

# Industrial Upgrade, Vocational Ability and Migrant Worker Education and Training

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**Abstract** Economic structure adjustment, industrial upgrade, and demands of migrant workers for vocational ability are direct driving factors for migrant workers participating in education and training. Personal quality of migrant workers not only concerns their survival and development, but also concerns upgrade of modern industrial structure. From the perspective of industrial upgrade, vocational ability and mechanism of migrant worker education and training, this paper analyzes difficulties in migrant worker education and training. On the basis of the difficulties, it come up with some strategies and recommendations.

**Key words** Migrant workers, Education and training, Industrial upgrade, Vocational ability

## 1 Introduction

Improvement of population quality largely depends on education, and human capital is a decisive factor for labor transfer<sup>[1]</sup>. Migrant workers are mainstay of modernization construction, and their personal quality not only concerns their survival and development, but also concerns upgrade of modern industrial structure, construction of new socialist countryside, and solution of issues concerning agriculture, farmers and rural areas. Therefore, strengthening education and training of migrant workers is of great significance for social development.

In order to strengthen training of migrant workers, both central government and State Council of China have taken a series of measures and local government also actively issued and implemented corresponding policies and regulations. *The 12th Five-Year Plan and Outline for Medium and Long Term Educational Reform and Development Plan of the State* clearly stated that it is required to strengthen education and training of migrant workers and make effort to build study-oriented society and lifelong education system. In February, 2014, premier Li Keqiang specially held a standing meeting of State Council, deployed accelerating developing modern vocational education, and stated that developing vocational education is a strategic measure for promoting mode transformation, structure adjustment, people's livelihood improvement. Government at all levels should improve financial input mechanism, formulate and implement vocational school running standard in a classified way, and strengthen monitoring and evaluation, to make vocational education create talent dividend constantly for the country and society. These measures play a great role in promoting education and training of migrant workers. Besides, in some economically developed areas of the eastern China, although they are still major regions absorbing migrant workers, they are faced with

tremendous pressure of economic structural adjustment and industrial upgrade, and it is urgent to improve personnel quality. When migrant workers are brought under double pressure of employment and vocational development ability, their willingness to participate in education and training will become higher. Therefore, study of migrant worker education and training from the perspective of industrial structure and their dual demands will be of great realistic significance.

## 2 Mechanism of industrial upgrade, vocational ability and migrant worker education and training

Since the 20th century, global industrial structure has been changing rapidly, and constantly improving industrial structural optimization and upgrade have become important path for countries raising their international competitive power, and industrial structural adjustment becomes theme of economic development. In the world, the overall trend of industrial structure changes in some developed countries is decline of primary and secondary industries in gross national product (GNP), and rise of tertiary industry. Since the reform and opening-up, changes in industrial structure of China are basically similar to developed countries, but there are also stage characteristics of developing countries. The percentage of primary industry in GNP gradually declines, the percentage of secondary industry is basically stable, while the percentage of tertiary industry constantly rises.

Changes in industrial structure bring about changes in employment structure. Product structure and market demands with different industry types objectively require production element types and element combination method suitable for respective industry development, as well as allocation modes and types of production means. Since labor element is an essential production factor, its demands and allocation modes will determine employment structural mode of the region. Therefore, the phenomenon of employment structure always closely connecting with corresponding industrial structure is likely to happen in a particular area.

Received: July 10, 2016 Accepted: August 13, 2016

Supported by General Scientific Research Project of Zhejiang Provincial Department of Education in 2014 (Y201431789).

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In traditional labor intensive industries, capital size and technology content required in production process are relatively low, production types are generally living necessities, and corresponding market demand levels are not high. Generally, simple labor element can satisfy demands of industrial structure, thus corresponding employment structure is labor intensive employment structure.

By contrast, in capital intensive industries, it needs more capital input and human capital type labor element input, and products have high technology content. In the opinion of Wang Xiaolu, human capital quality and technological innovation are main inputs necessary for optimization and upgrade of industrial upgrade<sup>[2]</sup>. Optimization and upgrade of labor intensive industries need higher quality of human capital. Therefore, upgrade, adjustment and changes of industrial structure will lead to break of original element combination mode, labor employment structure will also change, and it will become an essential macro factor for changes of labor employment structure.

In market economy, factors influencing adjustment of product and industrial structure mainly come from internal pushing force and external pulling force. Internal pushing force is mainly efficiency of element output, such as capital, labor, and land output efficiency, changes in element allocation and combination modes. The internal pushing force will push evolution of products and industrial structure, especially in current economic new normal, distortion of element price will influence play of element efficiency and it is necessary to make certain transformation. Therefore, changes in industrial structure influenced by changes in element efficiency can be called efficiency-driving mode. External pulling force mainly comes from demands of external market, including product market and element market. Changes in market demands will bring about changes in industrial structure. Such changes in industrial structure can be called demand pulling mode.

In the efficiency driving industrial structure mode, human capital is an essential factor for changes. As a core element of modern economic growth, human capital has output effect of marginal income growth, and it will influence allocation effect of other resource elements, accordingly it will directly drive evolution of labor element structure and transformation of employment mode. In demand pulling type industrial structure mode, human capital plays a pulling role. The investment of human capital is a type of demand consumption, including investment in education, training, medical care, sanitation, health care, and circulation, related traffic and communication, it is combination of investment of these products. When human capital investment increases, it will stimulate investment demands of these products and change existing market supply and demand structure. In addition, human capital investment not only exerts a quantitative effect on development of industrial structure, but also exerts qualitative effect. It can raise market demand level and quality of industry and products, form "demand pulling type" industrial structure mode. Such mode objectively pulls changes in market demand structure of labor ele-

ments. There is not only changes in quantity, but also improvement in quality.

### 3 Existing difficulties

**3.1 Coexistence of "technician shortage" and "labor shortage"** Currently, China's economy is undergoing economic structural adjustment and industrial transformation, and new normal of economy is an essential characteristic of current economic development. Original extensive growth mode relying mainly on cheap labor, low cost and high energy consumption is gradually transforming to intensive production mode characterized by capital aggregation, industrial cluster, and technological progress. In the intensive production mode, it lays down higher requirements for labor quality and skills. Insufficient reserve of labor skill, shortage of skill training of original labor is difficult to satisfy demands of new industry for skilled personnel. What's worse, bankruptcy and migration of some enterprises and return of migrant workers lead to shortage in labor supply, and the labor demands of enterprises fail to be satisfied. Therefore, "technician shortage" and "labor shortage" seriously restrict economic development of China.

**3.2 Weak driving force of enterprises in participating in training** After the economy enters new normal, enterprises will face tremendous pressure of industrial transformation and upgrade, some small and medium-sized enterprises are reducing operating costs, pursuing higher profit, and not willing to invest much in vocational skill training of migrant workers in excuse of high flow and lack of stability of migrant workers. Besides, the income spillover frequently occurring in education and training leads to imbalance between investment and income of enterprises in providing vocational training for migrant workers.

**3.3 Low training quality** Through participating in education and training, migrant workers can learn some skills and knowledge and improve employment quality and ability. Besides, after receiving education and training, they can increase employment income and even increase their opportunity of promotion. However, some existing migrant worker education and training methods and means are relatively backward, mainly giving teaching with practical teaching and field teaching; theoretical infusion is the main method, but there is little heuristic teaching. Some training contents fail to keep up with industrial upgrade, structural adjustment and market demands. Some training contents become a mere formality, training depth is not sufficient. Although the number of migrant workers receiving education and training is gradually increasing, the overall training quality is not high. As a result, there is no fundamental change in overall employment quality of migrant workers, it is difficult to satisfy demands of new industries for high skilled talents.

**3.4 Imperfect education and training service system** Migrant worker education and training is a systematic project. It needs relatively perfect education and training service system, including organization system, institutional guarantee, information service, training content, and training methods. Nevertheless, ex-

isting migrant worker educations and trainings are always short, adaptable and fast. It takes a certain period to understand and digest training knowledge. Some needs practice and application. In fact, there is nearly no "after-sales service" after education and training. Some training organizations lose connection with migrant workers after completion of training. The supervision on education and training is not put in place. In consequence, migrant workers are still at a loss what to do in the face of new industries, new processes, and new equipment.

## **4 Path dependency of industrial upgrade, vocational ability and migrant worker education and training**

**4.1 Government should strengthen supervision on education and training of migrant workers** Improvement of migrant worker quality is the solution to issues concerning agriculture, farmers and rural areas, and important approach for building new socialist countryside. Government should undertake responsibility of implementing migrant worker education and training. As quasi-public goods, migrant worker education and training should be completed jointly by government, enterprises, training market, and migrant workers. Government, as the leader, should focus on planning of migrant worker education and training, establish coordination mechanism for interested parties, establish training effect evaluation mechanism, build migrant worker education and training demonstration base, and strengthen management of migrant worker training market and inspection and supervision of use of financial support funds. Besides, government can strengthen pre-job adaptation training and job improvement training through entrusted training, appointed training, order training, and joint training, to improve quality of migrant workers.

**4.2 Enterprises should increase input in migrant worker education and training** According to *Vocational Education Law of the People's Republic of China*, an enterprise shall, in light of its actual conditions, provide systematic vocational education and training for its own employees and for the persons to be employed. Adjustment of industrial structure lays down higher requirements for labor quality. More and more enterprises also realize the importance of workers for enterprise development and it is necessary to balance hard quality and soft quality of workers. Hard quality mainly refers to production skills of workers, while soft quality mainly refers to workers' communication, coordination, and management ability. Inter-disciplinary talent migrant workers with both hard quality and soft quality will make greater contribution to enterprise development. Therefore, many enterprises, especially some large and medium sized enterprises will invest more in training workers, such as internal training and outsourcing training, to better adapt to adjustment and upgrade of industrial structure.

**4.3 Training market should strengthen attraction of education and training programs** Currently, education and training market mainly consists of two parts: one is government specially designated training organizations, and the other is various commercial training organizations. Although most of these training organi-

zations provide many training and education programs, most training programs have little attraction. From the perspective of reform of the supply front, it is recommended to improve supply quality of migrant worker education and training programs, formulate individualized training schemes in accordance with characteristics of migrant workers, to fully stimulate their interest, and make them want to learn and become willing to learn. Besides, education and training organizations may actively cooperate with enterprises or government, establish benign interaction of industrial structure and talent demand information, take industrial upgrade as guide, talent structure as actual demands, develop diversified training resources, and guide migrant workers to learn skills and knowledge consciously and actively. Finally, it is recommended to provide migrant workers with corresponding training qualification certificate according to education and training conditions, so as to satisfy their short-term post demands and point out direction for successful career.

**4.4 Migrant workers should actively participate in education and training** Migrant workers participate in education and training is not only a type of self-input, but also a type of self-quality improvement. Besides, it is closely connected with adjustment of industrial structure and solution to issues concerning agriculture, farmers and rural areas. However, most migrant workers lack reasonable plan for vocational development. They are confused about their future career and they lack market competition awareness. Migrant workers should clearly realize that adjustment, transformation and upgrade of industrial structure will inevitably lay down higher requirements for labor quality, impose higher requirements for their skills, and post competition will be gradually deteriorated. Therefore, to obtain better jobs, migrant workers should change their traditional small peasant thought, actively grasp new skills and knowledge required for corresponding work, actively participate in middle and high level skills training programs, so as to promote their development and better integrate into urban areas.

## **5 Conclusions**

The matter of migrant worker education and training is a matter of fundamental importance concerning social development and social stability. The solution to issues concerning agriculture, farmers and rural areas lies in improvement of farmers' quality. In the system of migrant worker education and training, it involves many aspects and needs concern of the whole society. It is necessary to establish a multi-dimensional interactive education and training system with government as leader and guidance and enterprises, market and farmers well coordinated. Through this system, migrant workers are expected to learn useful skills and knowledge, improve vocational ability and improve their overall quality. The whole society should take active action, practically find out education and training demands of migrant workers, satisfy requirements of migrant workers badly needed, and make efforts to adapt to adjustment of industrial structure and new normal economic development. (To page 40)

growth, create ecological betel nut plantations, and use nutritional analysis technology for nutritional analysis of betel nut leaf. The nutrient analysis indicators are used to guide the fertilization in betel nut plantations, to ensure normal growth and production of betel nut. The integrated betel nut processing plant is the development direction of betel nut processing industry, which can promote the development of betel nut planting, increase processing efficiency of betel nut, improve product quality, and reduce environmental pollution.

### 3.2 Recommendations

**3.2.1** Establishing ecological betel nut plantation. Currently, it is necessary to focus on the prevention based on ecological improvement, and building of ecological betel nut plantations while attaching importance to prevention and control technology for betel nut yellows. The key to building ecological disease-resistant betel nut plantations lies in maintaining and using the ecological community in betel nut plantation, to prevent the occurrence of betel nut yellows. In betel nut plantations, the weeds and dwarf plants in the periphery of trunk are regarded as covering, to form a growth environment with sufficient sunshine on upper canopy and shade on the lower part. Ecological betel nut plantations can reduce soil erosion, increase species diversity, improve the soil environment in betel nut plantation, increase the surface shade, and reduce direct sunlight onto the ground, so as to maintain moisture and fertilizer and improve soil microbial environment for betel nut growth. The herbicides should not be used during weeding in the betel nut plantation, which can avoid damage of herbicides to betel nut root system.

**3.2.2** Using nutrient adjustment to prevent betel nut yellows. According to the field survey in betel nut plantation, it is believed that the main cause of betel nut yellows may be the betel nut plant malnutrition. In recent years, due to the increase in labor costs and reduction of organic fertilizer source, the organic fertilizer input in betel nut plantation decreases, and the soil fertility declines in the betel nut plantations. With the considerable application of chemical fertilizer, the soil aggregate structure is damaged, causing soil compaction. Meanwhile, the extensive use of herbicides leads to serious soil contamination. The nutrient adjustment is used to prevent yellows, and the scientific fertilization is conducted mainly based on nutrition for betel nut. Based on the analysis of nutrients in betel nut plant leaf and betel nut plantation soil, the fertilizer type and fertilizer application rate are determined, to ensure the necessary nutrients for betel nut and promote betel nut growth. Excessive use of herbicides should be avoided during weeding in betel nut planta-

tion, high bushes are cut and dwarf plants and weeds are retained to cover the ground and keep the soil moisture and nutrients and improve soil fertility in betel nut plantations.

**3.2.3** Developing the integrated betel nut processing plant. Currently, 80% of fresh betel nut fruits in Hainan are dried by farmers after primary processing, and the dried betel nut is mainly supplied to Hainan or Hunan betel nut processing enterprises for deep processing of products. Now there are nearly ten thousand processing plants of fresh betel nut fruits in Hainan, mostly concentrated in the main producing areas of betel nut such as Wanning, Qionghai, Tunchang and Ding'an. The traditional primary processing technologies and models are still widely used in Hainan. Now there are many processing plants of fresh betel nut fruits (3000 in Wanning; 2500 in Qionghai; 1000 in Tunchang; 1000 in Ding'an). The processing model is based on family workshop, and there are 2 to 3 people in small plants. There are generally 10–30 drying stoves, and tens of tons of fresh betel nut fruits are processed annually. There are about 200 people in large processing plants, and several thousand tons of fresh betel nut fruits can be processed annually. It is necessary to develop the integrated betel nut processing plants combining primary processing with deep processing, to continuously process betel nut. The processing plants complete the entire production process from dried betel nut fruit to edible products, and the primary processing form, dominated by family workshop or small processing plant, is gradually reduced, and the industrialized processing methods are adopted to replace the traditional processing methods. In the integrated betel nut processing plants, standard electric drying equipment is used to process dried fruits, which can save resources, reduce pollution, improve product quality and increase production efficiency. After the processing of dried fruits, it immediately enters the deep processing stage, which can reduce dried fruit marketing link, transportation costs, production and operation costs.

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