

INTRODUCTION

Significance of Off-Farm Employment Research

The transfer of the rural labour force to off-farm employment is not only a crucial, social and economic problem, but also an important, scientific research issue, particularly from the perspective of policy-making. Based on historical insights from around the world, rural labour transfer is an inevitable social phenomenon that has to be resolved in time. A country, irrespective of whether it is developed or developing, whether its social system is based on a capitalist market economy or a socialist planned economy, has to accept the challenge sooner or later. Generally speaking, developed countries have already experienced the transfer of their rural, surplus labour force into industries and tertiary sectors through the movement of their rural population into cities. Unfortunately, developing countries are still faced with the problem. The authorities and scientists in developing countries are questioning whether to follow the pattern followed by the developed countries and thereby create more employment opportunities for the rural jobless. Their concerns may be expressed in the form of several questions: (a) how can the rural labour force be transferred in order to support industrial development and direct it towards economic development? (b) what are the conditions that have to be fulfilled in order to progress from an agricultural society to an industrial society? (c) how can the stability of a country or a region be assured and public confidence be maintained? and (d) what are the ways of alleviating population pressure on the environment? The research on rural labour force transition is of great significance. For this, it is necessary to understand the historical process before scientific decisions of practical value can be made.

China is a developing country. Serious though they are, the sluggish market, regional trade barriers, and the increasing debt of enterprises are comparatively as serious as the mounting employment pressure. Rural employment is of serious concern in China. The important issue is how to absorb the successful experiences from developed and developing countries, streamline these with the prevailing circumstances in China, and transform the rural labour force from a social burden into a powerful resource for development. It should be remembered that there are no ready-made measures that can be copied by China in order to bring about full and productive employment of the rural labour force. We hope that our research can produce some useful findings to help the country tackle the problem.

From Utter Neglect to Serious Concern

Studies on rural labour force transition and off-farm employment started only in the eighties. Before the eighties, there was very little literature on the subject in China. In recent years, however, a great deal of literature on off-farm employment has appeared in journals and newspapers, dealing particularly with agricultural, rural and economic strategies, and regional development. It is expected that research on off-farm employment will continue for a long time into the future.

Why did the situation change so much from before the eighties to after the eighties? There are many reasons for this state of affairs. Prior to the introduction of reforms and economic liberalisation, nobody dared state, because of the ban on opinions, that unemployment existed in China. Research on rural labour surplus and employment was prohibited and people could be penalised if so involved. The commune system controlled rural activities at that time. Agricultural efficiency was low and the surplus labour force was concealed. In the eighties, the phenomenon of the surplus labour force in rural areas could not be concealed any longer when the Household Contract Responsibility System was introduced and productivity increased. Today, studies on off-farm employment are considered relevant. Because of a free academic environment in which different points of view can be expressed, different schools of thought and different theories have been actively pursued. The concern for off-farm employment has been voiced by decision-makers at all levels, particularly now when the situation in the countryside is serious. Local authorities and farmers hope that academicians and researchers will provide appropriate theories and methods to overcome the crisis.

Current Thinking about Off-Farm Employment in China

Based on publications on this issue, the current thinking has been summarised.

1. Changes in the rural labour force are inevitable with changes in the agricultural economy. Transformation in the pattern of the rural labour force is necessary for social and economic development. Increase in the surplus labour force is indicative of the low development level and irrational economic structure. The task ahead is not to conceal the phenomenon and argue about it but to resolve it by analysing the social and economic development process.

The development of the market economy and the decline of the subsistence economy are external factors that motivate the transformation of the rural labour force. The pressure of the increasing population on land and the desire to improve living standards are the internal factors. The constraints that inhibit the process are: the urban-rural barrier; the low level of rural labour skills; lack of capital; and unbalanced production patterns (as characterised by the coexistence of modern industry and traditional agriculture) as caused by the inappropriate economic development strategies in the past.

In order to transform the rural labour force structure, the following measures should be taken: (a) strengthening the concept of the market economy, (b) opening up the labour force market step by step, (c) adopting favourable policies, (d) adjusting the economic structure, and (e) increasing agricultural inputs.

2. Situation regarding off-farm employment in China. The development pattern of off-farm activities is quite different from those of industrialised countries. Traditionally, China adopted the strategy of giving priority to heavy industries. Compared with other economic sectors, investment was concentrated in capital-intensive industries rather than in labour-intensive industries. Furthermore, the commerce and service sectors have not progressed much. While the value on industrial output kept on increasing, the capacity to absorb employment did not increase proportionately. In order to prevent rural labourers from flowing into the cities, the household registration system was adopted in which the employment of rural labourers was confined mainly to rural areas.

With the introduction of economic reforms, China is attempting to eliminate the negative effects created by the traditional development strategy. Hence, emphasis is now placed on enhancing the capacity of urban industries to absorb more labourers and, to some extent, on reducing the blockade created between rural and urban areas in relation to labour flow. However, this alone cannot eradicate immediately the deep-rooted obstacles which prevent rural labourers from doing off-farm work. One of the reasons is that the cities themselves have a large amount of surplus labour. Meanwhile, the government has not been able to allocate adequate amounts of human resources, material resources, and financial resources to promote rural off-farm employment. Therefore, since 1978, we have not pursued the method of industrialized countries, i.e., to create opportunities for rural labourers by enlarging urban industry. Production was expanded by increasing investment and enlarging production scale in order to solve rural employment problems. The main feature in China is that the town and township enterprises, not the urban industries, have been absorbing the bulk of the rural labour force. Furthermore, the enterprises are characterised by collective ownership and individual ownership, not state ownership.

3. Main causes of the surplus labour force in China. There are four causes for the surplus labour force in China.

- (a) The rate of population growth exceeds the growth rate of job opportunities. For instance, from 1978 to 1987, the rural labour force in China increased by 83,620,000 from 306,380,000 to 390,000,000 at an average of 8,360,000 per year. The maximum absorption capacity for employment was, however, only 5,666,000 per year. This means that, in China, surplus rural labour force accumulated by 2,694,000 each year.
- (b) Employees in some sectors lost their jobs when these sectors could not be sustained. For instance, thousands of employees engaged in logging lost their jobs because forest resources were exhausted.
- (c) Agricultural efficiency was raised by saving on labour inputs, but without the replacement of appropriate job substitutes for the displaced labour force. For instance, in the early eighties, cultivated land was divided into small pieces for distribution to different families. Specialised households cultivated one or two crops with relatively high efficiency, but the land area did not increase, thereby contributing to the surplus labour force.
- (d) Some farmers, engaged in traditional agriculture, lost their jobs because they were unable to fit into the new market situation.

4. Basic principles for transformation of the rural labour force . In China, it is imperative to forestall rapid economic development and prevent the recurrence of an unstable economy and the imbalance in aggregate demand and supply. This is also true in the Hengduan Mountains. It is more reasonable to promote off-farm employment according to the principle set down below.

- (a) Rural labour force transformation must be a long-term process. We should avoid the impetuosity of treating the rural labour force transfer as a rush job which we hope to complete in as little time as possible. The other point is that we should not neglect local conditions by copying the pace of development in coastal areas. The transfer of the

agricultural labour force to off-farm employment is a definite necessity, but it is not a simple task and there is no short cut.

- (b) Transfer of the labour force needs suitable coordination. Off-farm employment is an integral part of a comprehensive system that includes society and economy. When analysing the essential conditions for transfer of the rural labour force and implementation of off-farm employment plans, we should simultaneously analyse the problems related to industrial expansion, marketing, capital requirements, technology, and necessary skills.
- (c) Labour force transfer can take place only with the willingness of the local people affected. We should not forget that in the past many development strategies and plans, directed by a few leaders without the full consent of the people, had resulted in failure and had dampened people's enthusiasm. Transfer of the labour force implies changes in occupational patterns local customs, living style, and the value system. It is a big challenge to farmers who have been used to the same life style from one generation to another. This is particularly true of minority nationalities in the Hengduan Mountains who have strong religious beliefs. Therefore, we should be very careful to implement off-farm activities and related policies without damaging their belief systems. Innovations will not be successful unless the people accept the new policies and agree to change their lifestyle.
- (d) Transfer of the labour force must be accomplished step by step: from leaving the land without leaving the township to leaving both land and township, from countryside to town, and then to city. There are several ways to transfer the surplus labour force: off-farm sectors within agriculture, specialization within households, rural industry, tertiary sectors, and migration to urban areas. The first step should be to transfer the existing surplus labour force. More jobs can be created later to absorb the labour force displaced because of increased agricultural efficiency. Job-seekers may have to go through different stages: from peasant-workers holding many jobs to seasonal employee status, to full-time wage labourer, to professional employee.

5. Limitations of the studies to date. Studies on the subject have progressed recently and some of the results have been accepted by decision-makers. However, current research on off-farm employment in China is in the preliminary stage and needs to be extended further to address the problems outlined below.

- (a) Most of the studies analyse the matter from a macroscopic perspective on a country scale and use second hand information. Only a few are based on first hand data.
- (b) Current research on the subject does not address the problems in a comprehensive and systemic fashion.
- (c) Current research has devoted more attention to rural enterprises and only a few to seeking other ways and other industries.
- (d) There are only a few papers that focus on West China and almost none that deal with the problems in the Hengduan Mountains.

- (e) The women's role in rural labour structure and the relationship with off-farm employment have been neglected.
- (f) The policy studies on labour force transition paid more attention to the employment system than to economic factors over the past 40 years and are very superficial. Systemic research related to policy is very weak.

A General Survey of Off-Farm Employment in China

1. There were about 86.11 million rural labourers in China engaged in off-farm activities in 1988, according to the State Statistics Bureau. If the rural labourers concurrently doing farm work and other activities were included, the data base on the sample survey in 222 villages indicates that there were about 123.86 million engaged in off-farm employment. This accounts for about 29.3 per cent of all rural labourers. Table 1.1 portrays the overall scale and speed of off-farm employment at different development stages since the rural economic reforms. A new development occurred in 1989. About 10 million people who were engaged in off-farm employment had to return to farm work.

According to the census, 10 million rural labourers will be added to the labour force every year. At this rate, by the year 2000, there will be 200 million rural labourers who will be seeking work opportunities outside the farm. This is based on the assumption that the level of agricultural technology remains unchanged during the period. Nationally, the distribution of the surplus rural labour force is expected to be 24.5 per cent in the eastern coastal areas, 51.5 per cent in the central region, and 23.9 per cent in the western region.

Table 1.1: Off-farm Employment from 1978 to 1988

	Unit	Total (1978-1981)	Preparation Period (1978-1988)	High Growth Period (1981-1985)	Gradual Growth Period (1985-1988)
Total growth	Thousand	54,615	-1,227	36,852	18,990
	%	173.4	-3.9	121.7	28.3
Average annual growth	%	10.6	-1.3	22.0	6.4

2. The main concentration of off-farm employment is in industries and commerce and service sectors. As shown in Table 1.2, rural industries employ 3.5 times more people than the commerce and service sectors. The corresponding output value is about 5 times greater. The rate of increase is, however, greater in rural commerce and service sectors.

Table 1.2: Employment and Output Value in Industry and Commerce & Service Sectors in Rural Enterprises

	Industry		Commerce & Service	
	Output Value (100 Million yuan)	Employment (Million)	Output Value (100 Million yuan)	Employment (Million)
1978	420.06	19.70	36.82	2.49
1988	5,357.08	71.88	1,023.31	21.07
Annual growth average	29.00	13.80	39.40	23.90

Note: The conversion rate between the U.S. dollar and RMB yuan was 1.53 in 1978 and 3.75 in 1988.

3. In towns and townships, total off-farm employment has increased from 28.26 million to 95.45 million between 1978 to 1988. The occupational pattern has also changed significantly. Agricultural labourers have decreased drastically (from 21.5% to 2.6%). The relative proportion has doubled in construction as well as communications and transportation and trebled in commerce and service (see Table 1.3).

Regional Differences in Off-Farm Employment in China

Economic and social development are very unbalanced among the provinces in China. The provinces in the Eastern Coastal Areas constitute the most developed region. On the other hand, because of geographical constraints and natural conditions, the provinces in the Western Region are behind economically and socially. The economic and social conditions in the Central Region lie in between the two. This imbalance is reflected in the development of off-farm employment in rural China. Some important features are discussed below.

1. The conditions of off-farm employment are distinctly different among the three regions (Table 1.4). The rate of increase of labourers engaged in off-farm activities is significantly greater in the Eastern Region. The Western Region is clearly the worst off. The implications are apparent in the sense that the surplus labour force is largest in the Western Region, and a large proportion of the labour force is still engaged in agriculture. The transition to off-farm employment is relatively much lower here.

Table 1.3: Employment in Different Off-Farm Enterprises in Towns and Townships of China
(Unit of employment: million)

Year	Total employment	Agriculture		Industry		Construction		Communication & Transportation		Commerce & Service	
		employment	%	employment	%	employment	%	employment	%	employment	%
1978	28.26	6.08	21.5	17.34	61.3	2.36	8.4	1.04	3.7	1.44	5.1
1988	95.45	2.50	2.6	57.03	59.7	14.85	15.6	6.84	7.2	14.23	14.9

Table 1.4 : Regional Differences in Off-Farm Employment Indicators (1985)

	China	Eastern Region	Central Region	Western Region
Surplus labour force (%)	28.1	22.8	27.2	40.5
Increase in the off-farm labour force compared with the increase in total labour force (%)	68.3	131.7	62.4	19.5
Annual shift from agricultural labour force (%)	16.1	18.2	15.0	12.7
Proportion of labour force shift from traditional agriculture to cash crop cultivation (%)	15.1	6.9	18.2	28.3
Proportion of labour force shift from traditional agriculture to livestock and sideline production (%)	25.7	13.4	34.0	26.7
Proportion of labour force shift from traditional agriculture to off-farm activities (%)	59.1	79.7	47.8	45.0

Source : Deng Yiming 1989

2. The ownership patterns in the three regions are distinctly different. As shown in Table 1.5, in the relatively developed eastern region, the productive conditions were favourable even under the former system and they had accumulated funds from agriculture for the development of urban industry. Some Commune and Brigade-run enterprises were therefore established prior to 1978. After 1978, the collective economy was not destroyed with the disintegration of the People's Commune. Instead the collective economy has been strengthened because of the positive actions taken by the townships and villages towards organizing production and encouraging off-farm employment among the agricultural labour force. So, in the Eastern Region, off-farm employment is promoted mainly through collective enterprises owned by townships and villages (average of 75%).

Table 1.5 : The Composition of Output Value in Township Enterprises by Ownership and by Province (1988)

Province	Total output value of township enterprises (Billion yuan)	Output value of township enterprises by ownership (%)				
		Total	Township	Village	Households	Individuals
National Total	6495.66	100.00	37.54	29.62	8.64	24.20
Eastern Region	4328.72	100.00	41.41	33.83	7.89	16.90
Beijing	139.55	100.00	41.43	47.31	1.88	9.39
Tianjin	127.91	100.00	26.96	63.14	5.75	4.14
Shanghai	231.86	100.00	59.83	35.54	3.27	2.36
Zhejiang	607.17	100.00	51.72	29.92	9.15	9.21
Jiangsu	1078.41	100.00	53.72	34.45	2.65	9.18
Guangdong	476.14	100.00	40.72	26.36	8.59	24.33
Shandong	706.14	100.00	33.47	42.02	6.82	17.69
Liaoning	320.44	100.00	28.85	33.33	4.64	33.02
Fujian	164.14	100.00	28.15	27.69	19.45	24.71
Hebei	416.26	100.00	19.43	24.48	23.07	33.02
Guangxi	60.52	100.00	30.26	9.67	13.16	46.91
Central Region	1544.46	100.00	27.87	22.88	10.53	38.72
Heilongjiang	115.58	100.00	28.85	19.12	3.02	49.01
Jilin	109.76	100.00	23.47	20.84	4.71	51.01
Inner Mongolia	35.54	100.00	27.25	13.73	5.61	53.41
Anhui	209.50	100.00	32.34	14.56	12.79	40.13
Jiangxi	97.26	100.00	35.21	21.70	11.74	31.75
Henan	398.24	100.00	14.61	22.70	19.97	42.65
Hubei	246.15	100.00	36.79	22.76	6.01	28.32
Hunan	199.24	100.00	38.94	28.88	5.17	34.88
Shanxi	133.16	100.00	25.01	21.02	6.94	31.82
Western Region	622.48	100.00	34.62	36.23	9.02	38.84
Sichuan	339.48	100.00	39.43	17.53	9.17	37.15
Yunnan	47.23	100.00	31.82	14.25	4.94	28.30
Guizhou	33.01	100.00	26.85	34.95	8.47	57.72
Shanxi	110.02	100.00	21.64	6.95	10.66	40.56
Gansu	47.11	100.00	36.87	27.14	11.42	36.59
Qinghai	4.52	100.00	31.42	15.12	9.98	40.07
Ningxia	10.72	100.00	37.30	18.53	3.02	51.18
Xinjiang	17.71	100.00	41.61	10.72	1.75	45.92
Tibet	1.37	100.00	42.63	13.63	9.70	34.04
Hainan	11.26	100.00	28.44	9.73	14.36	48.43

Source: Agricultural Publishing House 1989.

Note: The conversion rate between the U.S. dollar and RMB yuan in 1988 was 3.75

In the Western Region, because of the backwardness in economic development, the collective economy run by Communes and Brigades was very poor. After the disintegration of the People's Commune, off-farm initiatives were taken up by peasant households or individuals themselves. For example, in poverty-ridden areas such as Inner Mongolia, Xinjiang, Guizhou, and Ningxia, the output value produced by private enterprises accounting for more than 45 per cent of the total and in Guizhou Province the output value generated by the private enterprises is as high as 57 per cent of the total.

3. Off-farm employment is concentrated in mainly the secondary and tertiary sectors of the township enterprises in the Chinese countryside. But because of such differences as the level of economic development, the access to cities, the quality of personnel, and the ability for capital accumulation, the structure of off-farm employment differs from one region to another. Some interesting observations can be made from Table 1.6.
 - (a) The poorer the economy is, the lower the proportion of industry. For example, the proportional contribution of industry is much greater in the Eastern Region than in the Central and Western Regions, both in terms of employment and output value.
 - (b) The output value per worker is consistently greater in the Eastern Region than in the other two. In the case of industry, it is two times greater.
 - (c) Thirdly, in terms of the employment structure, construction as well as commerce and services are very important sectors for the Central and Western Regions.
 - (d) Because of the relatively higher output value per worker in the transport sector, it makes an important contribution to the economy in the Central and Western Regions.

Machinery, construction materials, and textile industries, the top three in terms of output value, are mainly located in the Eastern and Coastal Provinces. For instance, the rural machinery industry is mainly concentrated in Jiangsu, Zhejiang, Shanghai, Shandong, Liaoning, Guangdong, Hebei, Beijing, and Tianjin. Their output values account for 86 per cent of the total from the rural machinery industry. Rural textile industry is also mainly concentrated in these eight provinces, and their output value accounts for 90 per cent of all rural textile industry.

In addition, 80-90 per cent of the leather and garment industries are located in the Eastern Region. The Central Region and some parts of the Western Region are well known for such industries as food, paper-making, ceramics, fodder, and forestry. Mining is another industry that predominates in the Central and Western Regions and its output value accounts for 5.4 per cent of the whole rural industry.

4. Technical choices about off-farm employment are dependent upon the availability of funds, credits, and availability of technology. Generally speaking, enterprises run by townships and villages tend to be large scale. They use more advanced technologies and are more productive. It is apparent, as shown in Table 1.7, that the average number of workers employed per enterprise in the Eastern Region is greater by 2.1 times the average output value, industrial by 4.7 times, and the average output value per worker by 2.1 times when compared with that in the Western Region. Obviously, the technical level and the productivity are much higher in the Eastern Region than in the Central and Western Regions.

**Table 1.6: The Distribution of Township Enterprise Workers
by Sectors and by Regions (1988)**

	Agriculture		Industry		Construction		Transportation		Commerce	
	Q	%	Q	%	Q	%	Q	%	Q	%
Employment (million)										
National Total	2.50	2.6	57.03	59.7	14.85	15.6	6.84	7.21	4.23	14.9
Eastern Region	1.12	2.2	33.47	66.9	6.71	13.4	2.88	5.8	5.88	11.8
Central Region	1.01	3.3	16.55	53.7	5.15	16.7	2.81	9.1	5.33	17.3
Western Region	0.38	2.6	7.02	48.2	2.99	20.5	1.16	8.0	3.02	20.7
Output Value (billion yuan)										
National Total	11.53	1.8	452.90	69.7	82.78	12.7	47.33	7.3	54.92	8.5
Eastern Region	6.81	1.6	335.01	77.4	42.80	9.9	21.10	4.9	27.08	6.3
Central Region	3.87	2.5	85.57	55.4	26.10	16.9	19.37	12.5	19.50	12.7
Western Region	0.85	1.4	32.32	51.9	13.88	2.3	6.86	11.0	8.34	13.4

Source: *Statistical Abstract of Chinese Township Enterprises*, edited by the Township Enterprise Bureau of the Ministry of Agriculture, 1989.

Note: Same as in Table 1.5.

Table 1.7 : The Regional Differences in the Scale of Township Enterprises (1985)

	Agriculture	Industry	Construction	Transportation	Commerce
<u>Average Number of Workers Per Enterprise</u>					
National Total	10.7	7.4	15.5	1.8	1.9
Eastern Region	13.1	10.3	19.7	1.9	2.7
Central Region	8.9	5.5	11.1	1.8	2.7
Western Region	10.7	4.8	19.9	1.6	2.3
<u>Average Output Value per Enterprise (thousand yuan)</u>					
National Total	49	59	87	13	7
Eastern Region	79	104	126	15	13
Central Region	35	28	59	12	10
Western Region	24	22	93	10	6

Source : *Statistical Abstract of Chinese Township Enterprises*, edited by the Township Enterprise Bureau of the Ministry of Agriculture, 1989.

Note : Same as in Table 1.5.

Introduction to the Hengduan Mountain Region in Sichuan Province

The Hengduan Mountain area of Sichuan Province, covered by this paper, includes three autonomous prefectures (Ganzi, Aba, Liangshan) and one municipality (Panzhihua). It covers an area of 0.306 million sq km with a rural population of 4.86 million in 1988, accounting for 53.1 per cent and 5.4 per cent of the total area and the total population of the province respectively. The administrative divisions include 49 counties, 1 autonomous county, 3 urban districts, and 1 city under the prefecture's jurisdiction (Table 1.8).

Table 1.8 : Administrative Divisions in West Sichuan

Autonomous Prefectures & Municipality	Ordinary Counties	Autono-mous County	Urban Districts	City under Jurisdiction of the Prefecture	Towns	Townships
Total Number	49	1	3	1	66	121
Aba	13	0	0	0	17	218
Ganzi	18	0	0	0	16	338
Liangshan	16	1	0	1	29	688
Panzhihua	2	0	3	0	4	77

Source : China Statistics Publishing House 1988a.

Physical Features

Western Sichuan is a part of the Qinghai-Xizang Plateau. The elevation in most of the area is over 3,000m to 4,000m and the climate is usually cold. Diversity is a prominent characteristic of the area. Firstly, the bioclimatic variation is apparent when moving from the low to the high elevations. At low elevation, the conditions are subtropical in nature. As the elevation rises, a frigid temperate belt predominates, finally culminating into a permanent snowbelt. Microclimatic belts with corresponding flora and fauna within a wide variety of topographies give an aura of "four seasons on one mountain and different climates within a small area" (Table 1.9). Secondly, physical conditions undergo obvious changes from south to north-west. We can divide the study area into four agro-ecological zones: (I) a high plateau-pasture zone in the Northwest, (II) a zone of high mountains and gorges with forests and crops in the East and Centre (III) middle-sized mountains and broad valleys with grains and tropical crops in the South-west, and (IV) middle-sized mountains and upland-crops and forests in the South-east (Figure 1.1). Thirdly, there are a lot of resource potentials waiting to be exploited. These potentials are reflected in terms of their varieties, quantities, and amounts per capital (Tables 1.10 and 1.11). Hydropower, gold mines, copper mines, iron mines, silver, zinc, rare metals and non-ferrous metals, tropical crops, and Chinese herbs abound in the area.

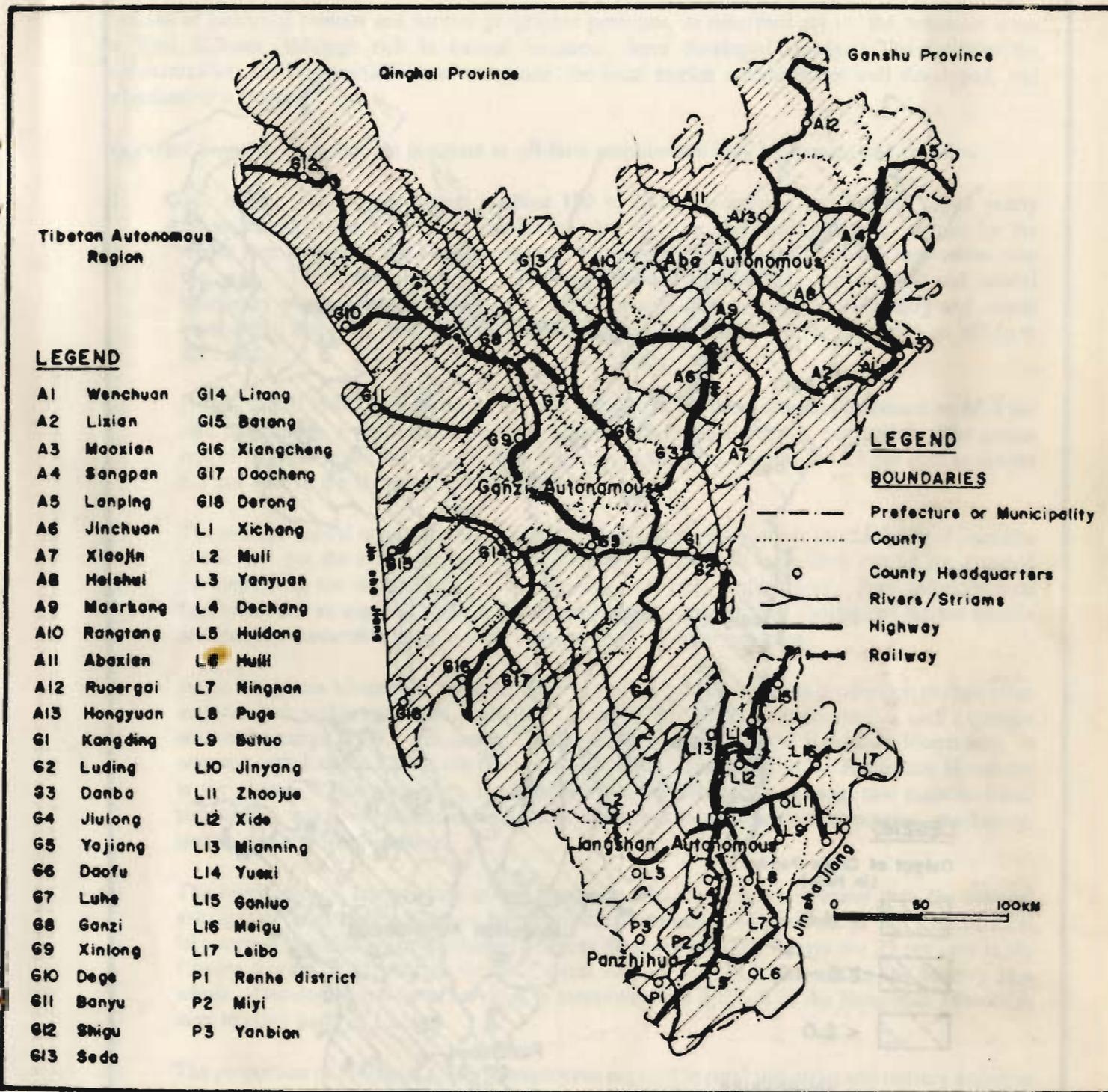
Within Western Sichuan, those counties and cities which are relatively more developed are concentrated in the eastern part, close to the Sichuan Basin. Therefore, West Sichuan has two characteristics: economically it is linked to the Sichuan Basin in the east and culturally it is more similar to communities in the Qinghai-Xizang (Tibet) Plateau in the west. The region is the home of many minority nationalities, e.g., Tibetans, *Yi*, *Qiang*, *Hui*, Mongolian and others (Table 1.12). Generally speaking their population distribution is not even (Table 1.13) and they are concentrated in small basins, river valleys, and on both sides of the railway and highways.

About four million people (approximately 82%) are involved in agriculture and 0.4 million (8%) in animal husbandry. Those engaged in crop production are distributed throughout the mountain areas and river valleys and those involved in animal husbandry are mainly located in the plateau of North-western Sichuan. Agro-based cottage industries are concentrated in the agricultural areas.

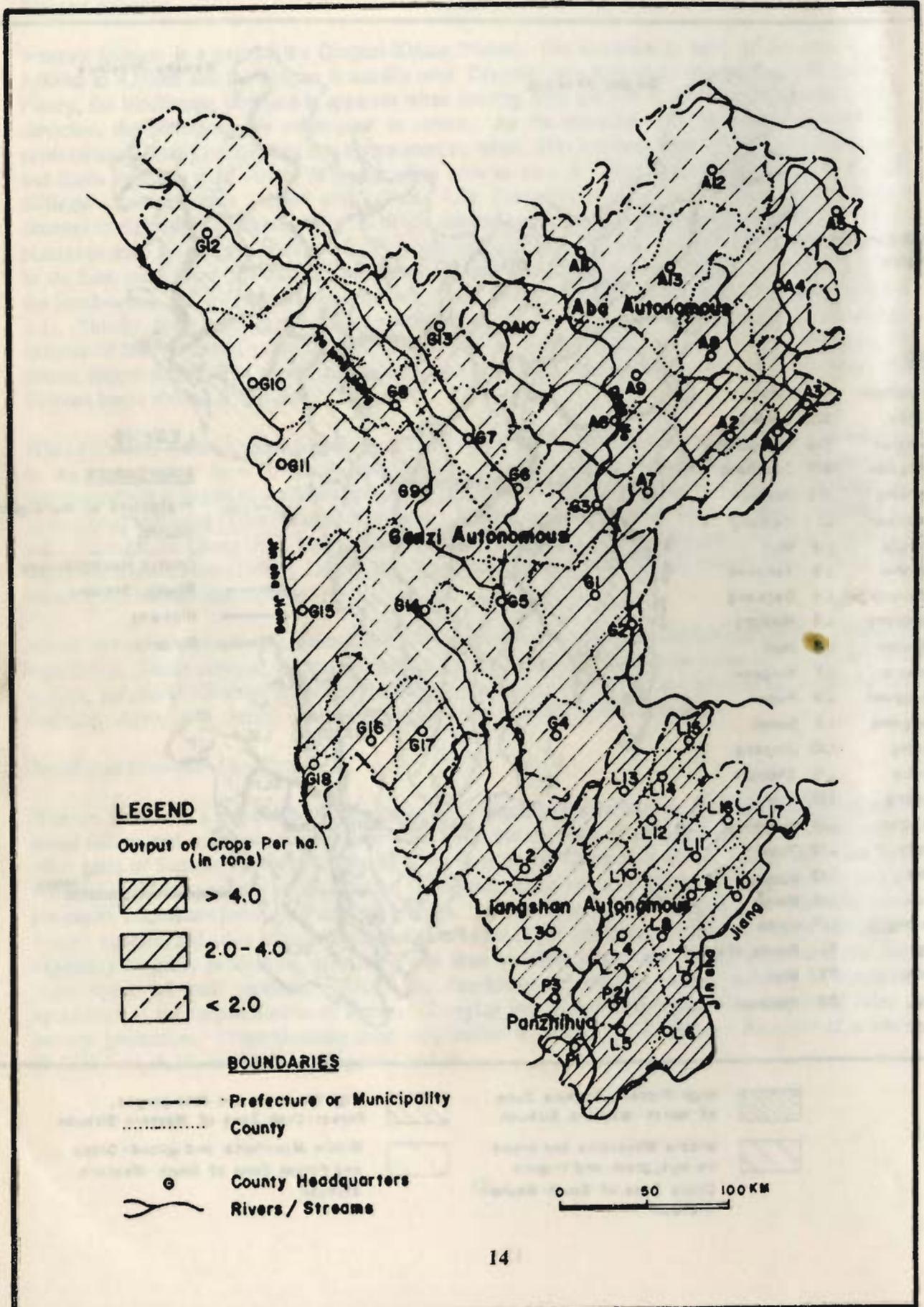
Social and Economic Development

Western Sichuan is a large area where economic development is relatively poor. It has made progress in social reform and economic development since 1949, but the level of development is still lower than in other parts of Sichuan Province and much lower than that in China as a whole. Many resources have not been exploited properly or adequately. The gross output value of industry and agriculture and the per capita income are lower than national average. It is clearly an underdeveloped area. Cultivable land, forests, pasture, and other resources are greater in terms of per capita figures but the yield in agriculture, especially in grain production, is much lower than in other places and cannot even meet the food requirements of local residents. Except for Panzhuhua municipality, where industry is dominant, agriculture is the largest source of income. Logging and livestock also play very important roles in income generation. Proportionately their contribution is larger than in Sichuan Province as a whole (Tables 1.14, 1.15, and 1.16 and Figure 1 and 2).

Figure 1.1: Administrative Divisions And Agro-ecological Zones of West Sichuan



**Figure 1.2 : Regional Variations in Crop Production,
(Output Per hectare)**



A Summary of Off-Farm Employment Features in the Hengduan Mountain Region

Because of historical reasons and natural geographic positions, as described above, the mountain areas in West Sichuan, although rich in natural resources, have developed slowly. The facilities for communication and transportation are inadequate, the local market system is not well developed, and urbanisation is limited.

Important characteristics that are pertinent to off-farm employment may be summarised as below.

- (1) The output of grain per person is about 100 to 200 kilogrammes, and the per capita yearly income is 200 *yuan*. There are even some very poor people whose grain and income for the whole year are below 100 kilogrammes and 200 *yuan*; hardly enough to sustain themselves over the year. The area suitable for cultivation is much smaller than the forestry and animal husbandry area. Although some surplus farm labourers may be engaged in forestry and animal husbandry, there are still a large number of rural labourers who are in need of off-farm activities.
- (2) From 1978 to 1984, the proportion of those engaged in off-farm activities increased by 68.3 per cent in China as a whole, compared to 9.6 per cent in the Hengduan Mountains. The annual rate of increase in the share of off-farm activities in China as a whole is 16.1 per cent as against 6.5 per cent in the Hengduan Mountains.
- (3) The average capital input per person from the State and the Province in the Hengduan Mountains is not low, but the available funds are not enough to carry out large-scale capital construction for improving the economy and providing more off-farm employment. Poor infrastructural facilities, such as unpaved roads, poor communication systems, and shortage of market centres are also not favourable to promotion of large-scale off-farm activities.
- (4) In the Hengduan Mountains, the main transfer mechanism is from grain production to cash crops and livestock within agricultural activities. From 1978 to 1985, the proportion of such a transfer was in the range of 59.1 per cent in China and 42.4 per cent in the Hengduan Mountains. In contrast with Eastern China, the transfer to industrial occupations in the Hengduan Mountains is very low. Within industries, the activities are concentrated in mining, raw material-based production, and livestock-based production rather than in construction, commerce, machinery, textile, and export processing.
- (5) The level of rural labour skills in the Hengduan Mountains is much lower than the national average. For example, illiterate labourers constitute about 40 per cent of the total of rural labourers in the Hengduan Mountains whereas the corresponding figures are 25 per cent in the Eastern Region, 27.7 per cent in the Central Region, and 29.2 per cent in the country as a whole. Developing off-farm activities is therefore more difficult in the Hengduan Mountains than in other parts of China.
- (6) The proportion of full-time, off-farm employees engaged in rural industries and tertiary activities is less than 30 per cent. The remaining 70 per cent are occupied on a seasonal basis and are engaged in multiple activities. (In Eastern China, the permanent workers amount to 79.7 per cent of the total labourers.) In addition, the scale of activities is relatively smaller. Sixty per cent of Sichuan's rural enterprises are owned by townships and villages. In the Hengduan

Mountains, the enterprises run by household groups and individual households account for 64.1 per cent of the total enterprises in terms of the number of labourers employed. The average employee per enterprise is only 3.6 people; fixed assets are only 6,507 *yuan* for each enterprise.

More details on these features will be described in subsequent chapters.

Table 1.9 : Vertical Zonation and Its Characteristics in West Sichuan

Regions	Altitude (m)	Annual average temperature (°C)	Annual accumulative temperature of > 10° C (°C)	Landscape types	Plant cover	No. of crops	Major crops and other land resources
South-west Sichuan	600-1300	19-21	6,800-7,500	Subtropical dry hot valleys	Bush with sparse trees	3 crops/year	Rice, tropical crops
(Panzhihua and Liangshan)	1200-1800 (Yalongjiang Valley)	15-19	4,800-6,800	Subtropical broad valleys	Evergreen broad-leaved forest	2 crops/year	Rice, wheat, oilseeds, vegetables,
	1200-2400 (Jinsajiang Valley)	13-19	3,600-4,800	Subtropical and temperate hills	Deciduous broad-leaved forest	3 crops/2 years	Rice, maize, wheat, fruits
	> 2400	< 13	< 3600	Temperate and cold mountains	Coniferous broadleaved forest	1 crop/year	Buckwheat, potatoes, livestock, forest products
North-west Sichuan	> 1800-2600	12-15	3,000-5,000	Subtropical and temperate river valleys	Deciduous forest	2 crops/2 years	Maize, winter wheat, livestock
(Aba and Ganzi)	> 1800-2800	8-11	2,300-3,000	Temperate mountains, gorges	Coniferous broad-leaved forest	3 crops/2 years	Spring wheat, maize, (Aba) livestock
	2800-3000	2-7	900-1,800	Temperate high plateau, cold mountain	Coniferous forest, high mountain bushes, pastures	1 crop/year	Spring wheat, highland barley, peas, livestock
	> 4000	< 0	< 300				Livestock

Source : Chen Guojie 1990.

Table 1.10 : Land Use in West Sichuan

Regions	Cultivated Area		Forest Area ('000 ha)						Pasture ('000 ha)				
	Amount ('000 ha)	%	Well preserved forest		Shrubs	Sparse woods	Young forest	Deteriorated forest	Total		Natural condition	Protected	Replanted
			Amount	%					Amount	%			
Panzhihua	49.1	0.1	305.5	3.2	61.9	65.2	3.6	10.9	191.0	1.1	183.3	6.9	0.8
Aba	99.3	1.1	1,427.1	15.0	1,133.9	286.7	85.6	81.1	4,217.3	23.5	4,191.3	15.6	10.4
Ganzi	95.5	1.1	1,771.8	18.7	1,934.5	267.3	13.8	143.7	9,016.5	50.3	8,978.6	35.7	2.2
Liangshan	595.2	6.7	1,731.7	17.6	901.5	541.3	39.4	63.9	1809.8	10.1	1,804.4	-	5.4
West Sichuan	839.1	9.4	5,176.1	54.5	4,031.6	1,160.5	142.4	299.6	15,234.6	85.0	15,157.6	58.2	18.8
Sichuan	8,907.5	100.00	9,443.3	100.0	5,696.3	2,446.2	672.1	822.1	17933.8	100.0	17,790.2	121.9	21.8

Regions	Water Resources (Million m ³)			Surface Water			Fishing Area			Accumulated Log (Million m ³)	
	Total	%	Available water	Area ('000 ha)	%	%	Unutilised area	Utilised rate (%)	Total	%	
											Unutilised area
Panzhihua	4,946	1.5	530	2.0	0.3	0.7	937	47.8	34.7	2.5	
Aba	39,550	12.3	3,602	11.8	2.0	4.6	6	0.1	385.4	27.6	
Ganzi	66,848	20.7	18,844	5.5	0.9	23.9	11	0.2	436.6	31.2	
Liangshan	38,080	11.8	2,843	41.1	6.8	3.6	9,375	22.8	230.0	16.4	
West Sichuan	149,424	46.3	25,819	60.4	10.0	32.8	10,929	17.1	1,086.7	77.7	
Sichuan	322,473	100	78,717	606.6	100	100	255,386	12.2	1,398.3	100.0	

Source: Office of the Committee for Agricultural Regionalisation in Sichuan, 1987.

Table 1.11: Comparison of Major Resource Availability Per Capita (1988)

	Cultivated land (ha)	Forest (ha)	Accumulated timber volume (m ³)	Large animals (number)	Water resources quantity (m ³)	Pasture (ha)	Forest cover (%)
Panzhihua	0.06	0.36	40.94	1.03	5,835	0.23	49.5
Aba	0.13	1.93	522.37	4.23	53,603	5.72	31.2
Ganzi	0.12	2.24	551.67	5.36	84,469	11.39	27.9
Liangshan	0.18	0.51	67.87	2.03	11,239	0.53	25.4
W.Sichuan	0.15	0.90	188.44	2.71	25,919	2.24	28.6
Sichuan	0.06	0.09	13.64	1.27	3,145	0.17	12.1
China	0.09	0.11	8.35	0.83	2,517	0.25	12.0

Source : (1) Office of the Committee for Agricultural Regionalization in Sichuan, 1987

(2) Handbook of Natural Resources in China, published by the Press House of Sciences, 1990.

Table 1.12: Population of Minority Nationalities in West Sichuan

Name of Nationalities	Panzhihua		Aba		Ganzi		Liangshan	
	1982	1964	1982	1964	1982	1964	1982	
Han	732,680	227,063	301,762	125,488	188,183	1,132,768	1,799,863	
Tibetan	119	197,259	306,117	369,101	554,436	27,612	44,651	
Yi	632,680	12	26	9,898	16,632	799,078	1,336,428	
Miao	2,194	41	63	41	30	5,040	8,145	
Qiang	1	48,261	98,400	354	1,091	11	29	
Hui	3,030	10,983	18,575	802	1,235	8,146	13,394	
Lisu	7,121	0	0	0	0	3,616	6,609	
Mongolian	172	10	39	6	24	11,784	3,460	
Bu Yi	45	6	11	5	2	307	3,460	
Naxi	2,175	2	0	47	622	2,186	10,425	
Zhuang	512	10	37	1	7	2,676	805	
Tai	0	0	0	1	4	887	1,825	
TOTAL	1,380,729	403,647	725,030	505,744	762,266	1,994,111	3,229,093	

Source: 1. Population Yearbook of Sichuan, published by the Press House of Sichuan's Academy of Social Sciences, 1988.

Table 1.13: Population Density and Natural Growth Rate

	Area (sq km)	Population	Population density (persons/km ²)	Birth rate per thousand	Death rate per thousand	Natural growth rate per thousand
Panzhihua	7,434	847,694	114	6.2	2.3	3.9
Aba	82,840	737,828	9	19.0	7.0	12.0
Ganzi	147,035	791,389	5	16.7	8.6	8.1
Liangshan	80,115	3,388,211	56	20.4	8.1	12.3
West Sichuan	297,425	5,765,122	19	17.6	7.2	10.4
Sichuan	565,798	102,535,319	190	21.3	6.8	14.5
China	9,563,900	1,065,290,000	111	20.5	6.4	14.1

Source: Population Yearbook of Sichuan, published by the Press House of Sichuan's Academy of Social Sciences, 1988.

Table 1.14: Comparison of Output Values in Different Sectors of the Economy in West Sichuan

Regions	Agriculture		Industry		Construction		Transportation		Commerce		Total	
	Output Value	%	Output Value	%	Output Value	%	Output Value	%	Output Value	%	Value	%
Panzhihua	12,572	11.9	73,922	69.8	10,029	9.5	2,768	2.6	6,581	6.2	105,872	100
Aba	26,204	48.2	18,468	34.0	3,819	7.0	1,235	4.1	3,661	6.7	54,387	100
Garzi	26,205	55.9	12,678	27.1	3,280	7.0	1,155	2.5	3,521	7.5	46,839	100
Liangshan	81,237	56.2	35,722	24.7	9,408	6.5	6,555	4.5	11,626	8.1	144,548	100
West Sichuan	146,218	41.6	140,790	40.0	26,536	7.5	12,713	3.6	25,389	7.2	351,646	100
Sichuan	2,362,798	46.0	1,866,805	36.3	302,835	5.9	138,988	2.7	467,539	9.1	5,138,975	100
China	272,000,000	34.5	357,300,000	45.3	51,400,000	6.5	30,800,000	3.9	77,200,000	9.8	78,700,000	100

Source: Statistical Yearbook of Sichuan Province, 1988.

Note: The conversion rate between the U.S. dollar and RMB yuan in 1986 was 3.72.

Table 1.15: Comparison of Selected Economic Indicators per Capita (1987)Unit : *Yuan*

	Total output value (1986)	Gross output value of industry and agriculture	Gross output value of agriculture	Gross output value of industry	Total value of retail sales	Grain production (Kg)
Panzhihua	1,427	1,020	148	872	646	188
Aba	739	605	355	250	425	293
Ganzi	594	491	331	160	410	221
Liangshan	429	344	239	105	263	359
West Sichuan	558	498	254	244	354	307
Sichuan	512	1,066	372	694	356	375
China	746	1,711	433	1,278	539	384

Source: 1. Statistical Yearbook of Sichuan Province, 1988.
2. Handbook of Natural Resources in China, published by the Press House of Sciences, 1990.

Note: The conversion rate between U.S. dollar and RMB *yuan* was 3.72 in 1987.

Table 1.16: Total Output Value of Agriculture by Sector (1987)

Unit: 100 million yuan

Regions	Total of Agriculture		Crops		Forest		Livestock		Sideline Production		Fishing	
	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%
Panzhihua	1.33	100	0.76	57.1	0.10	7.5	0.35	26.3	0.11	8.3	0.01	0.8
Aba	2.77	100	0.92	33.2	0.20	7.2	1.28	46.2	0.37	13.4	-	-
Ganzi	2.88	100	0.68	23.6	0.13	4.5	1.63	56.6	0.44	15.3	-	-
Liangshan	9.03	100	5.06	56.0	0.71	7.9	2.19	24.3	1.04	11.5	0.03	0.3
West Sichuan	16.01	100	7.42	46.3	1.14	7.1	5.45	34.0	1.96	12.2	0.04	0.2
Sichuan	289.97	100	175.27	60.5	14.10	4.9	80.67	27.8	17.23	5.9	2.70	0.9
China	4,675.70	100	2,638.15	60.7	219.76	4.7	1,066.06	22.8	327.30	7.0	224.43	4.8

Source: 1. Yearbook of Sichuan Province, 1988.

2. Handbook of Natural Resources in China, published by the Press House of Sciences, 1990.

Note: The same as in Table 1.13.