Industrial Structure and Employment Structure Coordination In Viet Nam

Do Hai Hung[1*] Juntao Zhang[2] Sultan Sikandar Mirza[3]

1. School of Public Management, Dongbei University of Finance and Economics, 217 Jian Shan Street, Dalian 116021, China

2. Office of Teaching Affairs, Dongbei University of Finance and Economics, 217 Jian Shan Street, Dalian 116021, China

3. School of Accounting, Dongbei Universiry of Finance and Economics, 217 Jian Shan Street, Dalian 116021, China

Abstract

A coordinated development between industrial structure and employment structure is indeed an important problem in every country. A reasonable industrial structure can promote the benign development of employment structure, the quality of employment structure has laid a solid foundation for the transformation and upgrading of industrial structure. This paper uses discrete ratios of structure and the coordination coefficients of the industrial structure and employment structure to calculate Vietnam's industry structure and employment structure coordination for the period of 1995-2013. The results have shown that the Vietnamese industry structure and employment structure from 1995 to 2013 is in a state of imbalance. The overall coordination is bad. Coordination coefficients are showing obvious changes in volatility.

Keywords: Industrial structure, Employment structure, Coordinate analysis

1. Introduction

Industrial structure and employment structure are the main compositions in the economic structure. Real-time adjustments of industrial structure and employment structure stand for the need for economic development and social progress. An optimal adjustment in the industrial structure and employment structure are the need for economic development and social progress. The adjustment of industrial structure is the reconfiguration of material resources while the adjustment of employment structure is the reconfiguration of human resources. For a healthy economy, a long term development of industrial is needed and employment structure to adjust each other. The adjustment of industrial structure causes an inevitable change of employment structure while the evolution of employment structure in a certain extent depends on the adjustment of industrial structure. Vietnam's economy is recovering from the recent financial crisis. Vietnam hasintroduced economic reforms and establishedit as a center of the national development strategy to implement macroeconomic controls to make the economic process smooth and sustainable. At present, economic development of Vietnam's economy is on a fast track t but still many problems exist to keep developing Vietnam's economy as it needs to upgrade by promoting coordinated development of industry structure and employment structure. The important guarantee of the health of the economic developmentin Vietnam is the optimization and improvement of industrial structure and work on the basic way to full employment. Reasonable industrial structure can not only promote the benign development ofemployment structure, but also canquality employment structure lay a solid foundation for thetransformation and upgrading of industrial structure.

According to Qingfeng Wang (2009), in the process of economic development, industrial structure and employment structure reflect two important indicators of socioeconomic development stage, while the performance of the dialectical relationship between interdependence and coordinate their relations with otherwise is a measure of an important indicator of economic health . 17th century British economist Petty. W. And Clark. C. pointed out that the relative income gap between different industries will lead to the transfer of labor from low-income to high-income of industry (ZhangPing and Shuhua Wang-2009). According to Chenery and Syrquin (1989),per capita GNP and population as exogenous variables use the regression equation to calculate the data sample for the countries to get the standard structure includes: GDP structure as an indicator of the "standard structure", the labor force as an indicator of standard structure and labor productivity as an index of Standard structure. Chenery&Elkington (1970) and Syrquin (1988) found in the study of development trends in developed and developing countries that developed countries are in the process of industrialization with the share of the agricultural and industrial production shift which corresponds to the transfer of agricultural labor to

the industrial sector.It can be assume that agricultural output and labor force to industrial conversion and synchronization are basically the same.But in developing countries,the output value structureis in front of the employment structure conversion. Brian McCaig and Nina Pavcnik. (2013) document significant gaps in labor productivity between agriculture, manufacturing, mining, and services in a large set of developing countries, and substantial heterogeneity in the contribution of structural change to the aggregate economic performance of these economies during the past four decades. Reallocation of labor across sector's enhanced aggregate labor productivity in Asian economies, while decreasing it in Latin American and African countries within their sample. More recently, according to Tuyet Tran and Tinh Doan (2010) document, although Vietnam has made a significant progress inchanging economic structure in which the share of agricultural contribution in GDP hasdramatically decreased over the last two decades, the employment structure changed slowly. Consequently, majority of labour force is still in the agricultural sector .

This article has taken the industrial structure and employment structure coordination degree of deviation coefficient method and structure analysis.The discrete ratio of structure and the coordination coefficient of the industrial structure and employment structurehave been used which estimates of industrial structure and employment structure coordination during the 1995-2013 in Viet Nam. Time and space from the perspective of the Vietnamese industrial structure and employment structure measure overall coordination. At the end, this paper presents proposal to promote coordinated development of industrial structure and employment structure in Vietnam.

2. The Change Industrial Structure and Employment Structure Analysis

From 1996,the Vietnamese Government proposes vigorously to promote the country's industrialization and modernization. In 2001, Vietnam determined to establish a socialist-oriented market economy and identified three strategic priorities, which are the center of industrialization and modernization, the development of various economic sectors which play a dominant state-owned economy and supporting the establishment of the management system of the market economy. After 15 years of innovation, Vietnam's economy has maintained rapid growth. From 1995 to 2010, average annual GDP growth was 6.9%. There are certain factors like the coordinated industrial structures, continuous improvement to the level of openness, the basic form of state-owned economy as the leading form andpattern of the common development of various economic sectors, altogether helped to expand the Vietnamese economy.

From 1995 to 2013, there was a rapid development in various industries of Vietnam economy. Vietnam's GDP on 2000 year is 441646.0 billion VND (1 USD = 14,157 VND on 2000), while on year 2013, Viet Nam's GDP is 3584262.0 billion VN ((1 USD = 21.15 VND on 2013). Among in the first industrial output value is 6587.79 billion VND. The second industrial output value is 13730 billion VND. The tertiary industrial output value is 15524.83 billion VND. The values of the ratio of the primary industry was 18.38%, the secondary was 38.31% and the tertiary was 43.31%. The output values of three industries changes on year 2004, the value of the ratios of the primary industry was 21.81%, the secondary was 40.21% and the tertiary was 37.98%. Overall, it can be seen, the output value of the primary industry reduced, the output value of the secondary industry has increased over the previous, but the tertiary industry has shown basically a low rate of the change. From the time of reform and opening up the output value of the primary industry situation is declining as compared to the overall with the promotion of overall economic development, but the output value of secondary industry is rising proportionally. From year 1995 to year 2004, the proportion of the tertiary industry output value at first declined, then the rate of change since 2006 the output value has become better but still a lower value than average. The output value structure showing "321" pattern. (Table 1)

Table1: Vietnam industrial and employment structure

Year	Industrial structure (%)			Employment structure (%)		
	Primary Industry	Secondary industry	Tertiary Industry	Primary Industry	Secondary industry	Tertiary Industry
1995	27.18	28.76	44.06	71.2	8.5	20.3
1996	27.76	29.73	42.51	70.7	8.9	20.4
1997	25.77	32.08	42.15	70.1	9	20.9
1998	25.78	32.49	41.73	69.6	9.1	21.3
1999	25.43	34.5	40.07	68.9	9.2	21.9
2000	24.53	36.73	38.74	64.4	10.1	25.5
2001	23.24	38.13	38.63	63.6	10.9	25.5
2002	23.03	38.49	38.48	58.7	11.1	30.2
2003	22.54	39.47	37.99	56.9	12.6	30.5
2004	21.81	40.21	37.98	58.7	12.5	28.8
2005	19.3	38.13	42.57	57	15.9	27.1
2006	18.73	38.58	42.69	54.3	18.2	27.5
2007	18.66	38.51	42.83	52.9	19	28.1
2008	20.41	37.08	42.51	52.3	19.4	28.3
2009	19.17	37.39	43.44	51.6	20.1	28.3
2010	18.89	38.23	42.88	48.8	21.8	29.4
2011	20.08	37.90	42.02	48.4	21.6	30.4
2012	19.67	38.63	41.70	47.4	20.9	31.7
2013	18.38	38.31	43.31	46.8	21.3	31.9

Source: Viet Nam Statistical Yearbook 2015

At the same time, the proportion of the labor force of three industries in Vietnam in 1995-2013 has also undergone a big change, apparent that a significant decline in the proportion of primary industry employment, a decline of 71.2% to 46.8% from 1995 to 2013. Secondary industry employment increased, increase of 8.5% to 21.3% from 1995 to 2013. From year 1995 to year 2013, tertiary industry increased from 20.3% to 31.9%. Labor structure showing a "132" pattern (Table 1).

With the economic development and substantial GDP increase, still the employment figure of the primary industry is still high which caused by too much surplus labor. Currently, the employment structure in Vietnam Industry has transfer trends among primary industry in the secondary industry and to tertiary industry. Therefore, the secondary industry and tertiary industry are unceasing rising labor.

Based on the above analysis, it can be seen that changing trends of Vietnamese industrial structure and employment structure are basically in line with the general rules of industrial structure evolution, but substantially the same as the direction of change, but there are some changes in the magnitude and extent which are not same. The change of employment structure lags behind changes of the industrial structure.

3.Vietnam Industrial Structure and Employment Structure Coordination Measurement Methods

3.1. Discrete ratio of structure

3.1.1. Method Description

The discrete ratio of structure is an economic indicator used to examine the status of symmetry between the employment structure and the output value structure of each industry. It is used in various industries as a percentage of GDP and employment in the industry as a percentage of the difference between the ratio of 1 indicates.

The computational formula:

$$\frac{S_i}{S} = \frac{Y_i / Y}{L_i / L} - 1$$

$\frac{S_i}{S}$: Discrete ratio of structure, Y : GDP Y_i : The output value of the industry "i"

L_i : Employment figure of the industry "i" L : Total employment

When the discrete ratio of structure is a zero value, the industrial structure and employment structure of that industry reach the equilibrium status of the total. When the discrete ratio of structure is closer to zero value, the industry should absorb more labor to make the development of the industry and its ability to absorb labor consistently. When the discrete ratio of structure is less than zero value, the industry exists a lot of hidden unemployment.

Table 2. Discrete ratio of structure of each industry

Year	Discrete ratio of structure		
	*Primary Industry	*Secondary industry	*Tertiary Industry
1995	-0.618	2.383	1.171
1996	-0.604	2.348	1.084
1997	-0.633	2.568	1.019
1998	-0.63	2.574	0.958
1999	-0.631	2.762	0.826
2000	-0.618	2.633	0.517
2001	-0.635	2.495	0.517
2002	-0.608	2.455	0.277
2003	-0.604	2.143	0.224
2004	-0.628	2.217	0.317
2005	-0.632	1.28	0.345
2006	-0.624	1.285	0.384
2007	-0.615	1.18	0.359
2008	-0.575	1.058	0.337
2009	-0.594	0.99	0.353
2010	-0.618	0.823	0.451
2011	-0.585	0.78	0.386
2012	-0.584	0.823	0.33
2013	-0.607	0.808	0.353

*Primary industry= agriculture,forestry, hunting and fishing.

*Secondary industry= mining and quarrying,manufacturing, construction and public utilities.

*Tertiary industry= wholesale and retail trade,hotels, restaurants, tourism, community, social, government services, banks and other financial.

3.1.2. The Results

As can be seen from the table 2 that from 1995 to 2013 the primary industry of the discrete ratio of structure has been less than zero value ranges from -0.618 to -0.628. It is the output value of that industry which means it absorbs labor serious mismatch and there exists a lot of surplus labor. Employing labor force to keep the situation in the high proportion but the proportion of the output value of that industry has shown a sharp decline.

From figure 1 it can be seen, the discrete ratio of the structure of the primary industry is small fluctuations, basically not much change. However, the discrete ratio of the structure of the second industry has been greater than zero value, it is employed in the secondary industry is clearly insufficient. For 1996 is 2.348 which lower than 2013 which is 0.808. But, discrete ratio of structure curve of the secondary industry can be seen (Fig. 1), it is becoming closer to zero from 2005. It is explained industrial structure and labor structure of the secondary industry more and more small, it has absorbed the maximum amount of the labor force potential. With a discrete ratio of structure in the primary industry is still relatively good.

The discrete ratio of structure in the tertiary industry and the secondary industry with the primary industry of the contract are the best. The discrete ratio of the structure of the tertiary industry is 0.353 in year 2013. Space to absorb the labor force is relatively large. In short, the tertiary and the secondary industry are better than the primary industry, there is a huge to absorb surplus labor potential of the primary industry.
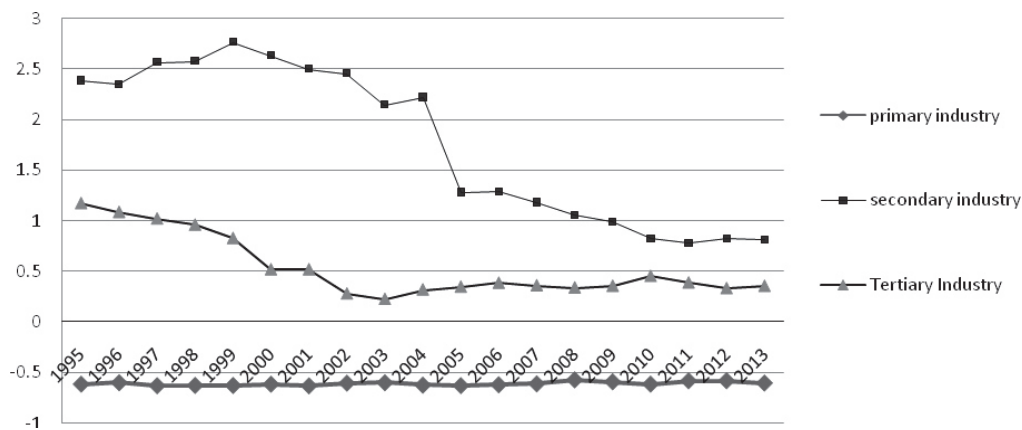
Figure 1: Discrete ratio of structure figure in Viet Nam

From the international standard rules (Petty and Clark, 1975), changes in the industrial structure will inevitably lead to the changes in the employment structure, and that the industrial structure and employment structure approximately equal to the rate of change, this is a necessary prerequisite for a country's economic stability and harmonious development. From 1995 year, the three industrial structures have taken place major changes. The output values of the three industries have formed a "231" of the situation. But, the employment structure of the three industries have been found "132". This shows that the value of the industrial structure and employment structure of the three industries in Vietnam exists a serious deviation. The labor of the primary industrious is too large, but the labor of the secondary and tertiary industry is relatively small. At this time, while the labor in the primary industry occupied is the highest but the output value proportion occupied is the smallest.

Instead, the output value proportion of the secondary and tertiary industry has yet been very high.

3.2. Coordination coefficient calculation

3.2.1. Method Description

Coordination coefficient of industrial structure and employment structure from the overall perspective reflect the balanced development of the industrial structure and employment structure. The formula of coordination coefficient is:

$$H_{se} = \frac{\sum_{i=1}^{n}(S_{i.}E_{i})}{\sqrt{\sum_{i=1}^{n}S_i^2 \sum_{i=1}^{n}E_i^2}} \quad 0 \leq H \leq 1$$

H_{se}: Coordination coefficient of industrial structure and employment structure describe the extent of regional industrial structure and employment structure coordinated development or balanced degree.
S_i: The output value structure of the industry i.
E_i: The employment structure of the industry i.
If H_{se} is approach to 0 value, industrial structure and employment structure coordination in a country or a region is relatively poor. It shows industrial structure and employment structure are not balanced. If Hse is approach to 1 value, industrial structure and employment structure have good coordination, it is balanced state.

3.2.2. The Results

Vietnam's industry and employment data have been analyzed from 1995 to 2013 by using the method of coordination coefficient that measures the industrial structure and employment structure, coordination coefficient in Viet Nam as shown in table 3, figure 2.

From table 3 it can be seen that on 1995 coordination coefficient of industrial structure and employment structure in Vietnam are only 0.6965. But on 2013, industrial structure restructuring and upgrading. Coordination coefficient is 0.8329. It can be seen that conditions have improved a lot since 1995. After analyzing, it can be seen from table 3 that coordination coefficients has been hovering between 0.6-0.9 which is relatively a low level. It is in disequilibrium state.

From figure 2, it can be seen, on 1995-2013 coordination coefficient of industrial structure and employment

structure in Vietnam showed fluctuations. Industrial structure and employment structure coordinated have shown some differences. There are two reasons: the first is change in national industrial policy adjustment period caused by one of the industrial structure, the second is the relative adjustment of industrial structure, lag of labor transfer. Since the reform and opening up in Vietnam, after 1995, Vietnam's economy system change to the market economy system.

Table 3: 1995-2013 coordination coefficient of industrial structure and employment structure

Year	H_{se}	Year	H_{se}	Year	H_{se}
1995	0.6965	**2001**	0.7027	**2007**	0.7681
1996	0.7439	**2002**	0.7435	**2008**	0.7981
1997	0.7207	**2003**	0.7541	**2009**	0.7902
1998	0.7274	**2004**	0.7268	**2010**	0.8176
1999	0.6892	**2005**	0.7285	**2011**	0.8362
2000	0.7145	**2006**	0.7526	**2012**	0.8381
				2013	0.8329

Figure 2: 1995-2013 coordination coefficient trends of industrial structure and employment structure in VietNam

After 1999 year, Vietnam joined the association of Southeast Asian Nations, many foreign companies began to invest in Vietnam. Because of the rapid development of township enterprises, state-owned enterprises also developed which facilitated full germination and rapid growth of the economy. On year 1999 coordination coefficient is 0.6892 but in the year 2000 it is 0.7145. Since that time coordination coefficient is showing continuous improvement. The outbreak of the Asian financial crisis in 1997 impacted on the coordination coefficient of Vietnam industrial structure and employment structure very adversely.Coordination coefficient reached the stage of the lowest point 0.6892 for year 1999. And almost the similar case at the time of 2007-08 financial crisis. And many private companies and some state-owned enterprises have been bankrupt, which induced labor unemployment, many workers of enterprise laid off, so on 2009 the coordination coefficient is only 0.7902. However, since year 2010, the overall coordination coefficient of Vietnam industrial structure and employment structure is rising trend, poor coordination coefficient of the situation is gradually improved. I think the Vietnamese industrial structure and employment structure in the primary coordination state.

4 . Conclusions

Based on the method to measure the coordination of industrial structure and employment structure, including the method of discrete ratio of structure and the method of coordination coefficient, is able to grasp and understanding coordination coefficient and balance of Vietnam industrial structure and employment structure.

Since the reforms and opening up in Vietnam, coordination coefficient of industrial structure and employment

structure showed volatility, in long term time, industrial structure and employment structure was in the imbalance status. From 2009, coordination coefficient evident rising trend while industrial structure and employment structure is gradually improving imbalances status.

Based on the results of overall coordination measurement methods of Vietnam industrial structure and employment structure, the first is to continue to promote industrial structure optimization. The second is gradual need of up-gradation for the capital-intensive industries and labor-intensive industries and the relationship between technology advances and employment.

Currently, It can be generalized that the expansion of employment is also important for Vietnam's current and future mission. If in the future, the industrial structure and employment structure will be in the imbalance status. It is not only impeding further for restructuring of industrial structure, but also cause a serious unemployment problem. In addition, excess supply of labor in Vietnam, the development of labor-intensive industries conducive to solve the problem of labor force. At the same time the development of high-tech industries, Vietnam government needs to develop of competitive labor-intensive industries, help to fully absorb and exert of labor resources to realize high efficiency, the high-tech employment patterns and the labor-intensive employment patterns to co-exist development.

References

Qingfeng, Wang. (2009). Study on the measure of the coordination of industrial structure and employment structure in my country. Technology Management Research, vol. 29, 112-114.

ZhangPing and Shuhua Wang. (2009). Theory and Policy on Industrial Structure. Wuhan University Press Vol. 1, 17-19.

Syrquin.M and Chenery.H.B. (1989). Three Decades of Industrialization. The World Bank Review, vol. 3, pp.152-153.

Chenery, H.B, Elkington.H and Sims.(1970). A Uniform Analysis of Development Pattern. Harvard University Center for International Affairs. Economic Development Report. Cambridge, Mass. 148.

Chenery .H.B. (1988). Type of development: 1950-1970. Beijing: Economic Science Press.

Brian McCaig and Nina Pavcnik. (2013). Moving out of agriculture: structural change in Vietnam.

Tuyet Tran and Tinh Doan.(2010). Industrialization, economic and employment structure changes in Vietnam during economic transition. MPRA Munich personal RePEc Archive, 26996. 3-5.

Vietnam Statistics Offices. Vietnam Statistical Yearbook 2015.

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Academic conference: http://www.iiste.org/conference/upcoming-conferences-call-for-paper/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar