Education and computer skill enhancing for Vietnam laborers under industry 4.0 and evfta agreement

Dinh Tran Ngoc Huy, MBA, Banking University HCMC, Ho CHi Minh city Vietnam - International University of Japan, Niigata, Japan, dtnhuy2010@gmail.com

Pham Ngoc Van, PhD, Thai Nguyen University of Economics and Business Administration (TUEBA), Vietnam, phamngocvan.kt@tueba.edu.vn

Nguyen Thi Thu Ha, PhD, Thai Nguyen University of Economics and Business Administration (TUEBA), Vietnam, ntthuha@tueba.edu.vn

Abstract- Under EVFTA signed between Vietnam and EU, and under Industry 4.0, Vietnam labor market need to analyze benefits from EVFTA and recognize need for educational programs to prepare for their skills and capabilities to adapt to new job opportunities from Europe.

This study uses mainly qualitative analysis, synthesis, inductive methods combined with dialectical materialism methods.

We figure out that Vietnam labor market need to be trained more to increase higher competitiveness compared to other Asian countries. Their skills such as group work, individual and computer capabilities need to be improved during and to prepare for jobs in EVFTA.

Last but not least, there is educational policy implications and we can expand our researches in more detailed educational programs.

Keywords: Vietnam laborers, education solutions, industry 4.0, EVFTA.

I.   INTRODUCTION

The EVFTA is a comprehensive, high-quality, and balanced agreement of interests for both Vietnam and the EU, which also noted the difference in development levels between the two sides. EVFTA will be a huge boost to Vietnam's exports, helping to diversify markets and export products, especially agricultural and aquatic products as well as Vietnamese products that have many competitive advantages. The commitments to provide fair, equal, safe and adequate treatment of each other's investments and investors in the IPA will also contribute positively to building a legal and investment environment. Therefore, Vietnam will attract more investors from the EU and other countries.

To meet demand from companies under EVFTA and Industry 4.0, This paper will analyze and suggest education solutions for Vietnam labor market as it is necessary to improve their skills and productivity when participating EVFTA.

This paper structure with introduction, research questions, literature review, method, main results, discussion and conclusion.

Research Questions

Question 1: what are benefits from EVFTA?
Question 2: what are educational issues for Vietnam labor market?

II.   LITERATURE REVIEW

Bensghir et al (2018) said Within companies, major functional areas developed their own MIS capabilities; often these were not yet connected: engineering, manufacturing and inventory systems developed side by side sometimes running on specialized hardware. With some of its characteristic elements such as IoT (Internet of Things), digital twin simulation models, cyber-physical systems, advanced robots, big data analytics, cloud platform and virtual/augmented reality, Industry 4.0 originally was only used for manufacturing; it is de facto going further. Today, we clearly see how the several

parties which were involved in Industry 4.0 themselves move it to smart transportation and logistics, smart buildings, smart healthcare and even smart cities. This book aims to provide relevant theoretical frameworks and the latest empirical research findings in the area of MIS with the scope of Industry 4.0. It is written by and for professionals who want to improve the general understanding of the strategic role of Industry 4.0 in the distributed business environment and the necessity to protect and properly utilize the key elements of Industry 4.0 at different levels of organizations as well as in society.

Then, Heinrich (2019) mentioned According to the specialists, the third of all skills that were required in 2015 will not be required by 2020. (8) Skills such as creativity, complex problem solving, critical thinking as same as social and cognitive skills will play a key role. (8) It is a responsibility of companies, governments, universities and the people itself to prepare themselves for the change that will affect us within the industry 4.0 It is completely on society to determine whether the outcome will be optimistic or pessimistic.

Nga, Huy, Minh and Dat (2020) stated European-Vietnam Free Trade Agreement (EVFTA) is a comprehensive and high-quality agreement which ensures opportunities and challenges on developing trade for both Vietnam and the EU as well as boosting economy over the integrated period. Automobile is one of the most important goods exports in the EU and is one of the goods imports in Vietnam that experiences a significant decrease of tariff after the trade deal takes effect. The result of the tool suggests that after the trade agreement takes effect, the European nations would boost export turnover of automobile to Vietnam by the declination of tariff to 0%. To be specific, Germany shows that its export turnovers surges compared to other nations, the subsequent ranks are Sweden, Italia and Slovakia. The SMART tool also claims that nations which are not in the European Union would have a negative growth of automobile exports to Vietnam after the agreement has effect.

Last but not least, Grencikova et al (2020) have shown that new technologies will increasingly displace physical labor in particular, and emerging jobs will put ever-increasing demands on human intellect. The conclusions from our findings can be the basis for the creation of educational programs not only within the workplace but also in the educational system in Slovak Republic.

III.   METHODOLOGY

Method and Data

The method used in this research is qualitative analysis, synthesis, inductive methods and explanatory research. The analysis process was carried out by using historical information and with historical and dialectical materialism methods.

IV.   MAIN RESULTS

EVFTA Impacts Analysis on Vietnam Labor Market

Benefits Analysis

EVFTA benefits	*Note*
The EVFTA Agreement will create more job opportunities for workers. This agreement is expected to promote trade between Vietnam and the EU, helping to further expand markets for Vietnam's exports, especially products with strengths such as tropical agricultural products, seafood, and footwear sandals, textiles, leather goods, furniture, ceramics, glass, plastic and rubber products, etc. For example, with respect to textiles, within 5 years from the date of entry into force of the Agreement, the EU will tariff elimination with 77.3% of Vietnam's export turnover, the remaining 22.7% of turnover will be eliminated after 7 years.	Vietnam laborers will approach to more job chance
Thus, these industries will have the opportunity to grow and expand, thereby increasing the demand for human resources. Even in preparation for taking advantage of the incentives in the Agreement, manufacturing enterprises have had plans for the expansion and resource enhancement in advance. According to forecasts by the Institute of Science, Labor and Social Affairs, the Ministry of Labor, Invalids and Social Affairs, when EVFTA comes into effect, the workforce in some industries will increase, for example in the mining industry increase about 3.41% / year; textile increased 1.53% / year; garment increased slightly by about 0.38% / year. Some other industries with higher annual labor growth	Human resources solution will improve under EVFTA

than today are water transport (3.7%); metal production (2.65%), machinery and equipment manufacturing (2.49%), etc. Not only the number of jobs increases, but it is expected that the income of workers will also improve during the period. The period 2020 - 2035, in which the highest increase is the group of low-skilled workers. Average salary of Vietnamese workers is expected to increase by 3% thanks to the impact of this Agreement.

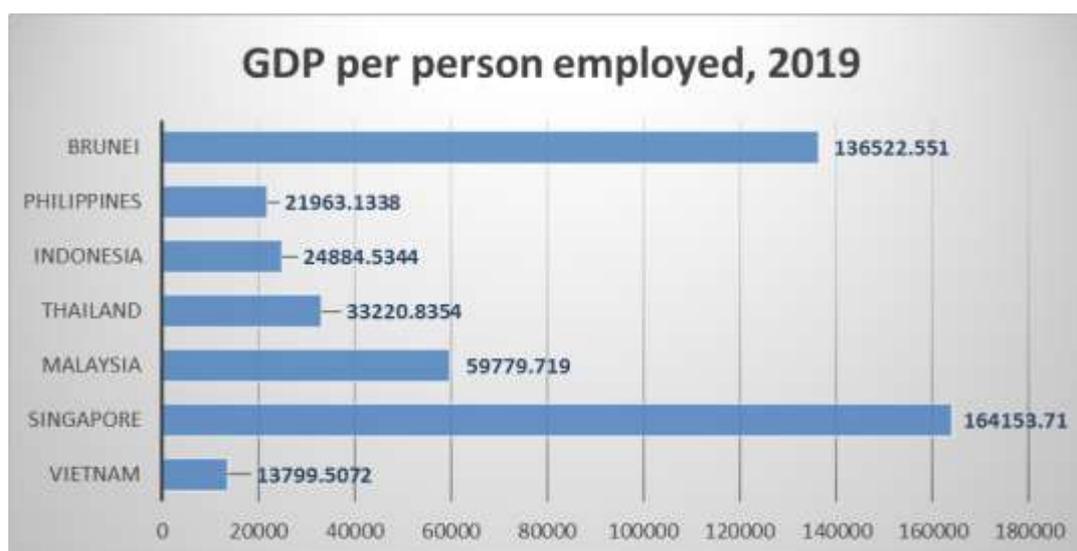| Background	
Besides, Vietnamese workers will have many opportunities to compete and improve skills. The EU places many requirements on product quality as well as strict production processes. This pressure will be transferred by the business to the employees, creating opportunities for employees to learn to exchange experiences or forcing employees to rub and improve their skills.	Employment interaction under EVFTA will help laborers to increase their skills.

Education Issues for Vietnam Labor Market

Background	*Educational issues for laborers*
In addition, in Vietnam, the issue of the use of child labor is not common, but in informal and rural areas, this phenomenon is still occurring. According to the statistics of the Ministry of Labor, Invalids and Social Affairs in 2019, the total number of children nationwide is 26.37 million, of which 1.442 million children are exploited (including using child labor. against the law). There are many shortcomings in the control and handling of child labor-related violations, especially in the informal economy, in which the detecting and intervening capacity of authorities, especially Local authorities and labor inspectors are limited. Vietnam also faces difficulties such as limited awareness of families and children, employers and labor brokers, and lack of understanding of laws and policies related to child labor.	Train child labor to protect themselves, and to have enough knowledge to work
Awareness of parents, families, children, employers and labor brokers on child labor is still limited. Poverty is still considered the main reason leading to children's participation in economic activities and thus leading to the risk of child labor in contravention of the law. Resources for investment and funding allocation for the implementation of child labor prevention and reduction programs are limited from the central to local levels. Some localities do not allocate or allocate very limited funds to implement the program. The child protection service system is incomplete and inconsistent, so the implementation and implementation of the Program still face many difficulties...	Create jobs for child labor and teach them to follow labor laws
The signing EVFTA will open up great opportunities for the Vietnamese economy but also create great challenges for the labor market. The business characteristic of European enterprises is based on technology, so the labor requirement of these enterprises is not simply cheap labor, but requires skills and expertise. However, the current quality of Vietnamese labor generally does not meet the development requirements of businesses in the context of international integration and Industry 4.0.	Laborers need to improve computer skills during industry 4.0

V. DISCUSSION

The limitation in the quality of Vietnamese labor over the years is clearly reflected in economic indicators, in particular, this is clearly reflected in the GDP per capita of the employed worker. The World Bank has annual reports on this issue by countries as well as country-by-year comparisons.
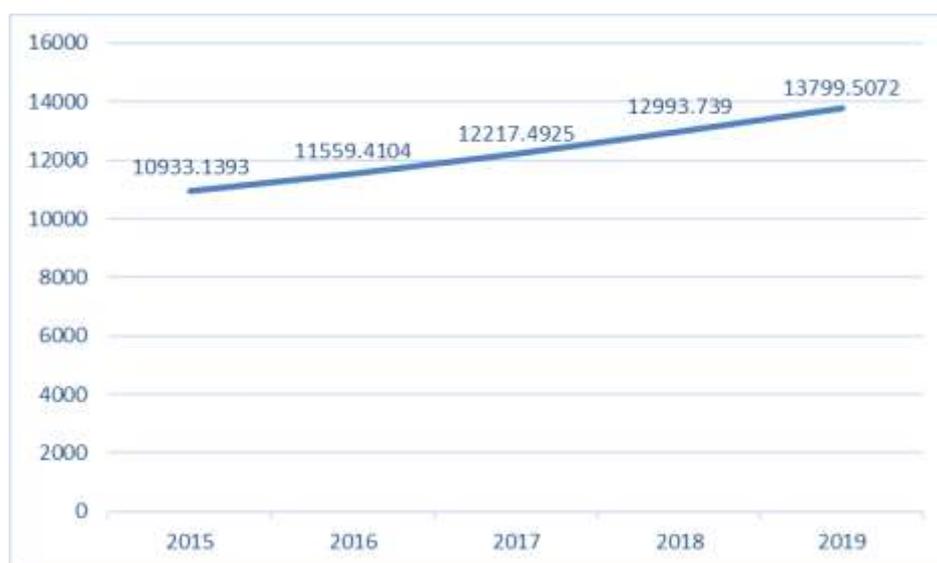
Source: World Bank, 2020

Calculated at constant prices in 2017, the average GDP per employee in 2019 reached US $ 13799,502, the lowest compared to countries such as Brunei, Philippines, Indonesia, Thailand, Malaysia and Singapore. Among these countries, Singapore achieved this target with the highest average GDP value of 164153.71 USD / employee with a job. This result is largely the result of the labor productivity of each country.

FIGURE 2. GDP per person employed of Vietnam, 2015 – 2019 (constant 2017 PPP $)

Source: World Bank, 2020

Table 1. Vietnam's GDP per person employed of Vietnam compared to other countries' in the ASEAN, 2019 (%)

	2015	2016	2017	2018	2019
Singapore	7.34	7.59	7.68	7.91	8.41
Malaysia	20.63	21.15	21.52	22.25	23.08
Thailand	37.76	38.31	38.68	39.95	41.54
Indonesia	49.62	50.59	52.43	54.11	55.45
Philippines	61.16	61.76	59.95	61.29	62.83

Brunei	7.97	8.67	9.1	9.8	10.11

Source: World Bank, 2020

When comparing Vietnam's average GDP per employed worker with some other Asian countries in the period 2015 - 2019, if this average GDP value of each country is 100%, the results are processed. The data provided by the World Bank shows that the average GDP per employee employed by Vietnam accounts for a very low percentage compared to the other countries compared, especially far behind Singapore and Brunei. However, this average GDP value of Vietnam also has a clear growth (Figure 3) and the ratio compared to the average GDP value of other countries compared also tends to increase over the years.

As such, Vietnam's labor market is facing the challenge of "low quality of labor" - a barrier for businesses to take advantage of opportunities from EVFTA. One of the main reasons is the low level of Vietnamese workers' qualifications and qualifications, reflected in the low rate of trained workers, inadequate training structure, and shortage with high skills, the gap between vocational education and labor market demand remains large.

Table 2. Proportion of workers working in the trained economy by professional and technical qualifications of Vietnam, 2015 - 2019

Unit: %

Targets	2015	2016	2017	2018	2019
Total	*20.4*	*20.9*	*21.6*	*22.0*	*22.8*
Primary	3.3	3.2	3.5	3.6	3.7
Colleges (mid)	5.4	5.3	5.3	5.2	4.7
Colleges	3.0	3.2	3.3	3.7	3.8
Form universities	8.7	9.2	9.5	9.5	10.6

Source: Vietnam Statistical Yearbook 2019

Specifically, the rate of trained workers aged 15 years and over who are working in the economy has gradually increased over the years, but by 2015 the rate of workers with diplomas and certificates only reached 20.4%; in 2019 it will reach 22.8%. Thus, the whole country currently has up to 43.05 million workers (accounting for 77.2% of the total number of employees) who have not been trained to reach a certain professional and technical level.

In addition, the labor structure by training qualifications of our country is still unreasonable, in 2019 the correlation ratio between university and higher level - college - intermediate level - elementary, respectively: 1-0, 35-0.44-0.34, this warns of a shortage of practical engineers and high-level technical workers.

In addition, unemployment among young workers or the mismatch between job and training level is quite common. A large part of employees have not received training on industrial labor discipline, lack of teamwork knowledge and skills, lack of ability to cooperate and bear risks, and hesitate to promote initiatives. There is a shortage of high-skilled labor in education, especially new technology skills, 4.0 technology. Science and technology foundation is not high, especially in terms of investment and technology application. The motivation for innovation is lacking and weak.

VI.   CONCLUSION

Governmental agencies need to open more educational programs to prepare for Vietnam laborers to enter EVFTA, as well as for child labor.

Vietnam laborers need to be educated more on teamwork skills, individual skills and computer skills to adapt to new opportunities and employment under EVFTA and Industry 4.0.

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