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# Economic Analysis on Migrant Workers' Education and Training from the Perspective of Supply and Demand

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**Abstract** The education and training are important methods to improve the quality of migrant workers and the key to solve the issues concerning agriculture, farmer and rural area. Based on theoretical and literature analysis, this paper analyzed economic problems in the education and training of migrant workers from the perspective of supply and demand. And it is considered that the supply and demand of migrant workers' education and training are affected by many factors and present a certain economic phenomenon. And then it discussed the market failure problem of effective supply and demand for migrant workers' current education and training based on the above.

**Key words** Supply and demand, Migrant workers, Education and training, Economics

## 1 Introduction

In the era of knowledge economy and information, education and training have an increasingly closer relationship with workers, and their effects on workers have become more and more significant. As Schurz (1990) mentioned, "human capital or education and training are determinant for population quality and transference of labor force." As an important power in modernization construction of our country, migrant workers' personal quality will make direct influence on employment issues, transformation and upgrading of modern industrial structure and even the construction of socialism new countryside as well as the realization of agricultural modernization. The fundamental way out for rural development lies in the improvement of farmers' quality, and the education and training of migrant workers' are the important methods to improve their quality, the main means to enhance their capacity and skills and the key to solve the issues concerning agriculture, farmer and rural area. Since "2003 – 2010 *Nationwide Migrant Workers Training TRANBBS Planning*" formally issued by the country in October 2003, a series of policy documents supporting migrant workers' education and training have been carried out successively all over the country, and a certain progress is obtained. For the importance, necessity and efficiency of education and training of migrant workers, a certain consensus has been formed in the society currently. However, the supply-demand relationship of education and training market must be considered in education and training of migrant workers, as the relative balance of supply-demand relationship is the foundation for positive operation of social economy and the key to build an effective education and training market system for migrant workers. Nevertheless, macro- and micro-level imbalance between supply and demand still exists in education and training of

migrant workers currently. As a consequence, the paper will analyze the education and training problems of migrant workers from the perspective of economics based on the supply and demand theory, which will have important theoretical and practical significance in promoting the effective implementation of migrant workers' education and training activities and the harmonious development of the whole society.

## 2 Economic analysis on supply of migrant workers' education and training

**2.1 Concept definition of supply of migrant workers' education and training** Education is a quasi public product, and there is no exception for migrant workers' education and training. Supply is defined as the maximum quantity being able to provide in a certain period and a certain price condition. Accordingly, the supply of migrant workers' education and training can be defined as the maximum number of training that the education and training providers are willing to and able to offer in order to maximize the profits in a certain period and a certain education and training price condition. In education and training market, the main providers lie in government, enterprises and training market. First, in order to speed up effective transference of surplus rural labor force, promote migrant workers' income increase and advance the development of rural economy, the government should organize and offer targeted education and training to migrant workers most effectively, and the training should be free to the greatest extent. Secondly, in order to improve operation efficiency and enhance competitiveness, the enterprises should intensify their employees' (including migrant workers) education and training, adding a way for supply of migrant workers' education and training. Thirdly, education and training market is another important platform offering education and training, and some migrant workers may participate in targeted training provided by special commercial training institutions actively to gain better employment and promotion chance and increase income. Therefore, from the supply level, multi-

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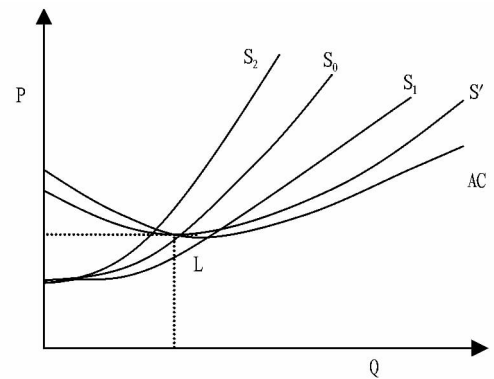
channel, multi-way and multi-method offering options are needed for migrant workers' education and training, so as to maximize the utilization of education and training resources and meet the education and training demand for migrant workers.

**2.2 Economic analysis on supply of migrant workers' education and training** From the perspective of general economic sense, the supply of migrant workers' education and training is mainly affected by education and training price ( $P$ ). On the figure about supply of education and training (Fig. 1), it can be seen as a curved line sloping from the left to upper right but which starts from a point on vertical axis representing price instead of the origin, which is mainly because the supply of education and training can't be all free (though the government and enterprises offer some free education and training). Even if the price for education and training does not equal zero, the supply of education and training may decrease or even equal zero in the event that the cost for carrying out education and training is greater than the earnings gained from education and training provided.

In addition to the effect from price, the migrant workers' education and training will be also restricted by many other factors, such as the reduction of requirement for education and training market access, government's tax preference as well as financial support and subsidy, enterprise's training policy, *etc.*, all of which will be bound to increase the supply of migrant workers' education and training, and at this point, the supply curve of education and training will become flatter and resilient. As shown in Fig. 1, the supply curve changes to  $S_1$  from the original  $S_0$ . On the contrary, if the requirements for access to migrant workers' education and training market increased, or the government intensified the approval and supervision on education and training institutions or increased to tax rate imposed on education and training or reduced capital support and policy support strength on education and training, the supply of education and training would be decreased accordingly, and at this point, the supply curve changes from  $S_0$  to  $S_2$ .

In addition, there is a scale economy problem needed to be considered in the supply of migrant workers' education and training market. At the early stage of the establishment of migrant workers' education and training market, or when the number of participants of education and training is small, the education and training institutions must assume a certain number of fixed cost and variable cost, such as institution registering fee, venue rental and construction fee, equipment purchasing fee, teacher's salaries, *etc.*, and under this smaller market scale, the education and training institutions may gain no profits or even report a loss sometimes. Under a smaller market scale, the supply price ( $P$ ) for education and training may equal the average cost ( $AC$ ) spent on educating and training a single man, that is to say, the supply curve  $S'$  intersects with  $AC$  at the lowest point of the two. However, if there are more migrant workers participating in education and training, which means the market scale is expanded, a certain scale economy may be formed, that is to say, the supply curve  $S'$  slopes up-

ward at the right of lowest point  $L$ . Meanwhile, the presence of scale economy will attract more education and training institutions into the market, and when they enter the market at the lowest price level (point  $L$ ), the incremental period for scale economy may be reduced finally till the scale economy would be lost.



**Fig. 1 Supply curve of migrant workers' education and training as well as scale economy of supply of education and training**

### 3 Economic analysis on demand of migrant workers' education and training

**3.1 Concept definition of demand of migrant workers' education and training** Corresponding to the supply of education and training mentioned previously, the demand of migrant workers' education and training refers to a subjective desire that migrant workers decide whether it is needed to participate in the education and training or not, and it is the quantity of migrant workers who hope to participate in the education and training in a certain period and at a certain education and training cost. This demand, mainly based on micro level, is an individual migrant worker's demand which is also affected by many factors, among which, the following three factors are most important: the desire and anticipation of migrant workers for participating in education and training; the mastered skills; the cost for participating in education and training. All of these three factors affect the change of demand curve of migrant workers' education and training. Among the three factors, the cost for participating in the education and training can be considered as endogenous variable which makes effect on the demand of migrant workers' education and training, and it can determine the number of migrant workers participating in education and training at different cost levels. And the desire and anticipation of migrant workers for participating in education and training as well as the mastered skills are exogenous variables for the demand of migrant workers for participating in education and training, which determines the location of demand curve of education and training. Therefore, it can be obtained that the micro-level demand curve of migrant workers' education and training is a curve sloping from the left to lower right, as shown in Fig. 2.

#### 3.2 Economic analysis on demand of migrant workers' education and training

**3.2.1 Cost and demand of education and training.** The costs for

migrant workers participating in education and training include tuition fee, living cost and opportunity cost. The tuition fee refers to necessary expenses that have to be paid for education and training; living cost means expenses for board and lodging that must be paid during study period; and the opportunity cost mainly refers to the foregone income could be obtained from the work during this education and training period. In general, the higher the cost for education and training, the less the number of persons participating in the training, and when the cost is higher to a certain extent, no person will participate in. Instead, the lower the cost for participating in education and training, the more the quantity demand for participation, as shown in Fig. 2 below, when cost for education and training is higher ( $P_1$ ), the corresponding training quantity demand is  $Q_1$ ; while the cost for education and training is lower ( $P_2$ ), the corresponding training quantity demand is  $Q_2$ , and the demand curve changes to point B from point A. As a result, the cost for participating in education and training is inversely proportional to demand of education and training directly, and it makes influence on the change of points on the curve.

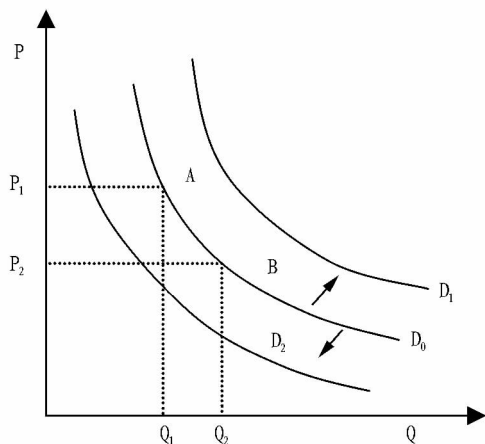


Fig. 2 Demand curve of migrant workers' education and training

**3.2.2** Desire and anticipation of education and training demand as well as the demand for education and training. The desire and anticipation of migrant workers' demand for education and training are subjective mental activity, which essentially means to make a decision on whether to participate in under the constraints of one's own factor endowment when taking individual utility maximization as the target, and it conforms to the assumption of "rational - economic man". In general, for the same cost-level education and training project, the more the anticipated income, the stronger the desire for participating, and vice versa. In the 1960s to 1970s, Michael P. Todaro, an American development economist, came up with the famous rural labor migration decision model when researching on the problems of unemployment and rural labors rushing into the city in developing countries.

$$M = F(d) \quad (1)$$

$$d = w * p - r \quad (2)$$

M: The quantity of rural labors moving into the city;

d: The difference between urban and rural income expectations;

w: The urban real wage rate;

p: The employment probability;

r: The rural actual income;

Wherein,  $F' > 0$  means population mobility is the increasing function of difference of income expectations.

Equations (1) and (2) indicate that, the number of rural labors migrating into the city (M) is the function of urban and rural income expectations d, and d is mainly affected by the following three variables: (1) the probability of getting a job for rural labor in the city (p); (2) urban real wage rate (w); (3) rural actual income (r). If the difference between migrant worker income and farmer income gets greater, the motivation or desire for migrant workers working in the cities will be stronger. However, the migrant workers' income is closely related to their education level and skill level. It can be assumed that, to obtain better employment opportunity and higher income, the desire for migrant workers participating in education and training will get stronger. As a consequence, this model can be adjusted. Since the employment probability and wage income are closely related to personal education and training as well as physical quality, it can be obtained that  $p = f(E, B)$  and  $r = f(E, B)$ , wherein, E refers to education and training level, B refers to physical quality level, and the desire for participating in education and training is positively correlated with income expectation, which means the higher the income expectation, the stronger the participation enthusiasm, and vice versa. As a result, the original decision model can be changed into:

$$M = F(d) (F' > 0) \quad (1)$$

$$d = w * p - r \quad (2)$$

$$p = f(E, B) \quad (3)$$

$$r = f(E, B) \quad (4)$$

And the above Fig. 2 reflects that demand curve changed to  $D_1$  or  $D_2$  from  $D_0$ .

**3.2.3** Mastered skill level and demand for education and training. The skill level mastered by migrant workers can take a certain effect on their participation in education and training. When they have a certain skill level and are able to find a relatively satisfying job, their desire for participating in education and training will be low, and the demand curve will move to the left, from  $D_0$  to  $D_2$ . But when they feel that their existing knowledge level and skill level are lower, employment opportunity is poor and wage income is less, their desire for participating in education and training will be very strong, and the demand curve will move to the right, from  $D_0$  to  $D_1$ , which is similar to the above Fig. 2.

## 4 Market failure analysis of supply and demand for migrant workers' education and training

**4.1 Failure of supply market for migrant workers' education and training** Price is the most important influencing factor in supply market for migrant workers' education and training. When the price is lower than equilibrium price, which causes the

demand exceeding supply, the supply quantity will be insufficient. In addition to the price factor, there are also other factors resulting in insufficient supply and market failure.

**4.1.1** Limitation of government's supply for education and training. The urban-rural dual economic structure and household registration system are one of the most important reasons that cause the widening gap between urban and rural development in the country. The city can only afford the education and training of a small number of migrant workers, while most workers can't get proper education and training opportunities, thus leading to the lack of effective supply. On the other hand, the government mainly offers education and training to urban laid-off workers, and it can't cover all migrant workers. Most of government's public training institutions are vocational schools, and such kind of training obviously ignores the demand of the majority of migrant workers who had been only educated in junior high school or below this level or illiterate. And the pertinence and practicability of effective education and training are not strong, which can also lead to the lack of effective supply.

**4.1.2** The lack of enterprises' effective supply. Employers are main providers for migrant workers' training currently, but the enterprises take economic efficiency as the starting point and a certain invested cost as the premise when offering education and training, and such education and training will bring a certain financial burden on the enterprises. As a result, some small-sized enterprises, especially those with weak economic power, are unwilling to offer education and training opportunities, and the desire for effective supply is low. In addition, some enterprises employ lower-cost apprenticeship way (*i. e.* appointing a qualified worker to train apprentice, and then assigning the apprentice to train another apprentice) to conduct education and training, but this training method is lack of normalization. Only a small number of enterprises have relatively formal training system, but the training contents of professional skills are fewer. Therefore, driven by the profit and under the pressure of external competition, the enterprises are unwilling to or difficult to independently undertake intra-company training tasks for migrant workers, thus resulting in the lack of effective supply for education and training offered by enterprises.

**4.1.3** The lack of effective supply of commercial training institutions. Commercial education and training institution is another important channel for migrant workers participating in education and training, but the current marketization degree for migrant workers' education and training is not high in the country for one important reason that commercial education and training institution targets for profit. And the higher economy threshold and the migrant workers' relatively low income limit the number of migrant workers entering into commercial education and training institutions, thus resulting in the lack of effective supply.

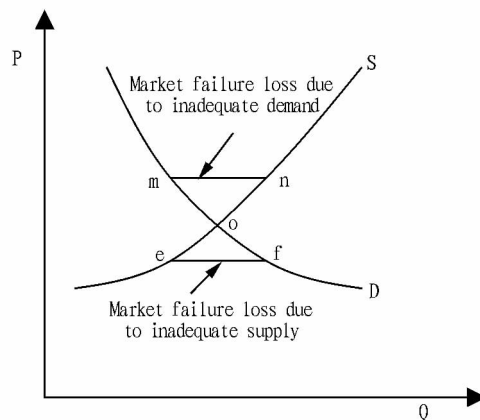
In Fig. 3 below, *ef* denotes the number of inadequate supply, and the area *oef* refers to market failure loss due to inadequate supply.

**4.2 Failure of demand market for migrant workers' education and training** As with the supply, price is the most impor-

tant influencing factor in demand market for migrant workers' education and training. When the price is higher than equilibrium price, which causes the supply exceeding demand, the demand quantity will be insufficient. In addition to the price factor, there are also other factors resulting in insufficient demand and market failure.

**4.2.1** Restrictions on their own conditions. According to the statistics, most migrant workers received junior high school education, which a small part of them are illiterate and semiliterate. Education and training require a certain culture base, and the lower culture base will significantly limit their enthusiasm for participating in education and training. In addition, their enthusiasm for investing education and training will be also restricted by the limitations on some systems including household registration system and the uncertainty of work and residence, thus leading to the lack of effectiveness of education and training demand.

**4.2.2** The lack of economic income ability. The main purpose for farmers rushing into cities for work is to increase economic income, they undertake "dirty, hard and heavy" work in cities and most of them gain a low income. In the face of commercial vocational education and training institutions with excessive economic threshold, the expensive training fee is a huge burden for migrant workers, and they often fell into an embarrassment situation of "incapable of paying tuition fee", therefore, the limitation of their economic income ability significantly restricts the effective demand for education and training.



**Fig. 3** The lack of supply and demand for migrant workers' education and training and market failure

**4.2.3** Uncertainty of expected return. The most direct purpose for migrant workers participating in education and training is to obtain better employment opportunity to increase income, but the income is a kind of expected return. In the informal secondary labor market, most migrant workers seek living mainly by offering their labor force, and the technical income is less. And more than anything else, there are many uncertainties on whether the participation of education and training can bring the increase of economic income. For this reason, some migrant workers have low enthusiasm for participation in education and training, and thus it results in the lack of effective demand.

In Fig. 3 below,  $mn$  denotes the number of inadequate demand, and the area  $omn$  refers to market failure loss due to inadequate demand.

## 5 Conclusions

Migrant workers' education and training are related to harmonious development of the whole society and final solution of the issues concerning agriculture, farmer and rural area, and its fundamental way out lies in the quality of farmers. The supply and demand for migrant workers' education and training are two aspects of one thing, and the way to effectively resolve the conflict between the two will affect the quality and effect of migrant workers' education and training directly. Therefore, analyzing migrant workers' education and training market economically can provide a better understanding of the supply and demand situation for the market, and it has an important practical guiding significance in the establishment of effective migrant workers' education and training system. It should be also noted that the whole society must make great efforts and collect wisdom and efforts of everyone to build migrant workers' education and training system during the establishment of the migrant workers' education and training market, so as to make migrant workers be able to gain hope, ample scope for abilities and results after learning in this training system. And it will improve migrant workers' quality and promote their ability of become citizens and have a far-reaching significance in building a harmonious society and facilitating the construction of socialism new countryside and agricultural modernization.

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