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Analysis of Externality of Rural Labor Force Flow in Central and Western Regions of China and Benefit Compensation

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Abstract According to the theories of institutional economics and development economics, the positive and negative externality of rural labor force flowing from central and western regions and into eastern regions of China were analyzed, and then it was proposed that it is necessary to positive externality, rather than take "household register" measures to solve the problem simply.

Key words Rural labor force flow, Externality, Central and western regions of China, Benefit compensation, China

Adam Smith suggested that economic man's pursuit of economic benefit could often bring us social benefit^[1], which involves positive externality. The concept of externality was proposed firstly by Marshall and Pigou in the early 20th century, that is, externality means that the economic effects of an act or product on the exterior bring economic benefit to bystanders who do not have to pay^[2], and positive benefit is called positive externality, while negative benefit is named negative externality. Since reform and open of China, large amounts of rural labor force flows continuously from the central and western regions to eastern regions of China, which has brought great and complex externality to China's economic and social development. At present, there are many studies on the effects of rural labor force flow on China's economic development, and it is generally suggested that the flow has promote China's economic development, but it has also widened the gap between the central and western regions and eastern regions in economic growth and continues to strengthen the dual structure^[3–7]. On the other hand, different scholars have various views on the influence of population flow on economic and social development^[8–11], and it was proved that the positive externality obtained by the eastern regions was obviously greater than that of the central and west regions, so that there is a great gap between them in social and economic development, which has restricted the sustainable development of China's economy and society. Therefore, it is necessary to adopt effective measures to solve the influence of rural labor force flow in the central and western regions on various areas.

1 Externality of rural labor force flow in the eastern regions

1.1 Positive externality

1.1.1 Expanding consumer market. With inherent geographical advantages and early policy advantages, eastern coastal regions of China have become the first choice of investors and manufacturers at home and abroad, so labor price here is higher than that of cen-

tral and western provinces, and large quantities of labor force flows into the eastern areas. Thus, the population of the eastern regions has increased greatly, and the scale of consumer market here has widened, so that industrial advantages here have been strengthened, while the central and western regions are lost in the vicious cycle of poverty proposed by Nurkse^[7], which can be called the externality of consumer market caused by population gathering.

1.1.2 Reducing enterprises' search cost for labor force and constantly updating information and technology. With rural labor force flowing from the central and western regions to the eastern regions, regional markets with enough labor force must be formed in the eastern regions. On the one hand, enterprises must pay for the search for suitable labor force, and the search cost will decrease when the supply of labor force is enough. On the other hand, the flowing of labor force among enterprises can promote the propagation of information and management ideas, and enterprises can get free information about upstream suppliers, competitors in the same industry, the downstream customers to reduce the cost of technological evolution and innovation^[12].

1.1.3 Decreasing the cost of providing social welfare by the eastern government. The eastern regions do not have to provide social security charges for flowing labor force and can obtain great benefit brought by labor force flow^[10]. According to legal regulations, enterprise in the eastern regions must pay social security funds for labor force from the central and western regions, but it is impossible to shift social security funds among provinces. Therefore, large amounts of social security funds is owned by the government of the eastern region, but when aging labor force returns to the central and eastern regions, the government in the central and western regions needs to pay their pension and medical fee.

1.1.4 Increasing the eastern residents' welfare. Besides creating social wealth, a large quantity of labor force from the central and western regions provide a great tax, thereby providing financial support for social development, contributing to infrastructure construction, social security and environmental control, and improving overall welfare of residents in the eastern regions.

1.1.5 Forming regional ideal population structure. Results of various research institutes show that aging population of developed areas is more obvious than that of other regions, but the statistical data are from local household register, and flowing labor force is neglected. Large quantities of young people from the central and western regions flow into the eastern regions to form a society with ideal population structure that can promote social and economic development.

1.1.6 Obtaining overflowing educational benefit. The eastern developed areas do not pay for education of labor force from underdeveloped areas, but can obtain benefit, that is, these areas enjoy the positive externality of investment in basic education by underdeveloped areas. Therefore, labor force with knowledge and skills contributes to GDP of the eastern regions enjoying overflowing benefit of education investment by the central and western regions^[13].

1.1.7 Leading to imbalance of farmland protection and utilization. Targets of farmland protection are different in various regions, so that there is imbalance in ecological and social benefits in different areas^[14]. For instance, farmland is used to develop industry in eastern developed areas, while large areas of farmland is protected in the central and western regions to ensure national food security. Hence, developed areas can obtain free ecological and social benefits brought by underdeveloped areas and major grain producing areas during agricultural production, and farmland cost overflows into other regions. Moreover, the gap between underdeveloped areas (or major grain producing areas) and developed areas in economic level widens gradually, and farmers' income decreases continuously; farmland construction funds shortens, and land protection force weakens in underdeveloped areas.

1.2 Negative externality

1.2.1 Improving social security governance cost. The major negative externality of the eastern regions is social externality, and the negative externality is obviously smaller than the positive externality. Rural labor force flowing into the eastern regions has brought certain pressure to social security administration and the urban environment of the eastern regions, and previous social relation has been broken. Moreover, criminal behavior has become more frequent. According to *A Report on Crime of Migrant Workers in Guangzhou City* in 2011, migrant workers committing a crime in Guangzhou City accounted for 78.3% of total number of criminals during 2008–2010, even up to 94.0% in some regions.

1.2.2 Increasing urban population pressure and social management cost. It is inevitable that rural labor force flowing into the eastern regions leads to tension of public facilities, environmental pollution, and increase in management pressure of urban population. In addition, it also results in the increase of family planning, household register and other social management cost.

1.2.3 Enhancing pressure on educational and public resources. Many migrant workers bring their children to their work cities, so their children need to go to school in the cities, which will also bring great pressure on local educational resources, so that educational institutions have to enlarge education resources and increase

educational cost.

2 Externality of rural labor force flowing from the central and western regions

2.1 Positive externality

2.1.1 Relieving family poverty. The positive externality of the central and western regions mingles with that of the eastern regions in respect of economic and social externality. Most central and western regions lack industrialization foundation, and there are few private economies and jobs, so many rural labor force flows into the eastern regions to look for a job. It is proved that the relationship between possibility of labor force flow and household income level shows inverted-U shape, but labor force flow is positively correlated to income increase before household income is medium^[15]. For example, there were 20.234 million farmers flowing from Sichuan Province into other provinces in 2008, and their labor income returning to the province totals 122.8 billion yuan, so the labor income had improved income of rural residents in the central and western regions^[16].

2.1.2 Decreasing institutional change and information dissemination cost. Labor force flow can improve farmers' ability to adapt to social change and earn a living, and can promote cultural communication, information dissemination and technology diffusion between the two regions. Flowing people can bring advanced culture and technology to their home to affect local farmers, so that the local government can reduce institutional change and technology diffusion cost during rural construction.

2.1.3 Promoting agricultural mechanization, land transfer and agricultural modernization. As the wide dissemination of advanced technology and information from the eastern regions by migrant workers, many farmers in the central and western regions are prone to use agricultural machinery to improve farming efficiency, and their labor income obtained in the eastern region can promote agricultural mechanization. In addition, labor force flowing reduces transaction cost of land transfer and promote development of agricultural cooperatives and modernization.

2.1.4 Promoting village and town construction and increase overall social welfare. According to a previous study^[17], some migrant workers in the central and western regions use their labor income to purchase a house or build a house in neighboring towns, which promotes urbanization construction, improves the state of employment, and increases government tax and overall social welfare in the central and western regions.

2.2 Negative externality

2.2.1 Weakening rural management and control and restricting democratization implementation. Rural elite flows into eastern cities to get a job, so that rural previous family management and elite governance model lose support^[18], and it is difficult to implement democratization in rural areas. After rural taxation reform, rural organizational degree decreases, and village cadres have to depend on gray power to develop work, but it is difficult for rural vulnerable people to restrict rural cadres and gangland force^[19]. Moreo-

ver, regulations on democratic election of villagers can be found in the Organic Law of Villagers' Committees issued in October 2010, but most migrant workers return to their home to take part in democratic election, thereby weakening rural management and control and restricting democratization implementation.

2.2.2 Increasing social criminal offense and management cost. It is difficult to meet the physiological need of migrant workers far from home, so criminal offense occurs more frequently. Moreover, their children often commit a crime during adolescence due to lacking emotional communication and parental control. Rural women, the elderly and children are physically disadvantaged, vulnerable to infringement object. Besides, rural vagrants often seek for gray income to meet their living needs, even committing a crime recklessly^[20].

2.2.3 Losing the positive externality of education. Education itself has the properties of public goods, which can improve overall quality of educators themselves, their family economic level and social position on the microscopic level, increase labor productivity on the macroscopic level, and develop and promote democracy and freedom, reduce crime and increase social cohesion, promote technological change and change income distribution in respect of the public interest. As many educated young people in the central and western regions flow into the eastern regions, the investment in education of government in the central and western regions has no return, so that the investment in education will reduce^[21], and the intention of investing in education weakens.

2.2.4 Improving divorce rate and weakening family stability. Becker has proposed that there exists positive or negative pairing effect in marriage market^[22]. Rural labor force flowing can break the balance of marriage pairing effect, thereby affecting marriage stability. Under certain constant conditions, labor force flow can increase divorce rate by above 60%, that is, flowing labor force faces a big risk of divorce^[23].

2.2.5 Breaking family structure and reducing family welfare. The main functions of a family are production, cultivation, maintenance, mutual aid, safety, emotional and sexual satisfaction. Flowing of rural labor force in the central and western regions breaks their family structure. The flow increases their family income, but they are unable to care for the elderly, educate their children and conduct emotional communication between husband and wife. In addition, the flow increases the burden of housework and agricultural production as well as labor intensity, make emotional communication sparse and emotional needs scarce. Moreover, emotional communication can affect people's health, and its shortage can improve incidence of a disease^[9].

2.2.6 Bring a rural cultural heritage crisis. Due to rural labor force flow, it is difficult to conduct traditional rural cooperative cultural activities, so it is difficult to realize rural cultural prosperity. Moreover, rural elite who can pass on rural culture to the younger generations also flows into the eastern regions.

2.2.7 Restricting the development of agricultural professional cooperatives. To promote the development of agricultural profes-

sional cooperatives, China issued the *Farmers' Professional Cooperatives Law of the People's Republic of China* in 2006, but the development of most agricultural professional cooperatives in the central and western regions is unsatisfactory, and most of them established by the government are in a semi-paralyzed state. According to the concept of non-pure public goods, proposed by Buchanan, members of a club have the same preference and view on club goods, and they are willing to pay for club goods, but they can leave clubs if club goods can not meet their demands^[24]. Therefore, the supply of public goods in a club is the key to the success of agricultural professional cooperatives, but personnel support is the key to the effective supply of public goods. However, most young people in the central and western regions flow into cities or the eastern regions, which restricts the development of agricultural professional cooperatives.

3 Benefit compensation for the externality of rural labor force flow in the central and western regions

Large-scale rural labor flowing from the central and western regions for a long term plays a positive role in optimal allocation of human resources, full employment of labor, improvement of economic efficiency, and urbanization construction, indirectly guarantees the state tax revenue, make the government improve the overall welfare of citizens, and increase national defense construction. Besides contributing to China's economic and social development, labor force flow from the central and western regions to eastern regions has led to a widening gap between the two regions in economic level. Therefore, it is necessary to classify the population to flow rationally, and restrain the negative externality and compensate the positive externality, rather than take "household register" measures to solve the externality of the central and western regions and eastern regions caused by rural labor force flow simply. Benefit compensation for the externality of rural labor force flow in the central and western regions is carried out according to the flow of rural labor force as follows.

3.1 Crowd like amphibian Most rural flowing population in the central and western regions is like amphibian, which is related to job scarcity and low comparative income. The crowd flows into the eastern regions to earn more money, but they have difficulty in paying urban living cost, so they want to return to home. In addition, they value the ownership of rural land management right, because land is the complement to incomplete rural social security system, and stationary source of family income, and they expect to obtain value-added benefits from land expropriation. Therefore, the crowd will not give up rural household register. The government should help them receive skill training with maximizing comparative effectiveness in their working cities. National social security system divorced from household register should be established to eliminate the transfer of migrant workers' social security fund to eastern government, and the Central Government should levy a tax on the eastern regions to compensate for the lose of social security fund in the central and western regions. Moreover, the Central