

Chapter 11

Off-Farm Industries in Mountain Areas of China

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INTRODUCTION

China is a country with a large area of mountains as well as relatively small per capita arable land. It is a key national concern to meet the demand for food. Since rural economic reform in 1978, China has seen a rapid growth in agriculture, and a food deficit situation has changed to a food surplus one. Having met the people's basic needs for food and clothing in mountains, the focus has shifted to providing a healthy and prosperous life for people. In meeting this goal, increases in farmers' income in mountain areas will play a crucial role. This is also a practical necessity to maintain a stable society and help sustainable economic development in China.

OFF-FARM INDUSTRIES IN CHINA

However, as the historical experience of developed countries shows, in the long run decreasing returns and declining consumer money spent on direct, primary products from agriculture make sustaining rising incomes for farmers difficult. As a country becomes richer, consumer spending on farm products tends to decline. Hence, the movement of the workforce out of agriculture becomes essential to sustain high incomes. The workforce should move from primary, to secondary, and then to tertiary sector activities. This will be reflected by a changing composition of income of farm households. To illustrate this Table 1 summarises pure (net) income of farmers in China and the changes in its composition.

Table 1 shows that the pure income of farmers in China has increased in the past 10 years, and the percentage contribution of off-farm industries in farmers' income has also gradually increased. However, the percentage of income from agriculture has been decreasing since 1995, and its contribution to total pure income of farm households has declined. The declining rate of agricultural income after 1995 resulted from the declining market for agricultural products due to surplus of supply. Hence, increased agricultural output did not mean an increased proportion of agricultural income for farmers. In contrast to this, the off-farm industries' contribution to household income rose to 4,899 yuan RMB in 1995, exceeding income from agriculture (4,760 yuan RMB) for the first time.

Figure 1 graphically illustrates these changes. The relative contributions of off-farm industry and agriculture to farmers' incomes were 50.7 and 49.3%, respectively, in 1995. The corresponding shares changed to 64.7 and 35.3% in 2000. This shows the changing structure of sources of farmers' incomes moving away from agriculture.

PURE INCOME PER CAPITA AND DIFFERENCE IN GDP IN DIFFERENT REGIONS IN CHINA

Changes in farm household incomes: regional dimension

As per Figure 2, farmers' pure income per capita has shown an increasing trend during the years from 1991 to 2000, but the difference between the mountains and the plains has also increased. Farmers' pure income per

capita in mountain counties has increased from 495 yuan RMB to 1,894 yuan RMB, while the corresponding change in hilly areas was from 596 yuan RMB to 2,302 yuan RMB, and from 700 yuan RMB to 2,600 yuan RMB in the plains. The difference in farmers' per capita pure income between mountain areas and the plains was 205 yuan RMB in 1991 and 700 yuan RMB in 2000.

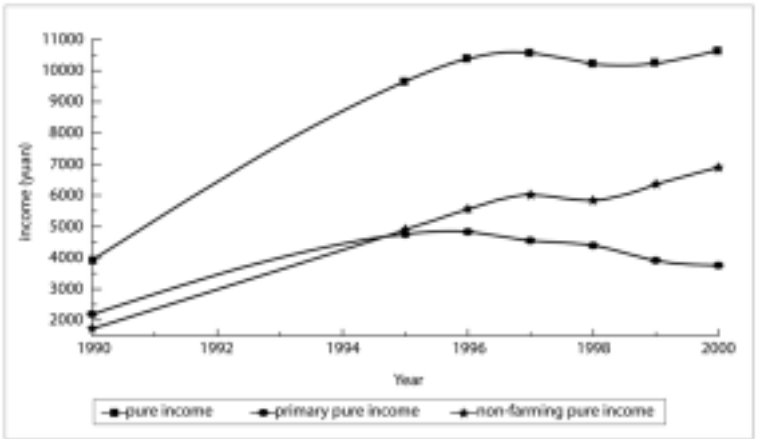


Figure 1: The trend of income of farm households (1990-2000)

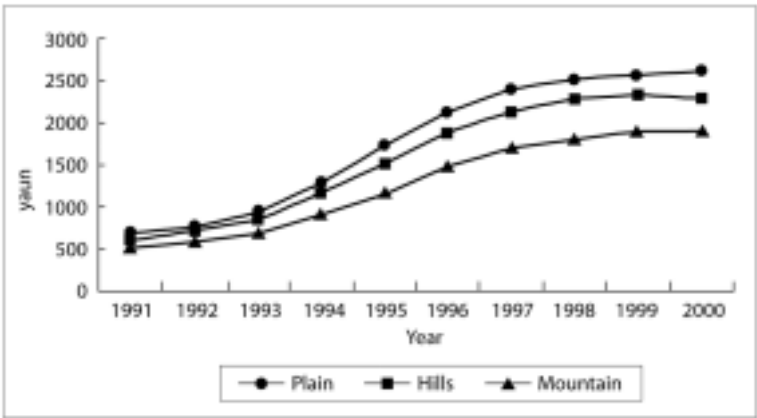


Figure 2: The changing trend of pure income per capita (1991-2000)

Regional income differences: role of off-farm industry

Although in 2000 counties in the plains comprised only 31% of the total counties in China, their GDP accounted for 46% of the total. The GDP from counties in both hilly and mountain areas made up only 54%, although they account for 69% of the total counties in China.

Table 2 also indicates that GDP per capita in mountain areas, hilly areas, and the plains is 4,194 yuan RMB, 5,424 yuan RMB, and 6,333 yuan RMB, respectively. The percentage of added value of agricultural output in GDP is 29.2, 26.6, and 25.5% in mountain areas, hilly areas, and the plains, respectively. If the added values in the secondary and tertiary sectors are put together (reflecting the total output value of off-farm industries), the percentage of added value of off-farm industries in GDP is 70.8, 73.3, and 74.8%, respectively, in the three areas. There is not much difference in added value of agricultural output per capita in the mountains, hills, and plains. In terms of added output value of off-farm industries per

capita, it is 1,766 yuan RMB in mountain areas, which is 62.7% of that in the plains. The difference in pure income per capita between the mountains and the plains is chiefly due to differences in the development of off-farm industries.

CASE STUDIES IN DIFFERENT REGIONS

Eastern China: a comparison between mountain areas and delta areas of Zhujiang River in Guangdong Province

The average per capita GDP in the 50 mountainous counties in Guangdong Province in 2000 was 5,687 yuan RMB, of which the added value of agricultural output and off-farm industries, respectively, were 1,818 and 3,868 yuan RMB. Average per capita GDP in the delta area of Zhujiang River was 31,989 yuan RMB, of which the added value of agricultural output and off-farm industries was respectively 1,858 and 30,130 yuan RMB (Guangdong Statistical Bureau 2001).

The following conclusions can be drawn from these data.

- a) The average per capita GDP in the developed delta areas of the Zhujiang River is much higher than in the 50 mountainous counties. The added output value of agriculture per capita in those two areas is not much different, though in the mountainous counties it is slightly lower than in the more developed delta areas. The added output value of off-farm industries per capita in the delta area, however, is much higher than in the 50 mountainous counties with a difference of 26,262 yuan RMB. The lower position of the economy in mountain areas is mainly due to underdevelopment of off-farm industries.
- b) In agricultural production, the delta area of the Zhujiang River has favourable factors such as water and thermal resources, and higher potential for agricultural productivity. Yet agricultural contribution to farm income growth is constrained by declining product prices and low elasticity of demand for agricultural products. On the other hand, agriculture in mountain areas has various constraints. They often have a high input-output ratio due to labour-intensive practices and absence of economic diversification. Yet, due to scarcity of agricultural products in the mountains and higher prices, the per unit pure income from agricultural production in mountain areas is higher.
- c) In terms of off-farm industries, there is a big difference in both economic structure and development level between delta areas and mountain areas. The ratio of income from agriculture to that from off-farm industries in the developed delta areas is 5.8:94.2, indicating that most income comes from secondary and tertiary industries. The contribution of tertiary industry to GDP per capita is higher than secondary industry. In contrast, the

corresponding figure in the 50 mountainous counties is 8:17, indicating that income in mountainous counties is mainly from primary and secondary industries with very limited contributions from tertiary industry. Secondary industry in the more developed areas is composed of processing and assembling enterprises plus service activities with high added value—a characteristic of a post-industrial society. Secondary industry in mountain areas, however, is composed of primary processing of agricultural and mining products with low added value and low technical requirements—the characteristic of a pre-industrial society.

Western China: a comparison of Chengdu plains and mountain areas in west Sichuan

To illustrate the spatial difference in economic development between the mountains and plains in western China, a comparison between the Chengdu plain and west Sichuan is presented. Five counties from the Chengdu plain (Shuangliu, Guanghan, Xindu, Wenjiang, and Pixian); five counties from the Ganzhi area (Kangding, Luding, Yajiang, Ganzhi, and Batang); and five counties from Aba prefecture (Aba, Lixian, Shongpan, Jiuzhaigou, and Markang) were selected randomly. The average per capita GDP, per capita added output value of agriculture, and per capita income from off-farm industries in these 15 counties have been calculated (Sichuan Statistical Bureau 2001) and are shown in Figure 3.

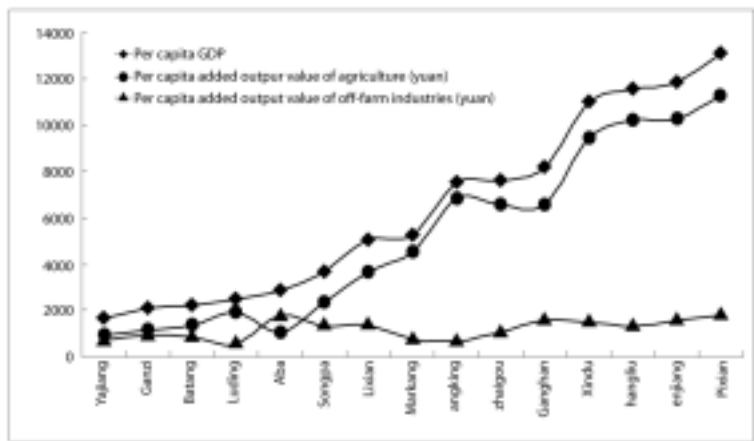


Figure 3: Per capita GDP and added output value of agriculture and off-farm industries in selected counties in China

The difference in economic development in the 15 counties has a strong spatial feature. A high level of economic development characterises the five counties in the Chengdu plain, a medium level of economic development in the five counties in Aba Prefecture, and a low level of economic development in the five counties in Ganzhi Prefecture (except Kangding).

The added output value of agriculture in Aba county, for instance, is 1,798 yuan RMB, the highest in all the counties, and surpasses all the five counties in the Chengdu plain. The added output value of off-farm industries in Aba county is, however, the lowest (1,075 yuan RMB). This has made per capita GDP in Aba county much lower than that of counties in the plains. This once again shows that the low level of development of off-farm industries is the reason why mountainous counties are underdeveloped. The per capita added output value of agriculture in Jiuzhaigou and Langding is low, but the average per capita GDP is higher than that of other mountainous counties. Their level of economic development and structure of incomes are similar to those in the more developed counties in the plains. The reason is that the two counties have benefited significantly from off-farm industries like tourism, indicating that the key to promoting development in the mountains is to develop off-farm industries.

An analysis of the structure of GDP in the mountains and plains shows that the average per capita agricultural output in the plains and mountains are both lower than 2,000 yuan RMB, without significant difference, but there is a big difference between the plains and the mountains in output value of off-farm industries. The output value of off-farm industries accounts for about 90% of GDP in the plains, but in mountain areas it is 70% of GDP. Thus, the 'poverty' in mountain areas or the gap between the mountains and the plains is mainly due to underdevelopment of off-farm industries in mountain areas.

OPPORTUNITIES AND CHALLENGES FOR DEVELOPMENT OF OFF-FARM INDUSTRIES IN MOUNTAIN AREAS

Advantages of off-farm industries in mountain areas

- a) Reduced pressure of demand for cereals can free mountain areas from producing grains. Since scarcity of agricultural products in China in the past has now been replaced by a general balance between supply and demand or by a surplus of production in some years, mountain areas can be freed from producing their own grain supplies. With development of a market economy in China, the inhabitants of the mountains have opportunities to engage in off-farm activities. Thus

they have options to choose their jobs and businesses. They have less compulsion to produce cereals and subsist on low incomes.

- b) As the industrial structure in the more developed plains is upgraded, traditional industries with agricultural products as their raw materials are being transferred to mountain areas. These include production of green foods, famous beverages, famous cigarettes; production of medicines and nutrients using traditional Chinese herbs and natural products; production of cloth and gowns with linen, cotton, and silk as raw materials in textile industry; and so on. Promotion of such industries in mountain areas will fill the gap in markets after the industrial structure has been upgraded in more developed areas. Besides, mountain areas will have their unique traditional industries. The raw materials in mountain areas, for instance, have not been polluted by chemicals. Their source of raw materials is nearer to production bases. Furthermore, mountain areas have plenty of labour. If traditional industries in mountain areas could be renovated using science and new technology, there could be a vast potential for developing off-farm industries there.
- c) The scope for recognising, upgrading, and harnessing niche resources and opportunities has significantly increased with the rising level of links and integration of mountain areas with market centres in the plains. Liberalisation and other market reforms help the process. Mountains can have comparative or exclusive advantages in a number of off-farm activities or industries. Mountain areas may not have competitive arable lands, but they have land resources for other high pay-off uses. Mountains have unique biological resources, forest resources, water resources, and so on. They can develop forestry, livestock, green products, and Chinese traditional medicine as long as their supply of grain from elsewhere is guaranteed. To harness the potential it is also important to promote (i) a processing system of agricultural and natural products, which means to enhance the added value of agricultural products and to establish famous brands of products and (ii) development of typical biological products, small hydropower stations, ethnic industrial products, and tourism.
- d) Women are now playing an important role in development of off-farm industries in mountain areas. Their role is conspicuous in the following aspects. (i) As domestic labourers, women and children have been an important workforce in mountain areas (as in the sectors of farming and livestock). Due to this men are able to work outside in cities. (ii) Women are playing a key role in the courtyard economy. Domestic livestock and domestic processing of agricultural and sideline products have provided a good source of household income, to which women make great contributions. (iii) Of all out-migrant labourers, men are mainly engaged in heavy work as construction workers, porters, cleaners, security men, and so on., while women are chiefly engaged in service

work as babysitters, domestic workers, restaurant and hotel waitresses, dress saleswomen, and hairdressers. With social development there will be a greater demand for female labourers than male labourers in cities. (iv) In underdeveloped areas, education and skill development programmes for women will help promote development of off-farm industries. Since 1988 about 20 million women have joined the literate population, and about 3 million women have received training and technical skills with support from China's National Federation of Women.

Challenges for development of mountain areas

- a) Forming purchasers' market bodies may harm mountain areas due to their less efficient off-farm industries. In the past, development of off-farm industries was usually based on resource-oriented strategies, taking it for granted that rich local resources could offer economic development forever. But this is not the case in the present market economy, where it is not resources that dictate markets but markets that allocate the resources (Chengdu Institute of Mountain Hazards and Environment 2000). Therefore exploration and use of resources should be based on market demand. Off-farm industries should be developed on the basis of their comparative and competitive advantages. The present structure of off-farm industries in mountain areas in China is still resource-centred. With development of a market economy and an open policy, China has gradually been turned from a commodity-shortage economy to a commodity-surplus economy. Traditional off-farm industries with low added value, low technology, and high inputs of capital and labour will face challenges in a buyers' market. Enhanced competitive ability of products and industries is, therefore, a lifeline for development of off-farm industries in mountain areas. Hence, the need for a new approach and strategy.
- b) Off-farm industries and environmental protection—five types of small enterprises have been closed. There are many small, local, and scattered enterprises in mountain areas, including small mines, small metallurgical plants, small paper plants, and small food factories that were established on the basis of local resources. Some of them may not only have negative impacts on resources and the environment, but also have little scope for development. As of now most of them have been closed. As a result, output of coal decreased from 615 million tonnes in 1996 to 200 million tonnes in 2001, which has a negative impact on off-farm industries, income, and employment in mountain areas.
- c) Policy and public projects—the official ban on cutting natural forests has significant impact on timber and related industries. After the big flood of the Yangtze River in 1998, the central government began to be aware of the importance of conservation of mountain environments.

Programmes to ban cutting of natural forests and to return marginal arable land to forest land (grassland) have been launched. During 2000-2010, 96.2 billion yuan RMB will be invested in conserving natural forests. Timber production will be reduced by 19.9 million cubic metres. At the same time, 94.3 million ha of forest will be put under protection, with 740, 000 workers retired or transferred to other jobs. All these actions are significant for environmental restoration in China. This, however, poses a great challenge for economic development in mountain areas in the short run. For years the timber industry has been a key industry in many mountain areas, and a significant part of their revenue came from it. After the ban on cutting natural forests, both revenue and GDP in these areas have declined. As transportation and service industries related to the timber industry also declined, many workers have been laid off, causing decreases in income for local inhabitants. The GDP in Ganzhi Prefecture of Sichuan Province, for instance, declined by 11% in 1999 and continues to decline.

- d) Infrastructure—market, transportation, and telecommunications are still key problems for development of mountain areas. Problems in mountain areas include a poor economic foundation, shortage of energy and capital, backward technology, shortage of technicians, and, in particular, the poor education of people. In poor counties in China, 16.3% of active labourers were illiterate or semi-illiterate in 2000. For ethnic poverty groups, the illiterate or semi-illiterate constituted 30–40%. Up to the end of 1999, of all villages in 637 ethnic counties, 18.2% still did not have access to highways, 16.5% did not have electricity, 56.5% did not have piped water, and 57% did not have telephone facilities (China State Statistical Bureau 2001a). The biggest challenge for development of mountain areas is the missing or limited links between scattered settlements and major marketplaces.

THE MAIN OFF-FARM INDUSTRIES IN MOUNTAIN AREAS

Ecotourism

Due to its natural and diverse landscapes, mountain areas enjoy abundant tourism resources. As an industry with potential for harmonising the relationship between people and nature, ecotourism should be promoted as a part of ecological regeneration in the mountains. This will help local inhabitants realise the economic value of their environmental resources such as forests, grassland, green mountains, and clean water and air. They will be induced to protect and conserve mountain environments in their own interests. At present ecotourism resources in the mountains are not fully developed. A comprehensive development of ecotourism resources should be promoted on the basis of a master plan, promoting opportunities

for people for sightseeing and vacations, holding business and other meetings, carrying out scientific investigations, exploration, and so on. Well-known scenic sites in China like Jiuzhaigou, Huanglong Temple, and Four Maiden Mountain have received 1.9 million tourists, generating income of 960 million yuan RMB, which accounted for 14.2% of the GDP in Aba Prefecture (Sichuan Statistical Bureau 2001).

Hydropower

There are 670 million kw of potential hydropower in China, of which the exploitable volume is 370 million kw. Mountain areas are a source of 95% of all exploitable hydropower resources in China. Hence there is huge scope for establishing large- and medium-sized hydropower stations. As a clean and recyclable energy, hydropower can become a key industry in the mountains. In south-western China, in particular, large hydropower stations with an installed capacity of over one million kw have other advantages of inundating a small area, displacing and resettling a small population, and high returns on investment. They could be major bases for electricity generation and transportation from western China to eastern China. Medium and small-scale hydropower stations will free local people from depending on cutting trees and grass for fuels, which have negative impacts on mountain ecosystems. Replacement of coal-generated electricity by hydropower will allow medium and small-scale mines to close, reducing the chances of instability of slopes, loss of soil, and occurrence of mountain hazards caused by deforestation. Use of hydropower will also change the structure of energy use and promote the focus on clean energy with a positive impact on global warming.

Transportation and telecommunication

A key problem in development of mountain areas is the poor infrastructure. The limited accessibility and high cost of transportation deprives mountain areas of gains from marketing to cities and prevents the flow of technologies and experiences from more developed areas. This also obstructs the communication so essential for development. To promote development of off-farm industries in mountain areas, the poor transportation and telecommunication networks should be improved. Some progress in these fields is apparent. In terms of new highways in state-level poverty counties, the length of highway added was 63,000 km in 1998; 67,000 km in 1999; and 46,000 km in 2000. Of all villages, 95.4% have electricity and 72.2% have telephone facilities. The percentage of villages that have postal service and the percentage of villages that have access to highways, respectively, accounts for 75.6 and 91.9%; 94.9% of all villages receive television programmes.

Green foods and natural biological medicines

In China 90% of the total wild animals and plants are distributed throughout the mountains. When environmental pollution becomes serious in the cities, green products from the mountains become a preference of many urban residents. Famous mountain products include different types of alcoholic drinks, cigarettes, teas, and so on. These products are, however, facing the problem of small-scale and scattered production. For future development much effort should be placed on improved production bases, enhanced quality, and a strong focus on publicity and marketing of products. Trained personnel are required to make production, supply, and marketing parts of an integrated chain with greater advantages of scale. Diverse biological resources (medicinal herbs, and so on) offer opportunities for this.

Mining

Mountains are rich in mineral resources. Of over 170 minerals in China, most are found in the mountains—so much so that mining areas in China are often called ‘mining mountains’. Since mineral resources are physical bases for economic development, it is impossible not to open mines. But to open mines and to develop relevant industries also have impacts on the environment—a problem hard to tackle. However, the best way to tackle it is to identify the appropriate level and scale of mining for each deposit, and to carefully access the market demand. Extracting minerals without long-term market demand would imply a waste of resources.

Ethnic handicrafts

Mountains have often been inhabited by ethnic minorities. They have a large variety of local, labour intensive, hand-made products. An effective way to develop off-farm industries in mountain areas is to promote production of traditional and ethnic handicrafts and brand them as unique products. In this way by embodying the characteristics of traditional ethnic culture and indigenous skills, a foundation for unique off-farm industries can be built. Some examples are wax printing, textile, gold and silver ornaments, and knives. This will also help in promotion of cultural tourism to complement ecotourism.

Circular labour migration

Out-migration of labour has been a main source of income for mountain inhabitants. An assessment of rural poverty in China indicates that the number of workers in the state-level poverty counties working outside in developed areas reached 15 million in 1998, 16.6 million in 1999, and 19.1 million in 2000. The average per capita income totalled 3,309

yuan RMB. If daily expenditure is taken out, each labourer sends back approximately 1,734 yuan RMB. Women have been a major component of migrant labourers. Anhua county in Hunan, for instance, has about 80,000 women working in Guangzhou and Shengzhen in Guangdong Province. The money they send back each year exceeds all the county's other annual revenue. For people who live in harsh mountain environments or those who have no local potential for development, gradual out-migration may be a good option. From 1990 to 2000 about 2.6 million people living in mountain areas have moved out.

Development of off-farm industries in mountains: some key issues

(i) It is essential to properly assess and understand mountain areas in terms of not only poverty, unemployment, and so on, but also regarding their development opportunities and constraints to be addressed. (ii) In place of copying the developed areas, in mountain areas off-farm industries should be developed as they offer comparative advantages to mountain areas. Even within different mountain areas, development cannot be uniform. Different areas may have different priorities. (iii) In the context of market-driven processes of development, the unique products of the mountains should have 'brand names' to promote their sale in rich consumer markets in and outside the country. (iv) Promotion of urbanisation through market towns, economic restructuring, and social transformation programmes is essential if mountain areas are to benefit from the policies and programmes directed towards liberalisation and economic opening. (v) Involvement of private market agencies in mountain development to promote capital investment and market links is essential.

The above aspects should be looked into while planning and implementing the initiatives discussed in this paper.

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