and academic and vocational training institutions on ICT throughout the country, especially the General Statistics Office, the Foreign Investment Agency and the Business Registration Authority under the Ministry of Planning and Investment, General Department of Customs under the Ministry of Finance, General Department of Vocational Training under the Ministry of Labor - Invalids and Social Affairs, Department of Information Technology under the Ministry of Education and Training, Department of Scientific Information and the National Technology under the Ministry of Science and Technology provided information, data for this publication.
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- Number of IT Parks - Number of enterprise by subfield

- Number of employees by subfield - Size of land - Size of office space - Average salary by subfield. - Revenue from the industry by IT/CT sectors. - Import, export turn over by items
At which geographical level (national, regional, …)
- National level
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- The White Book of Information and Communication Technology provides official statistical data and information on a number of areas managed by the Ministry, namely: information technology application, information technology industry, information security, telecommunications, Internet, broadcasting and electronic information, posts, research and training in information and communication technology (ICT) and other related areas - It covers 2 codes level 2 from VSIC 2007: IT (62) and Telecommunication (61).
With which frequency (ten-year, annual, every 6 months, …)
Annual
Does this source provide lists of enterprises (also upon payment)?
No list of enterprises is publicly available
References (website or other references, possibly in Vietnamese and in English)
- http://www.mic.gov.vn/Pages/trangchu.aspx

Name of the Source
Vietnam - Overview. 2019
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
International Organizations: The World Bank, using data from National and International sources.
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
- Overview and analysis of administrative data.
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- National Accounts
At which geographical level (national, regional, …)
- National
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- All sectors, with data at the level of, for instance, Food: C10 and beverage: C110
With which frequency (ten-year, annual, every 6 months, …)
Annual

Does this source provide lists of enterprises (also upon payment)?
Not applicable
References (website or other references, possibly in Vietnamese and in English)
- https://www.worldbank.org/en/country/vietnam/overview

Name of the Source
The Communist Party of Vietnam, Documents of National Congress
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
Official information from the Communist Party of Vietnam
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Institutional data
Which kind of data (number of enterprises, number of employees, types of work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- Regulatory framework. - Strategic planning - Doi Moi policy, The Resolution of the 5 plena of the Central Plenum XII (2017), the renovation in policies has shifted quite fast along with the strong development in both scale and speed. Especially regarding Vietnam's economic growth rate.
At which geographical level (national, regional, …)
National
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
Some regulations affect all sectors, others are sector-specific.
With which frequency (ten-year, annual, every 6 months, …)
Annual
Does this source provide lists of enterprises (also upon payment)?
Not applicable
References (website or other references, possibly in Vietnamese and in English)
- http://dangcongsan.vn/

2. Enterprise primary sources

Name of the Source
Economic Census (previously called Establishment Census)
Data from official sources (public authorities, Ministries, statistical institutes, ...) or from other sources (trade associations, private organizations, specialised web portals, vocational training, ...)
National Statistical Office (NSO) of Vietnam.
Kind of surveys produced (full coverage, sample, administrative/institutional data, ...)
Full coverage The Census is updated every year based on administrative information from the enterprise survey published in the SYB.
Which kind of data (number of enterprises, number of employees, types of work contract, educational qualification, employment/unemployment rate, required competences by enterprises, ...)
- The goal of the Economic Census is to evaluate the development in terms of quantity and employees of business, administrative units, public service delivery (non-profit) units, including establishments; business production results; degree of information technology application; structure and distribution of business establishments, of employees by locality, economic sector, and economic ownership. - It is used for policy purposes and as a framework for National Accounts.
At which geographical level (national, regional, ...)
- Information is captured at the National, provincial and city levels. Tabulated results are generally at the provincial level.
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- All economic sectors, covering 5.86 million establishments in 2017. - Published tabulations only use VSIC2007 level 1 (letter codes). - More detailed classification should be available at the NSO.
With which frequency (ten-year, annual, every 6 months, ...)
Every 5 years on average: 1995, 2002, 2007, 2012, 2017.
Does this source provide lists of enterprises (also upon payment)?
- No list of enterprises is publicly available. - The NSO should be contacted to check the possibility of accessing the list, or a sample of enterprises based on the list.
References (website or other references, possibly in Vietnamese and in English)
-Bilingual reports available at NSO website (https://gso.gov.vn/default.aspx?tabid=460&idmid=5&ItemID=18973). - No regular access to microdata. The NSO should be contacted regarding the possibility. The last contact person known is Mr. Nguyen Viet Phong, phonggsovn@yahoo.com

Name of the Source
Vietnam Enterprise Survey
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialised web portals, vocational training, …)
International Official Source: World Bank
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Representative Sample Survey of Enterprises in the Manufacturing and Service Sectors. From 2015, it is based on stratified random sampling. Three levels of stratification are used: industry, establishment size, and region. The sample is restricted to registered enterprises with 5 or more employees, and at least 1% of private ownership. Sample size in 2015 was 996.
Which kind of data (number of enterprises, number of employees, types of work contract, educational qualification, employment/unemployment rate, required competences by enterprises, …)
- The surveys cover a broad range of business environment topics including access to finance, costs of inputs/labor, workforce composition, gender participation, capacity utilization, informality, business-government relations, innovation and technology, corruption, infrastructure, crime, competition, and performance measures. - The Enterprise Survey is answered by business owners and top managers. - Information regarding the universe of firms in strata categories (size, sector, region) is available in the technical documentation. - International Comparative analysis of aggregate data available. - Microdata for each of the waves and for the panel available upon request.
At which geographical level (national, regional, …)
- Published outcomes, including the Country Profile, use information at the National level. - The microdata has information on region, which is one of the strata dimensions. Based on the microdata, all indicators can be computed at the regional level. - Two different variables identify region: *a2*, provides the sampling region and *a3a* provides the region of the establishment as reported in the questionnaire. - 4 regions available: Red River Delta, North Central Area and Central Coastal Area, South-East, and Mekong River Delta.
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- For comparative international use, the survey is based on ISIC Revision 3.1. - It covers the non-agricultural economy. Sectors included are: Manufacturing (all subsectors), Construction, Motor vehicles sales and repair, Wholesale, Retail, Hotels and restaurants, Storage, transportation, and communications, IT. - Three different variables identify sector: *a4a* provides the sampling sector, *a4b* the reported sector, and *d1a2* the 4-digit ISIC code. - Tentative identification of sectors (based on *a4b*): Agrifood: Food and Beverages (code 15), IT sector: Possibly in industry, electronics (ISIC codes 31-32) and precision instruments (code 33) + IT services (code 72). More detailed classification can be based on *d1a2*. Tourism: In services, Hotels and Restaurants, code 55. - Sample size is too small to derive reliable statistics for combinations of sector and region.
With which frequency (ten-year, annual, every 6 months, …)
- Tentatively, enterprise survey waves are carried out every four years by the World Bank. In the case of Viet Nam, three waves are available: 2005, 2009, 2015. - Panel data is available.
Does this source provide lists of enterprises (also upon payment)?

- An external contractor, "Mekong Economics", was in charge of implementation in 2015 - The sample frame included: for panel firms, the list of 1053 firms from the Vietnam 2009 ES, for fresh firms, data from the General Statistics Office (GSO) of Vietnam
References (website or other references, possibly in Vietnamese and in English)
- https://www.enterprisesurveys.org/ : Aggregate data - https://www.enterprisesurveys.org/en/full-survey : Permission to access microdata in STATA *dta* format. - Technical documentation, including statistics regarding the Universe of firms: https://microdata.worldbank.org/index.php/catalog/2664/download/38441 - Survey implementation contractor: https://www.mekongeconomics.com/

Name of the Source
Rural, agricultural and fishery census 2016,
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
General Statistics Office of Vietnam
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
- Full coverage
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- Report available with aggregate data and selected tabulations. Information on number of enterprises. Also covers non-formal enterprises
At which geographical level (national, regional, …)
- Sectoral, covering the primary sector. Information available at the provincial level.
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- Agriculture: A10 Fishery: A 03213
With which frequency (ten-year, annual, every 6 months, …)
- A 5-year census
Does this source provide lists of enterprises (also upon payment)?
No list of enterprises
References (website or other references, possibly in Vietnamese and in English)
https://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=18966 - No regular access to microdata. The Office should be contacted regarding the possibility.

Name of the Source
Viet Nam Small and Medium Enterprises database (SME)
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialised web portals, vocational training, …)
International organization: UNU WIDER
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
- Sample longitudinal survey covering 2500 SME from nine provinces over time, ensuring representativity for those provinces. - Survey carried out in nine provinces of the country: Hanoi (including Ha Tay), Hai Phong, Ho Chi Minh City, Phu Tho, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, and Long An. - The data are based on face-to-face interviews with firm owners/managers and employees
Which kind of data (number of enterprises, number of employees, types of work contract, educational qualification, employment/unemployment rate, required competences by enterprises, …)
- The survey instrument consists of three modules: - (i) a main enterprise questionnaire for owners or managers; - (ii) an employee questionnaire administered to a random subset of employees in a quarter of randomly selected enterprises; - (iii) an economic accounts module. - While the enterprise-level survey solicits information on firm performance, enterprise history, employment, business environment, and owner/manager background characteristics, the employee survey collects data on educational background, work experiences and training, union membership, and household characteristics of employees. The economic accounts module lists revenues, costs, assets, and liabilities.
At which geographical level (national, regional, …)
- Survey carried out in nine provinces of the country: Hanoi (including Ha Tay), Hai Phong, Ho Chi Minh City, Phu Tho, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, and Long An.
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- The enterprises surveyed are distributed across approximately 18 sectors such as: food processing, fabricated metal products, and manufacturing of wood products. - Enterprises are classified according to the current World Bank definition, with micro-enterprises having up to 10 employees, small-scale enterprises up to 50 employees, medium-sized enterprises up to 300 employees, and large enterprises having more than 300 employees. - An advantage of these data is that it covers both the formal and informal sectors.
With which frequency (ten-year, annual, every 6 months, …)
Survey waves were carried out in 2011, 2013 and 2015.
Does this source provide lists of enterprises (also upon payment)?
Available microdata provides identification of enterprises
References (website or other references, possibly in Vietnamese and in English)
- Descriptive reports in *pdf* format available for each wave together with longitudinal research. - Microdata is freely available in STATA format upon registration in the web site. - https://www.wider.unu.edu/database/viet-nam-sme-database

3. Individual and household's primary sources

Name of the Source
The Vietnam Population and Housing Census
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
General Statistics Office (GSO)
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Full coverage on the population of 96.2 million people and housing of 26.9 million households residing in Vietnam
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
The data covers a broad range of information relating to the population by size and structure, households, migration and urbanization, education and training, employment, living conditions.
At which geographical level (national, regional, …)
Information is captured at the national levels but, depending on content, it is available at regional, provincial and local levels.
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
General data is provided. No sector is covered.
With which frequency (ten-year, annual, every 6 months, …)
The population and housing census are performed every ten years.
Does this source provide lists of enterprises (also upon payment)?
No data relating to enterprises
References (website or other references, possibly in Vietnamese and in English)
https://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=19281
- Microdata access is restricted, but possible. - it is possible to obtain a sample from IPUMS (https://ipums.org/projects/ipums-international). 2019 is not available on IPUMS yet. - Subject to payment, it is possible to have access to larger samples directly from the GSO. The latest contact person was Ms. Nguyen Thi Thanh Mai nttmai@gso.gov.vn.

Name of the Source
Labor and employment survey in 2018
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialized web portals, vocational training, …)
General Statistics Office of Viet Nam (GSO)
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Nationally representative sample survey of the population of working age
Which kind of data (number of enterprises, number of employees, types of the work contract, educational qualification, employment/unemployment rate, required competencies by enterprises, …)
- Number of employees, educational qualification, employment/unemployment rate, types of work contract - Labor Survey following International ILO standards.
At which geographical level (national, regional, …)

- National, Regional and Provincial
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
- E.g: Agriculture: A01; food: C10 and beverage: C110
With which frequency (ten-year, annual, every 6 months, …)
- Annual
Does this source provide lists of enterprises (also upon payment)?
Not applicable
References (website or other references, possibly in Vietnamese and in English)
- http://www.gso.gov.vn/default.aspx?tabid=512&idmid=5&ItemID=19513

Name of the Source
Vietnam Household Living Standards Survey (VHLSS)
Data from official sources (public authorities, Ministries, statistical institutes, …) or from other sources (trade associations, private organizations, specialised web portals, vocational training, …)
General Statistics Office of Viet Nam (GSO)
Kind of surveys produced (full coverage, sample, administrative/institutional data, …)
Nationally representative household survey together with a community survey. Data is available for household, individuals within households and communities. There is a panel structure by which households are present in the survey for two consecutive waves.
Which kind of data (number of enterprises, number of employees, types of work contract, educational qualification, employment/unemployment rate, required competences by enterprises, …)
- Labor force data covering laborers in all sectors and for all types of employers. - In particular, information is available regarding whether the laborer works for an employer in the household business (informal) sector or the registered enterprise sector. - The survey is used to compile national statistical indicators on household living standards in order to meet the needs in assessing the real situation of peoples life, poverty levels and the gap between rich and poor. - Information is available on basic demographic characteristics related to living standards; · education; health and health care; employment and income; household businesses; expenditure; housing, electricity, water, sanitation facilities and durable goods; poverty reduction; commune general characteristics. - The results are used for policy-making, socio-economic development planning, and to the evaluation of achievement of the Millennium Development Goals (MDGs), Sustainable Development Goals (SDGs) and Vietnam's socio-economic development goals .
At which geographical level (national, regional, …)
A National survey, it ensures representativity for the whole country, urban-rural areas, 6 socio-economic regions and provinces and centrally-run cities.
Sectors covered (with particular reference to agri-food, tourism, ICT) and at which level of the Vietnam Standard Industrial Classification VSIC 2007 (Level 1, 2, 3, 4, 5)
Published tabulations do not generally go beyond levels 1 and 2 of VSIC.
With which frequency (ten-year, annual, every 6 months, …)
- Every two years since 2002. The latest available survey was conducted in 2018. From 2011 an annual survey is also taken but on odd-numbered years restricted to demographics, employment and income. - Next wave, 2020, https://www.gso.gov.vn/default_en.aspx?tabid=768&ItemID=19497

Does this source provide lists of enterprises (also upon payment)?
Not applicable. Survey microdata is of restricted access, but available upon payment.
References (website or other references, possibly in Vietnamese and in English)
- The report for the latest available wave (2018) is available at https://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=19616 - Microdata is available from GSO upon payment in the range of 700 USD per wave. The latest known contact person is Ms. Trần Thị Thu, ttthu@gso.gov.vn - Useful code for analyzing VHLSS data is provided by Brian McCaig, https://sites.google.com/site/briandmccaig/home -

SECTION 4 - CONCLUSIONS

1. General conclusions

Since the 1990's, the process of structural transformations and integration into the world's economy known as *doi moi* has impulsed Vietnam's per capita growth to an average of almost 6%, second only to China. This high rate of economic growth has allowed the country to reach a middle-income status in a few decades. The process of high-speed growth has deeply transformed the economy and the labour market, moving from lower to higher productivity sectors. If Vietnam's economy manages to grow at 7% for another decade, its development could become similar to the one exhibited by China and the Asian Tigers.

Several factors have helped in achieving these successful results:

- Geography: As Chinese wages have risen, Vietnam has become the obvious substitute for firms moving to lower-cost production hubs, especially in order to maintain links with China's well-stocked supply chains.
- Demography: Vietnam has a relatively young population. Whereas China's median age is 36, Vietnam's is 30.7. Although population will soon start ageing, its urban workforce still has scope to grow. The reservoir of rural workers should help in keeping wage pressures under control, giving Vietnam time to develop its labour-intensive industries, something crucial in a nation with more than 96 million people.
- Education: Vietnam's workforce is young and skilled. Public spending on education is about 6.3% of GDP, two percentage points more than the average for low- and middle-income countries. This has come at a moment of favourable demographic development with small generations going through the school system. The combination of well focus expenditures on education and a favourable environment have allowed achieving higher enrolment levels while ensuring minimum standards. In international rankings, Vietnam's teenagers score better than those in America and Britain in Mathematics and Science.
- Effective Policies: Since the early 1990s the government has been open to international trade and investment, encouraging foreign companies to build factories. Foreign investors are responsible for a quarter of annual capital spending. Trade accounts for

roughly 150% of national output, more than any other country at its level of per-person GDP. Vietnam is reaping benefits from trade deals, reaching free-trade agreements with the EU and South Korea and obtaining advantages from the US-China commercial war.

- Long-term planning: Vietnam has used five-year plans as a guide for its development. Nevertheless, it has shown flexibility to promote innovation. While the 63 provinces compete to attract investors, 4 key economic zones have been created comprising 24 provinces where infrastructure is developing hand-in-hand with economic transformation. A model of developing industrial parks with foreign money and managers that began in Ho Chi Minh City in 1991 has been replicated with the creation and consolidation of seven IT parks throughout the country.

Notwithstanding its economic success Vietnam faces serious challenges as any other small open economy. After years of rapid growth, Vietnam has almost reached a milestone. Being classified as a middle-income country means to lose access to preferential financing from development banks. As a small open economy, Vietnam can seriously be affected by international downturns and global recessions, such as the current crisis caused by COVID-19. For Vietnam it is a moment to reflect on how far it has come and focus on the path ahead. It has an opportunity to be Asia's next economic success that should not be wasted.

As remarked in this report in order to keep achieving high rates of economic growth, it is necessary to keep restructuring the economy from least productive sectors such as agriculture to more productive sectors and, at the same time, increase the productivity, quality and efficiency associated with international economic integration. So far, developments seem promising with the country's growth process being based on sector of increasing complexity that foster the development of auxiliary industries with increasing levels of specialization.

In this context, as *The Economist* puts it, investment in higher education is crucial to reap all the potential benefits of trade opportunities. "Factories may be more automated, but the machines still need operators. Workers must be literate, numerate and able to handle complex instructions. Vietnam is producing the right skills. Thailand, Indonesia and Malaysia lag behind, despite being wealthier"[34] . Vietnam is currently experiencing a tension between fast economic transformation and a not so fastly changing labour force. This creates tensions and shortages in

34 https://www.economist.com/leaders/2016/08/04/the-other-asian-tiger

the labour market by which businesses experience shortages of skilled labour in key economic sectors while universities face the problems connected to fast expansion.

In this regard, Vietnam should develop well-lubricated channels to match the competencies and skills of University graduates to the needs of firms and enterprises. The skills of new graduates must be those demanded by enterprises, and both University undergraduate and graduate students should be aware of current and emerging job opportunities. Facilitating this two-way dialogue of businesses and universities is the main goal of the Erasmus+ Lab-Movie Project. This will be done by establishing Labour Market Observatories (LMO) in Vietnam Universities, sharing the experience and good practices of three European countries, i.e., Italy, Spain and Portugal. In this report, we have analysed the Vietnam's economy and labour market evolution during the last three decades. Then, we have focused on the 3 economic sectors chosen for initial development of the LMO in the context of the overall economy: tourism, telecommunications and information technology, and agrifood. These sectors have been selected because they are all strategic and fast-growing sectors that might potentially employ many new University graduates. The third section of this report has been devoted to explore and describe the data sources currently available for a business-oriented analysis by sector. This is a basic output for the development of the project since the LMO should be based on developing mechanisms to ensure communication with businesses in the respective sectors. These mechanisms, including a sample survey of enterprises in the different sectors, should build on current knowledge and practices.

Besides these general conclusions, there are also specific conclusions at the sector level that will help in the next steps of the project.

2. Tourism sector

Tourism is a sector experiencing fast growth with the advantage that it reaches many of the less developed parts of the country. In general, human resources in the tourism sector have been limited in quantity and inadequate in quality because their training has not met international quality standards. Although training has recently been supported, it is still in the process of reaching unity and synchronization. The currently implemented methods of training are not as flexible and diverse as it would be desirable. In particular,

- Tourism human resources are not yet equipped with sufficient knowledge, skills, professional techniques, and technical skills, especially communication skills, spirit and attitude to serve tourists, foreign language skills and cultural behaviour.
- Experts in the field of tourism, especially in the specialized fields, are insufficient; the number of teachers and lecturers in tourism training is still insufficient.
- - There are not well-defined national standards for the quality of human resources in tourism for each job position; training programs in the field of tourism have not been standardised either regarding the output of training institutions or concerning the input of tourism employers.

3. IT & Telecommunication sector

The fourth industrial revolution has brought new growth engines to Vietnam, in general, and to the information technology, electronics, and telecommunication enterprises, in particular. According to our report, information technology, electronics and telecommunications in Vietnam are in a high development trend, although the telecom industry has saturated in recent years. From 2019 until now, there have been signs of prosperity and we continue to forecast new developments in the coming time in harmony with the development of national key programs, such as building smart cities and start-up innovation, etc.

Overall, the number of businesses registered to operate in these areas has increased each year, being the most prominent the number of enterprises in the field of information technology - electronics and telecommunications. The growth has been driven by an export-oriented IT industry that has become a major player in the world’s market and which is driving subsequent growth in IT services. Along with this the number of employees working in this field is growing very fast. Since 2019, there is a serious shortage of personnel in the country, and the annual number of graduates is still not enough to meet the needs of businesses. The recruitment trend is increasingly geared towards in-depth expertise, requiring candidates to have the professional experience, etc. According to estimates of the *Ministry of Industry and Trade* in 2020, the number of enterprises requiring recruitment of experienced personnel accounts for 78%, while only 10% of businesses have the need to recruit personnel that has just graduated. This has led to an asymmetric situation between vocational training in schools and actual needs of enterprises, with most businesses being forced to conduct retraining after recruitment to have sufficiently trained personnel to meet the needs of the job.

These shortage of skilled labor in the Information Technology - Electronics and Telecommunications sector affects the whole country, and in particular, Ho Chi Minh City, its most dynamic hub. In the period of 2019-2025, information technology - electronics and telecommunications will still be a highly prioritized development area in the city, and it is forecasted to be a strong line of development within the current global integration period.

4. Agrifood sector

Vietnam is a transitioning economy that is moving from agricultural, forestry, and fishery production to industry and construction, including food and beverage manufacturing, and services. Therefore, over recent years there has been a decrease in the labour force at the agricultural, forestry, and fishery sectors and a subsequent increase in the industry and construction and service sectors. This has been made possible by an internal restructuring process enhancing productivity so that output has increased while the labor force shrinked. At the same time, agri-food industry faces the challenges of developing new production lines of increased added-value oriented both towards exports and the local market. In contrast to the two other pilot sectors, the agri-food sector made up traditionally an important share of the industry and the country's exports. While this share is going down with the rise of newer dynamic sectors, the agrifood sector needs to reposition itself from an atomized low-skill industry towards a modern technologically aware sector that serves the country's and the world's demands in a context of sustainable development. This means new labour needs and opportunities. Hanoi and the Red River delta is an area where food and beverage manufacture has been growing and creating new jobs.

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