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Integrated Programme for Shaanxi Province
Assessment of industrial competitiveness in Western China (Shaanxi, Sichuan and Yunnan Provinces), and testing of a CGE (Computable General Equilibrium) Model for Yunnan Province
UNIDO Project

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Assessment of Industrial Competitiveness in Western China (Shaanxi, Sichuan and Yunnan)

Development Research Center
The State Council
People's Republic of China

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Contents

I. Introduction

The Western Region of China has a share of territorial size of 71.5% and a share of population of 28.8% in China's national total. This region had been historically a relatively backward region in economic and social development of China. Strong policy measures had been implemented to the development of this Western Region by the Central Government to promote a relatively balanced regional development since the establishment of PRC. (Mainly through allocation of large projects and transfer the institutions of higher learning from coastal area to this region). Since the launch of reform and opening of China in late 1970's, there is change of development strategy of China, the coastal region of China enjoyed a higher growth rate than the Central and Western Region, and there is increasing disparity among the Eastern, the Central and the Western Region in development. In view of this, the Western Region Development Initiative is raised by China in the period of transition from the 20th to 21st Century. In the current stage of this "Initiative", the target of this strategy is to consolidate the foundation for development, the State supports mainly the construction of physical infrastructure and the improvement of the ecological environment. But from a longer perspective of development, the economic prosperity and social progress of the Western region cannot depend solely on the progress of the above two aspects, it must be based on the growth, expansion and improved competitiveness of local industry. In fact, the industrial development of the Western region has established a certain foundation through decades of effort in development, some industrial sectors have established a relatively strong competitiveness either domestically or internationally. It is necessary to have a comprehensive recognition of the industrial foundation and competitiveness established, the driving force and the environment of industrial development, so that appropriate policies to promote the industrial development of the Western region can be proposed based on these understandings.

Yunnan, Sichuan and ShaanXi province are important regions with distinguished features in the West. Yunnan has a unique and distinguished industrial feature, Sichuan and ShaanXi have ectablished a fair foundation of modern manufacturing. To study in depth the relative aspects of industrial characteristics of these three regions will be helpful in the formulation of policy proposal to promote the Western Regional industrial development with universal meanings.

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This report has evaluated the industrial competitiveness and driving force based upon the method of evaluation of Competitiveness and driving force organized and created by UNIDO, and also the business environment of these three provinces are analyzed at the perspectives of macro-level.

In the rest of this report there are four parts.

Part II of this report, the CIP index is constructed from four basic indicators of industrial performance: Manufacturing value added (MVA) per capita, Manufactured exports per capita, Share of medium- and high-tech activities in MVA, the share of medium- and high-tech products in manufactured exports and the share of medium- and high-tech products in manufactured exports. The comparison between western region (Sichuan, Yunnan and Shaanxi) and eastern region (Shanghai, Guangdong and Jiangsu) has also been included.

In Part III, this study benchmarks all provinces on their key structural variables (also called drivers), which are the main determinants of the industrial performance. The drivers chosen for benchmarking are skills, local technological effort (research and development, or R&D), foreign direct investment, licensing payments and physical infrastructure. Just like part I, more attention has been paid to the benchmarking of the three provinces and the comparison between western region (Sichuan, Yunnan and Shaanxi) and eastern region (Shanghai, Guangdong and Jiangsu).

In Part IV, we assess the business environment in the three provinces (Sichuan, Yunnan and Shaanxi). The main areas of the assessment include: the infrastructure capacity, human resource, marketization, the development of non-public enterprise, the scale of market, etc.

In Part V, this study conducts a CGE model for Yunnan to evaluate the industrial competitiveness in Yunnan provinces. The two-regional CGE model has been used to simulate economy-wide implications and the effect on industrial competitiveness of the removal of distortional subsides and price controls.

In brief, the report gives the assessment of industrial competitiveness in western China (Shaanxi, Sichuan and Yunnan Provinces). With the comparison between provinces, western provinces can find where it stands and can also find the disparity relative to developed provinces. This is very important for the policy makers to direct the industrial development in the future.

II. Industry Performance

1、Economic and social development in Shaanxi, Sichuan and Yunnan Provinces

Shaanxi, Sichuan and Yunnan Provinces are located in the western part of China. These three provinces have territorial size of 1,080 thousands square km and account for 15.3% of the total western region and 10.9% in China's national total. With 170 million population accounting for 45.3% of the total western region and 13.1% of total China, their development plays an import role in the Western Region Development Initiative. In 2002, the GDP of the three provinces reached more than RMB 910 billion, accounting for 45.5% of the total western region, and the per capita GDP reached RMB 5560, higher than the western region average and RMB 2000 lower than national average. The manufacturing value-added amounted to RMB 165.1 billion, accounting for 6.4% of China's national total. The proportions of manufacturing sector in GDP is 18.1%, 6.6 percentage point lower than national average and 13 percentage point lower than Guangdong province. The manufacturing sector in the three provinces absorbs 6.24 million labors, which accounts for 7.5% of China's national total. The total Investment in fixed assets in the three provinces reached RMB 360 billion, 42.7% of the western region, and total foreign trade US$ 9.6 billion, 41.9% of the western region. The total amount of global FDI in the three provinces reached about US$ 1 billion, which accounts for 51.2% of the western region. To sum up, the three provinces still belongs to a relatively backward region in economic and social development in China. In terms of education level, Shaanxi province is equal to national average, but Yunnan province and Sichuan province are lower than national average.

Table 2.1   Economic and social development of Yuannan、Sichuan and Shannxi Provinces in 2002

	Yunnan	Sichuan	Shaanxi	Western	China
Population (10000 persons)	4333	8673	3674	36691	127518
GDP (100 million)	2232	4875	2036	20081	104791
Per capita GDP (RMB)	5179	5766	5523	5472	8184
MVA (100 million)	551	763	338		25924
Employment in Manufacture Sector	115	339	170		8307
Import & Export (USD 10 000)	232758	446145	278413	2282338	62076607

	Yunnan	Sichuan	Shaanxi	Western	China
Export	129403	262983	157739	1208226	32559597
Import	103355	183161	120674	1074110	29517010
Investment in Fixed Assets (100m)	815	1903	915	8515	43500
FDI (USD 10 000)	11169	55583	36005	200527	5274286
Education Level (2000)	6.33	7.06	7.71	7.04	7.62

Data source: China statistic yearbook

In 1995, the sectors with MVA (manufacturing value-added) share ranking the top 5 in the manufacturing sectors of Yunnan provinces are tobacco processing, food processing, raw chemical materials and chemical products, smelting and pressing of ferrous metals and nonmetal mineral products (ranking with the MVA share from high to low, the same to the below). The sectors ranking the last 5 in Yunnan provinces are petroleum processing and coking, cultural, educational and sports goods, chemical fiber, other manufacturing and leather, furs, down and related products (ranking with the MVA share from low to high, same to the below). In 2001, the top 5 are tobacco processing, raw chemical materials and chemical products, smelting and pressing of nonferrous metals, smelting and pressing of ferrous metals and food processing. The last 5 are chemical fiber, cultural, educational and sports goods, other manufacture, furniture manufacturing and garments and other fiber products. Smelting and pressing of nonferrous metals, failing to enter the top 5 in 1995, ranked the top 5 in 2001. On the contrary, nonmetal mineral products failed to enter the top 5 in 2001, which ranked the top 5 in 1995. Furniture manufacturing and garments and other fiber products, ranking outside the last 5 in 1995, enter the last 5 in 2001. On the contrary, petroleum processing and coking and leather, furs, down and related products, ranking the last 5 in 1995, failed to rank the last 5 in 2001. The tobacco processing occupied No. 1 in the two years. In future it will keep the key position for a long time. Although the food processing ranked the top 5 in the two years, the rank in 2001 is much lower than that in 1995. With it's share of MVA increasing very fast, Smelting and pressing of nonferrous metals has become a promising industry.

In terms of the share of employment in manufacturing sector, the top 5 in Yunnan in 1995 are nonmetal mineral products, raw chemical materials and chemical products, smelting and pressing of ferrous metals, smelting and pressing of nonferrous metals and textile industry. In 2001, the top 5 are raw chemical materials and chemical products, nonmetal mineral products, smelting and pressing of nonferrous metals,

smelting and pressing of ferrous metals and food processing.

In 1995, the sectors with MVA (manufacturing value-added) share ranking the top 5 in the manufacturing sector of Sichuan provinces are smelting and pressing of ferrous metals, raw chemical materials and chemical products, nonmetal mineral products, transport equipment and beverage manufacturing. The manufacturing sectors ranking the last 5 in Sichuan provinces are cultural, educational and sports goods, petroleum processing and coking, furniture manufacturing, garments and other fiber products and timber processing, bamboo, cane, palm fiber and straw products. In 2001, the top 5 are beverage manufacturing, smelting and pressing of ferrous metals, electronic and telecommunications equipment, raw chemical materials and chemical products and nonmetal mineral products. The last 5 are cultural, educational and sports goods, petroleum processing and coking, other manufacture, furniture manufacturing and rubber products. Electronic and telecommunications equipment, failing to enter the top 5 in 1995, ranked the top 5 in 2001. On the contrary, transport equipment failed to enter the top 5 in 2001, which ranked the top 5 in 1995. Other manufacture and rubber products, ranking outside the last 5 in 1995, enter the last 5 in 2001. On the contrary, garments and other fiber products and furniture manufacturing, ranking the last 5 in 1995, failed to rank the last 5 in 2001.As table 2 shows, electronic and telecommunications equipment ranks from No. 15 to No. 3 within 6 years and its prospect is very good. Beverage manufacturing rises from No.5 to No.1 and it will become important pillar for Sichuan economic development. The rank of transport equipment decreases.

In Sichuan in terms of the share of employment in manufacturing sector, the top 5 in 1995 are textile industry, nonmetal mineral products, smelting and pressing of ferrous metals, raw chemical materials and chemical products and ordinary machinery. In 2001, the top 5 are nonmetal mineral products, smelting and pressing of ferrous metals, raw chemical materials and chemical products, textile industry and transport equipment.

In 1995, the sectors with MVA (manufacturing value-added) share ranking the top 5 in the manufacturing sector of Shaanxi provinces are electronic and telecommunications equipment, electric equipment and machinery, tobacco processing, textile industry and raw chemical materials and chemical products. The manufacturing sectors ranking the last 5 in Shaanxi provinces are chemical fiber, cultural, educational and sports goods, timber processing, bamboo, cane, palm fiber

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and straw products, furniture manufacturing and rubber products. In 2001, the top 5 are medical and pharmaceutical products, electronic and telecommunications equipment tobacco processing, petroleum processing and coking and electric equipment and machinery. The last 5 are timber processing, bamboo, cane, palm fiber and straw products, rubber products, furniture manufacturing, leather, furs, down and related products and cultural, educational and sports goods. Medical and pharmaceutical products and petroleum processing and coking, failing to enter the top 5 in 1995, ranked the top 5 in 2001. On the contrary, textile industry and raw chemical materials and chemical products failed to enter the top 5 in 2001, which ranked the top 5 in 1995. Leather, furs, down and related products, ranking outside the last 5 in 1995, enter the last 5 in 2001. On the contrary, chemical fiber, ranking the last 5 in 1995, failed to rank the last 5 in 2001. As table 2 shows, medical and pharmaceutical product ranks from No. 8 to No. 1 within 6 years. Electronic and telecommunications equipment decreases from No.1 to No.2. With abundant human resource, these two sectors will become import pillar for Shaanxi economic development.

In Shaanxi in terms of the share of employment in manufacturing sector, the top 5 in 1995 are textile industry, nonmetal mineral products, special purpose equipment, ordinary machinery and electric equipment and machinery. In 2001, the top 5 are textile industry, nonmetal mineral products, special purpose equipment, ordinary machinery and raw chemical materials and chemical products.

Table 2.2 Composition of the manufacturing value added (MVA) in 1995 and 2001 (%)

Sectors	1995			2001		
	Shaanxi	Yunnan	Sichuan	Shaanxi	Yunnan	Sichuan
Food Processing	1.51	5.55	4.71	3.40	3.99	5.37
Food Manufacturing	1.60	0.45	1.14	2.47	0.33	1.38
Beverage Manufacturing	2.37	0.64	7.75	3.34	0.80	14.33
Tobacco Processing	7.25	63.98	5.15	7.49	64.57	6.06
Textile Industry	6.38	1.14	3.38	5.05	0.36	3.04
Garments and Other Fiber Products	0.94	0.22	0.56	0.72	0.06	0.48
Leather, Furs, Down and Related Products	0.96	0.11	0.84	0.20	0.07	0.73
Timber Processing, Bamboo, Cane, Palm Fiber and Straw Products	0.41	0.36	0.56	0.30	0.51	0.58
Furniture Manufacturing	0.48	0.13	0.37	0.29	0.03	0.27
Papermaking and Paper Products	2.30	0.90	2.60	1.49	1.43	2.23
Printing and Record Medium Reproduction	2.29	1.11	1.36	2.77	2.30	1.32
Cultural, Educational and Sports Goods	0.09	0.02	0.10	0.01	0.00	0.01
Petroleum Processing and Coking	2.77	0.01	0.34	7.20	0.14	0.24
Raw Chemical Materials and Chemical Products	6.25	5.29	10.52	5.56	4.94	8.39
Medical and Pharmaceutical Products	4.59	0.70	3.14	13.38	2.48	5.18
Chemical Fiber	0.02	0.10	1.31	0.44	0.00	0.49

Sectors	1995			2001		
	Shaanxi	Yunnan	Sichuan	Shaanxi	Yunnan	Sichuan
Rubber Products	0.67	0.57	0.62	0.29	0.20	0.36
Plastic Products	0.95	0.34	1.12	0.42	0.56	1.11
Nonmetal Mineral Products	6.15	3.82	9.33	5.03	3.06	7.52
Smelting and Pressing of Ferrous Metals	3.51	4.55	14.59	2.24	4.63	13.11
Smelting and Pressing of Nonferrous Metals	1.13	3.68	0.62	1.55	4.79	1.16
Metal Products	2.78	0.59	2.97	1.54	0.50	1.84
Ordinary Machinery	4.44	1.39	7.68	5.09	0.98	3.96
Special Purpose Equipment	5.72	1.73	3.17	5.98	0.84	2.55
Transport Equipment	3.73	0.98	8.26	4.91	0.93	4.45
Electric Equipment and Machinery	7.72	0.87	3.69	6.01	0.80	2.88
Electronic and Telecommunications Equipment	20.44	0.24	2.55	10.18	0.35	10.33
Instruments, Meters, Cultural and Office Machinery	1.53	0.42	0.98	1.60	0.32	0.39
Other manufacture	1.03	0.11	0.62	1.05	0.02	0.25

Data source: NBS,

Table 2.3 Composition of the manufacturing employment in 1995 and 2001 (%)

Sectors	1995			2001		
	Shaanxi	Yunnan	Sichuan	Shaanxi	Yunnan	Sichuan
Food Processing	2.40	5.91	4.28	3.83	8.06	3.61
Food Manufacturing	2.16	2.31	2.15	2.44	1.24	1.57
Beverage Manufacturing	1.83	2.76	3.25	2.57	2.07	5.87
Tobacco Processing	1.05	4.10	0.51	1.48	5.66	0.55
Textile Industry	14.48	6.31	14.54	13.01	4.39	9.19
Garments and Other Fiber Products	2.01	1.74	1.27	1.29	0.57	1.03
Leather, Furs, Down and Related Products	0.81	1.06	1.34	0.55	0.40	0.66
Timber Processing, Bamboo, Cane, Palm Fiber and Straw Products	1.07	2.30	0.98	0.30	2.16	0.44
Furniture Manufacturing	0.77	0.67	0.49	0.44	0.21	0.40
Papermaking and Paper Products	3.53	2.97	3.19	2.53	2.55	2.92
Printing and Record Medium Reproduction	2.04	2.29	1.70	2.34	2.85	1.06
Cultural, Educational and Sports Goods	0.29	0.11	0.26	0.03	0.02	0.02
Petroleum Processing and Coking	0.86	0.20	0.27	1.76	0.35	0.42
Raw Chemical Materials and Chemical Products	5.87	11.29	8.28	7.08	15.03	9.41
Medical and Pharmaceutical Products	2.33	1.44	1.55	4.61	3.38	3.05
Chemical Fiber	0.18	0.24	0.48	0.04	0.00	0.58
Rubber Products	1.22	1.64	0.93	0.88	1.34	0.70
Plastic Products	1.49	1.57	1.58	0.57	1.19	1.22
Nonmetal Mineral Products	11.46	11.94	13.50	9.80	11.81	14.51
Smelting and Pressing of Ferrous Metals	3.94	9.48	9.43	3.19	8.42	12.42
Smelting and Pressing of Nonferrous Metals	0.56	7.58	0.37	1.70	10.62	1.30
Metal Products	3.42	2.77	3.38	2.31	1.40	2.13
Ordinary Machinery	7.85	4.24	7.66	7.10	3.77	6.31
Special Purpose Equipment	8.96	5.62	4.12	8.43	4.66	4.24
Transport Equipment	5.05	3.76	6.61	6.30	3.43	6.41
Electric Equipment and Machinery	6.03	2.93	3.42	5.81	2.61	3.61
Electronic and Telecommunications Equipment	4.41	0.50	2.17	6.56	0.43	5.26
Instruments, Meters, Cultural and Office Machinery	2.76	1.53	1.19	2.48	1.34	0.72
Other manufacture	1.19	0.69	1.09	0.54	0.03	0.40

Data source: NBS

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2、 Introduction of UNIDO's Industrial Performance Scoreboard (or CIP Index)

UNIDO's Industrial Performance Scoreboard was developed in four stages. In the first stage a database of industrial indicators (both output and input factors) for 1985 and 1998 was created for as many countries as possible. Indicators were chosen on the basis of the availability of cross-country data. Four performance indicators—MVA per capita, manufactured exports per capita, the share of medium- and high-tech activities in manufacturing production and the share of medium and high-tech products in manufactured exports—were chosen for the competitive industrial performance (CIP) index.

In the second stage individual indices of performance $I_{j,i}$ were standardized according to the general formula

$$I_{j,i} = \frac{X_{j,i} - Min(X_{j,i})}{Max(X_{j,i}) - Min(X_{j,i})}$$

where $X_{j,i}$ is the ith country value of the jth performance variable. Therefore the highest country in the ranking has a score of 1 and the lowest a score of 0.

The third stage consisted of testing the feasibility of computing a composite index based on the four performance indicators selected. Positive and statistically significant correlations between the four performance variables confirmed that a composite index could be constructed as a proxy for overall industrial performance.

The CIP index was constructed using the standardized values of the four performance indicators, according to this general formula:

$$CIP_{(\alpha)} = \left(\frac{w_1 I_{1,i}^{\alpha} + w_2 I_{2,i}^{\alpha} + w_3 I_{3,i}^{\alpha} + w_4 I_{4,i}^{\alpha}}{w_1 + w_2 + w_3 + w_4} \right)^{\frac{1}{\alpha}}$$

Where $I_{j,i}$ represents the ith value of the four individual indices, w_n the weights given to the indices and α a parameter to control how the variations and weights in the individual indices affect the CIP index.

Initially, a different weight w_j was assigned to each performance indicator $I_{j,i}$. Stability tests confirmed that the weights did not significantly affect ranks, however, so equal weights were allocated to the four performance indicators. With $w_1 = w_2 = w_3 = w_4 = 1$, the general formula then became the following:

$$CIP_{(\alpha)} = \frac{1}{4}\left(I_{1,i}^{\alpha} + I_{2,i}^{\alpha} + I_{3,i}^{\alpha} + I_{4,i}^{\alpha}\right)^{\frac{1}{\alpha}}$$

To further simplify, $\alpha = 1$ was chosen, and the result is the simple arithmetic mean of $I_{1,i}$, $I_{2,i}$, $I_{3,i}$ and $I_{4,i}$. Thus,

$$CIP_{(\alpha)} = \frac{1}{4}\sum_{j=1}^{4} I_{j,i}$$

It should be pointed out that we just followed the above method during our assessment, i.e we just replaced the country's data in UNIDO assessment provincial data in our assessment.

3、 The evaluation result of three provinces and its comparisons with other areas in the country

Based on UNIDO Industry Performance Evaluation framework and its methodology, we mainly analysed the competitive status of the manufacture sector in Shaanxi, Sichuan and Yunnan in this Part. With the upgrading of the technology, promotion of the trade and the enhancement of the element motion, China's industry performance has been improved. According to UNIDO Industry Development Report, the ranking of China's industry competitiveness has been raised from the 61st in 1985 to the 37th in 1998. In the view of the production share of the manufacture sector in various tech level industries (as shown in the Fig 2.1), manufacture sector's share in the high tech industry has increased from 6.2% in 1993 to nearly 12% in 2001. The percentage almost doubled. The percentage of the manufacture in the

Notes: Source from NBS. Industrial classification follows
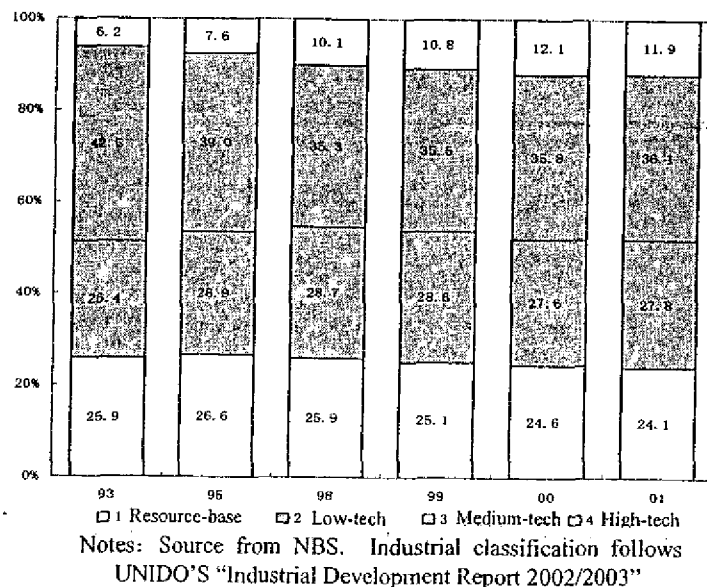UNIDO'S "Industrial Development Report 2002/2003"

Fig.2.1 Technological structure of Manufacturing value added (1993~2001)

resource-based-industry has been decreased from 26% in 1993 to 24% in 2001. The percentage of the manufacture in the medium tech industry decreased rapidly and the share of the low tech industry has been increased.

In terms of the technical composition of the manufacture export production, the technical composition of the export production has been obviously increased (as shown in the Fig 2.2). The export share of the low-tech production of the resource-based-production has been decreased obviously from 71.3% in 1993 to 50.8% in 2002. The export share of the medium and high tech production has been increased respectively from 28.7% in 1993 to 49.2% in 2002.
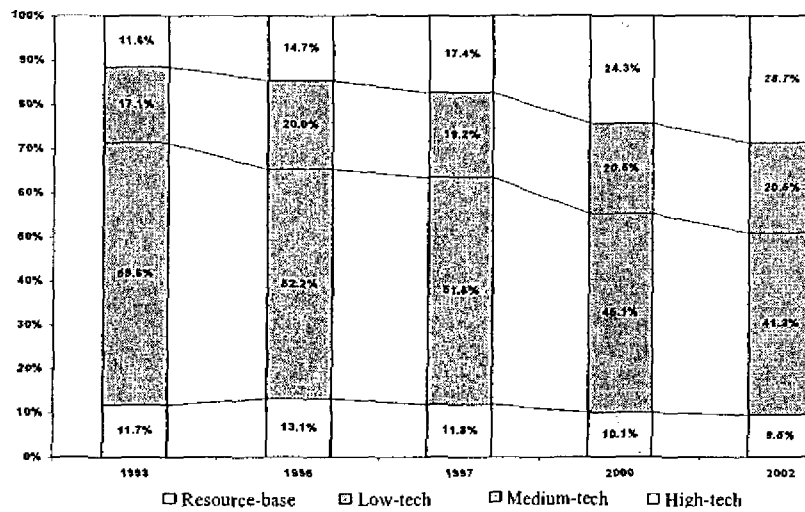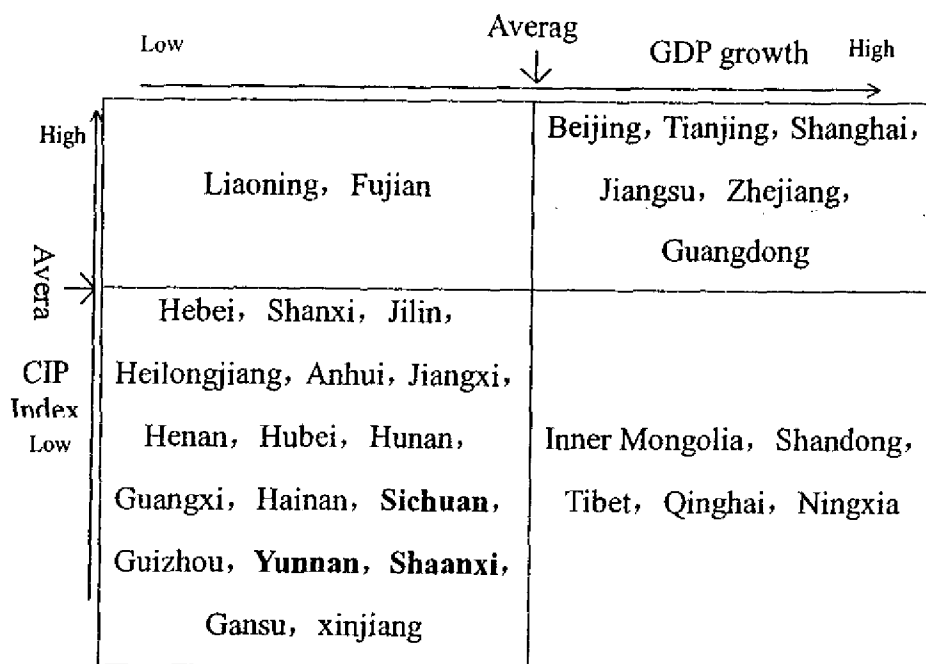

Notes: Export (1993, 1995 and 2002) refers to SITC 3 digits, Export (1997 and 2000) refers to HS 8 digits.

Fig. 2.2 Technological structure of manufactured exports (1993~
Fig 2.2 Technological structure of Manufactured Export (1993~2001)

Fig 2.3 indicates that the GDP growth rate of 31 provinces in 2001 and the distribution of the CIP index. The graphic shows that the GDP growth rate in most eastern provinces are higher than the average level of the country and the CIP index is also higher than the average; however, the GDP growth rate in most western provinces are lower than the country's average and its CIP index is also lower than the average level of the country.

In 2001, according to the calculation, the competitiveness index of the manufacture sector in Sichuan Province was 0.134, which enjoyed 11th place in the country. It equaled to 14.8% of the highest level and 68.9% of the country average. The competitiveness index of the manufacture sector in Yunnan Province was 0.081 and ranked 18th in the country. It equaled to the 8.9% of the highest level and 41.6%

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of the average level. It was 2.5 times higher than the lowest level. The competitiveness index of the manufacture sector in Shaanxi Province was 0.158 and ranked 10th in the country. It equaled to the 17.4% of the highest level and 81.2% of the average level. It was 4.8 times higher than the lowest level.

	Low	Averag ↓	GDP growth High
High		Liaoning, Fujian	Beijing, Tianjing, Shanghai, Jiangsu, Zhejiang, Guangdong
Avera CIP Index Low		Hebei, Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan, Guangxi, Hainan, Sichuan, Guizhou, Yunnan, Shaanxi, Gansu, xinjiang	Inner Mongolia, Shandong, Tibet, Qinghai, Ningxia

Note: All data refers to 2001

Fig. 2.3 GDP growth rate and CIP index for all province (2001)

Table 2.4 CIP Index for Sichuan, Yunnan and Shaanxi (2001)

	Sichuan (incl.Chongqing)	Yunnan	Shaanxi
CIP	0.134	0.081	0.158
Rank in the all provinces	11	18	10
Relative to the Highest(%)	14.8	8.9	17.4
Relative to the lowest (times)	4.1	2.5	4.8
Relative to the average(%)	68.9	41.6	81.2

Source: DRC calculation

The CIP index includes two core indicators: manufacture value added per capita and manufacture export per capita. In terms of the manufacture value added per capita, not only the difference between the three provinces (Shaanxi, Sichuan and Yunnan) and the developed provinces in eastern region is large, the difference between the three provinces and the average level of the country is quite large too. In 2001, the

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MVA of Shaanxi, Sichuan and Yunnan was RMB 727, RMB 723 and RMB 1148 respectively. The MVA of Shaanxi and Sichuan was very similar and Yunnan is the highest among the three. It mainly benefited from the rapid growth of the tobacco processing industry in Yunnan. Half of the MVA in Yunnan comes from the tobacco processing industry. Yunnan has become one of the most important provinces in China's tobacco industry. Till now, the cigarette production capacity of Yunnan attains 1/3 of the country's capacity. The production of the cigarette and the flue-cured tobacco shares 1/5 of the country's production. The tax gained from this industry is the highest among all other industries in the country. The tax gained from the tobacco industry attains 70% of the province incoming and the taxes (value added tax and the consumer tax) payable to the central government is more than RMB 1000 billion. It plays a critical role in the economic development of the province.

The average MVA of the country during this period was RMB 1717. The
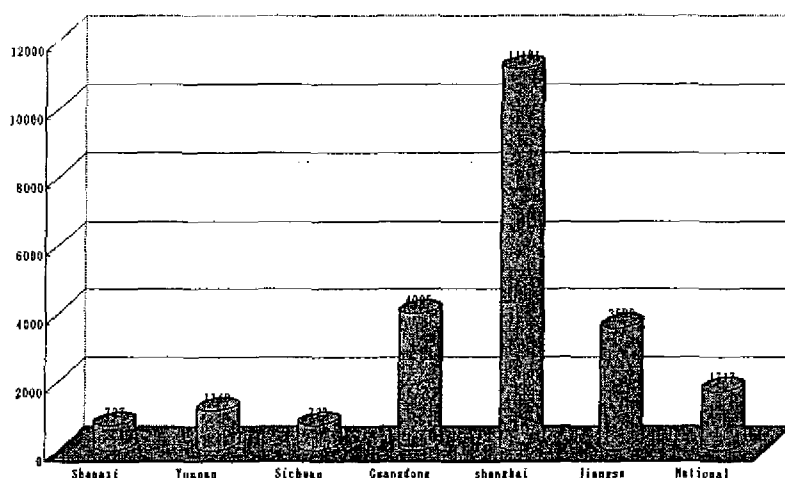
Source: DRC calculation

Fig.2.4   MVA per capita for six provinces (2001)

average MVA of Shaanxi and Sichuan was less than half of the country average. Yunnan was only 67% of the country average. The average MVA of the three developed provinces in the eastern region, namely Shanghai, Guangdong and Jiangsu, was RMB 11181, RMB 4005 and RMB 3590 respectively. The figures were about 5-15 times compared to that of the three western provinces.

In terms of per capita manufacture (ME) export, the disparity is more obvious. In 2001, the per capita ME of the three western provinces[1], namely Shaanxi, Sichuan

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[1] The western three provinces here refer to Shaanxi, Sichuan and Yunnan only. The eastern three provinces here refer to Shanghai, Guangdong and Jiangsu only.

and Yunnan was $33, $19 and $23 respectively. Shaanxi was the highest among the three provinces, Yunnan in the middle and Sichuan was the lowest. In the corresponding period, the average per capita ME of the country was $186 which meant that the highest figure among the three provinces was only 1/6 of the country average. Let's take a look at the eastern provinces. In 2001, the per capita ME of three eastern provinces, namely Shanghai, Guangdong and Jiangsu reached $1492, $1039 and $339 respectively. There was a big gap between the east and the west region.

The above shows the data of Shaanxi, Sichuan and Yunnan in absolute value in comparison of the country average and some eastern provinces. Now, let's look at the data in terms of technical composition.
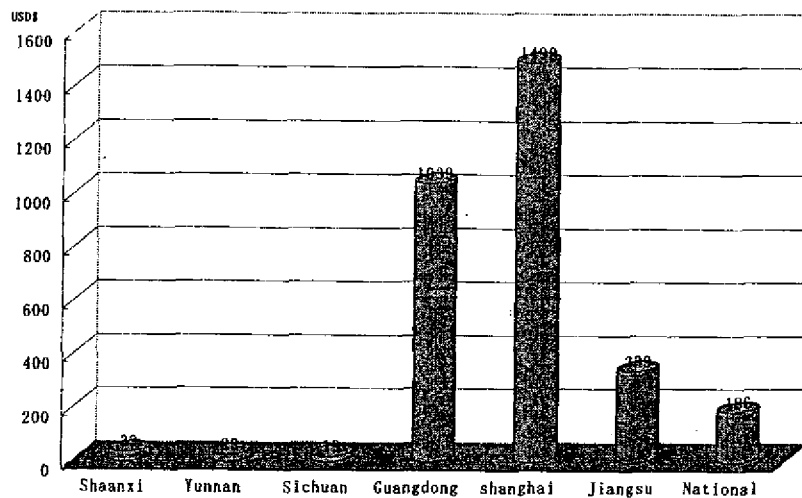
Source: DRC calculation

Fig 2.5 ME per capita for six provinces (2001)

Fig. 2.5 shows the technical composition of manufacture value added of the six provinces. Among the three western provinces, the manufacture value added of Shaanxi and Sichuan was close to that of the country average. Yunnan is a special case since the value added of its resource-based-industry shared 74.9% of the manufacture value added of the country. The reason has been mentioned early that the tobacco processing industry obtains 50% of manufacture industry in whole. Based on the comparison of the three eastern provinces, the technical composition of manufacture industry of the three western provinces is abnormal. The resource-based-industry and middle/high tech industry share a high percentage while low tech industry attains a low percentage. Meanwhile, percentage of middle/high tech industry of Shaanxi and Sichuan is even higher than that of Guangdong and

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Jiangsu. This shows that China's medium and high tech industry is still in the lower level of the value chain, it is still at the "assemble" stage.

Table 2.5 MVA technical composition in some provinces in 2001

	Resource-based MVA	Low-tech MVA	medium-plus-high-tech MVA	Total of MVA
Shaanxi	30.9	9.0	60.1	100
Yunnan	74.9	1.2	23.9	100
Sichuan (incl.Chongqing)	32.2	7.5	60.3	100
Guangdong	17.3	25.4	57.2	100
Shanghai	18.1	15.0	66.9	100
Jiangsu	17.7	25.2	57.1	100
National	27.3	18.2	54.4	100

Source: DRC calculation

In terms of technical composition of manufacture export (as shown in Table 2.6), it seems that the conclusion is in consistency. Shaanxi and Sichuan is close to country average. While Yunnan has some special features which are closely linked with its abundant resources. Based on the comparison with eastern provinces, the technical level of manufacture export from the three western provinces is obviously legged behind of eastern provinces. The percentage of high tech manufacture export is less than that of eastern provinces.

Table 2.6 Technical composition of the manufacture export production of some provinces in 2001 (%)

	Resource-based ME	Low-tech ME	Medium-tech ME	High-tech ME	Total ME
Shaanxi	16.8	41.1	25.2	17.0	100.0
Yunnan	55.9	14.3	23.3	6.5	100.0
Sichuan (incl.Chongqing)	18.2	23.3	42.3	16.3	100.0
Guangdong	4.9	44.3	20.9	29.9	100.0
Shanghai	7.3	43.5	24.0	25.2	100.0
Jiangsu	8.6	42.9	18.7	29.8	100.0
National	11.5	44.1	20.5	23.9	100.0

Source: DRC calculation

III. Benchmarking the Drivers of Industrial Performance

Part II described the benchmarking the competitiveness of industrial performance in the three provinces[2]. As the Industrial Development Report 2002/2003(UNIDO) pointed out[3] " industrial performance is the outcome of many social, political and economic factors interacting in complex and dynamic ways. These interactions are often specific to each country, reflecting its history, culture, legal system, legal and institutional framework, social capital, political and social conditions and ways of doing business. Industrial performance also reflects macroeconomic policies as well as policies relating to technology and education." With a view to individual province, industrial performance is a consequence of interaction of regional natural resource endowment, geographical position, institutional environment. The analysis on these factors will help us explain the regional disparity of industrial performance.

Based on the framework and method of measuring industrial performance drivers adopted by the Industrial Development Report 2002/2003(UNIDO), we focus on the assessment of industrial performance drivers of Shaanxi, Sichuan and Yunnan. Though the analysis here cannot provide a complete economic explanation to all the determinant factors, but it helps the policymaker to find where their some important provincial structure variables stand in the whole nation.

1、 Introduction of UNIDO Industrial performance drivers index

The calculating of the industrial performance drivers, similar to CIP index, will not go into details here since United Nations Industrial Development Organization (UNIDO) have provided a full description on it. Five groups of factors are selected by UNIDO to determine the drivers: skill, local technology effort, foreign direct investment (FDI), technology import expenses and physical infrastructure, Table 3.1 enumerate the details for each factor.

What should be noted here is some modification have been made according to the regional data availability when calculating the drivers index, by substituting the unavailable data with the available ones, for example, the regional registered international (refer in particular to U.S.A) patents per 1000 people are replaced by the

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[2] Same with Part II, the west three provinces here refer to Shaanxi, Shichuan and Yunnan.
[3] United Nations Industrial Development Organization, UNIDO (2002), 《Industrial Development Report 2002/2003—Competing through Innovation and learning》 , China Finance and Economic Publishing House, P57.

patents per 1000 people. But substitutability of the index is fully considered to guarantee analytical dependability when we do the substitution.

Table 3.1 Factors in industrial performance drivers

Driver	Index		Data used in the research
Skill	Percentage of secondary education enrolment (% in relative aged population)	Composite Harbison-Myers Index	Person enrolled in secondary school at provincial level, Provincial total population at relative age
	Percentage of higher education enrolment (% in relative aged population)		Person enrolled in high education at provincial level, Provincial total population at relative age
	Percentage of higher education enrolment in total population		Person enrolled in high education at provincial level, Provincial total population
	Percentage of technical enrolment in high education in total population		Provincial person major in science and engineering in high education enrolment and Provincial total population
	Per capita enterprises financed R&D expenditure		Provincial financed R&D expenditure, Provincial total population
	Percentage of Enterprises financed R&D expenditure in GNP		Provincial Enterprises financed R&D expenditure, provincial GNP
	Registered international (refer in particular to U.S.A) patents per 1000 people		Provincial registered patents number, Provincial total population
FDI	Per capita mean value of FDI flow in last three years		Provincial FDI, Province total Population
	Percentage of FDI to mean gross investment in three years		FDI in each province, Provincial annual gross Investment
Technology Import expense	Technology import expenses per capita		Provincial technology import expenses and Province total Population
	Royalties expenditure Per capita		Provincial Royalties expenditure and Province total Population
Physical infrastructure	Number of fixed telephone per 1000 people		Number of provincial fixed telephone, Province total Population
	Number of Mobile phone per 1000 people		Number of province mobile telephone and Province total Population
	Number of PC per 1000 people		Number of PC of each province and Province total Population
	Number of Internet Host computer per 1000 people		Number of Provincial internet host computer and Province total Population

Note: (1) Harbison-Myers Index =Proportion of middle school in relevant age people + 4* Proportion of higher education admission in relevant age people

(2) The effects of approval number of patent application are not considered in the study.

2、 Evaluation results of three provinces and Comparison with Other regions

We calculated the industrial performance drivers of every province in China 2001 on the basis of the framework and method adopted by the UNIDO.

As illustrated in the scatter diagram (figure 3.1), the composite industrial performance drivers index and CIP index of 31 provinces in 2001 demonstrate that there is a strong linear correlation between the drivers and CIP index. This reflects, in a certain degree, that the selected structural variables composing of the drivers have a

strong explanative capacity for the industrial performance drivers. In other words, the industrial performance state of each province, to a great extent, derived from these factors. The calculation results indicate the industrial performance drivers of each province in west region, exclude Shaanxi, are under the national average level. These partly explain the generally worse situation of the industrial performance in west region of China.

In addition, the Composite CIP and drivers index also indicate that, in generally, Shaanxi ranks the first while Yunnan the last no matter in line with competitiveness index or from drivers index.
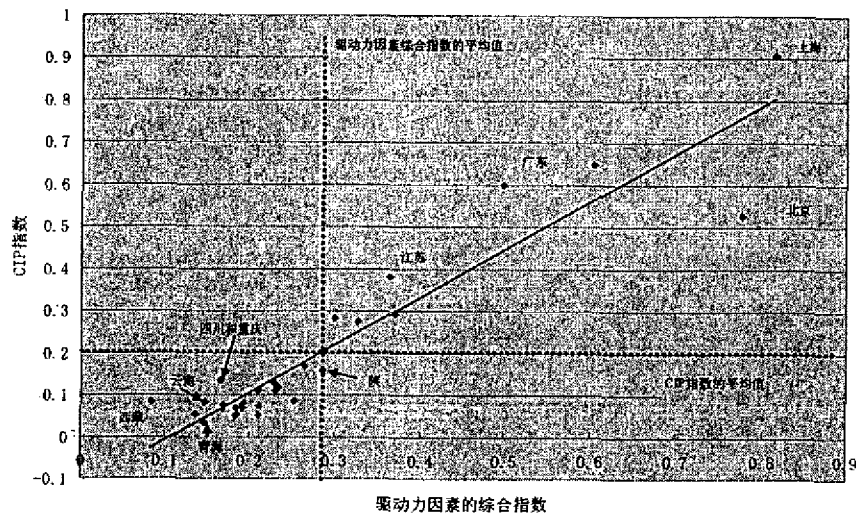
Data Resource: DRC Calculation

Figure 3. 1 Composite CIP and Drivers Index in 2001

Table 3.2 portrays drivers indexes of Sichuan, Yunnan and Shaanxi provinces and comparison with other regions in 2001. The driver index of Sichuan is 0.165 and rank the 26th in the whole country. It is equivalent to 20.3% of the highest level, 58.4% of average level and twice of the minimum level. The driver index of Yunnan was 0.147 and rank the 27th in the whole country. It is equivalent to 18.1% of the most highest level, 52.9% of average national level and 1.8 times to the minimum country level. The drivers index of Shaanxi is 0.286 and rank the 9th in the whole country. It is equivalent to 35. 1% of the highest level, 103.0% of average level and 3.4 times of the minimum level in the whole country. (See Table 1 for details)

Table 3. 2 Comparison of the Drivers Index of SiChuan, Yunnan & Shaanxi

	Sichuan (including Chongqing)	Yunnan	Shaanxi
Composite drivers index	0.165	0.147	0.286
Rank in China	26	27	9

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	Sichuan (including Chongqing)	Yunnan	Shaanxi
Relative to the highest (%)	20.3	18.1	35.1
Relative to the lowest (Times)	2	1.8	3.4
Relative to the average(%)	59.4	52.9	103

Data Source: DRC Calculation.

The five factors contained in composite index of drivers provide a comprehensive understanding to the regional drivers state, and help to find the regional disparity. Figure 2 and figure 3 provide the distribution maps of the composite index for the west three and east three provinces in 2001.

Below we will further to analyze the drivers performance of Sichuan, Yunnan and Shaanxi employs the five factors above-mentioned indicated in the composite index of drivers.

（1） Skill

The designation of the skill factor is mainly intended to represent the regional personal quality or the workforce's quality. Because too many aspects reflect the skill, we only chose the student entrance in various educational level (as form 3 shows) to outline regional skill condition. Data in table 3 indicates that, as for middle and primary school admission rate, there is no big difference between not only at the provincial level in the west and east, but also at the national level. But the condition differs greatly at the higher educational level. Among three provinces in the west. Shaanxi rank the first, is 3.1 person per 1000 people and 1.48 times of the average national level. However, Yunnan and Sichuan are not so optimistic, both are under the national average level. Furthermore, Yunnan is even less than the half of the national average level and reach 1.0 person per 1000 people. Consequently, it rank the last in the west. By contraries, the three provinces in the east, particularly Shanghai and Jiangsu, are all above the average national level with Shanghai even closely triple of the national average level. The special central municipal status and relatively high proportion of urban population may contribute to this disparity. The fact behind the data in table 3 is that it is more heavy regional differences at the higher education level than at elementary education ones. Concurrently, the constant brain drain, resulting from the regional system environment and income discrepancy, exasperate the high-quality regional workforce disparity.

Table 3.3 The entrance in different educational level of six provinces in 2001 (Person, Person/Thousand people)

	Person Admission to high education	People Admission to high School	People Admission to the elementary school	People Admission to University or College /Total Population	People Admission to high School/ Total Population	People Admission to the elementary school/Total Population
Shaanxi	114391	1085898	668712	3.1	29.7	18.3
	4.3%	3.5%	3.4%	147.7%	120.3%	119.2%
Yunnan	42455	814839	723634	1.0	19.0	16.9
	1.6%	2.6%	3.7%	46.8%	77.0%	110.1%
Sichuan	119470	1732161	1338908	1.4	20.0	15.5
	4.5%	5.5%	6.9%	65.3%	81.2%	101.1%
Shanghai	98579	327293	103955	6.1	20.3	6.4
	3.7%	1.0%	0.5%	288.6%	82.2%	42.0%
Jiangsu	215734	1769253	917515	2.9	24.1	12.5
	8.0%	5.7%	4.7%	138.6%	97.5%	81.3%
Guangdong	139050	1911885	1604435	1.8	24.6	20.6
	5.2%	6.1%	8.3%	84.4%	99.5%	134.4%
China	2682790	31285525	19442081	2.1	24.7	15.3

Data Source: 2002 China Statistical Yearbook

(2) Local Technological Endeavor (R&D)

Local technological efforts factor are employed to reflect the ability of local R&D and, in a certain degree, the ability of technological innovation. With the deepening of China's opening-up, the technological import has been greatly strengthened. But better absorption of the imported technology or even import-rooted innovation depends on the sound combination of the imported technology with the local R&D.

Table 3.4 provides the industry R&D relevant factors of six provinces and the whole country in 2001. Data show that Shaanxi have an obvious advantage over the other province in China, with a heavier industrial enterprise R&D per capita and proportion of industrial enterprise R&D to GDP than the average level of the whole country. Its proportion of industrial enterprise R&D to GDP is even higher than average national level by 0.4 percentage points. Contrary to Shaanxi, Sichuan and Yunnan perform unfavourably in this aspect. Yunnan, in particularly, accounts for only 1/6 of the average national level in the per capita industrial R&D. Adversely, the three provinces in east have an obvious stronger capacity than the average national level in the R&D. Shanghai, for example, the R&D expenditure of its per capita industrial enterprise is almost up to 6 times of the average national level. Therefore,

although there have individual areas with stronger R&D ability in the west, but in a whole, the disparity in R&D capacity between most areas in the west and the average national levels is still relatively great.

Table 3. 4 2001 Industrial R&D expenditure of six provinces in 2001

	Industrial Enterprise Per Capita R&D (Unit: Yuan)	Industrial Enterprise R&D/ GDP
Shaanxi	51.6	1.0%
Sichun	16.0	0.3%
Yunnan	6.5	0.1%
Shanghai	261.5	0.9%
Guangdong	122.3	0.9%
Jiangsu	71.6	0.6%
China	42.4	0.6%

Data Source: 2002 China Statistical yearbook

（3）Foreign Direct Investment （FDI）

Apparently, the ability of attraction foreign capitals is implied in this factor. Many studies discover that FDI plays very important role to the receiver's economic growth since it not only bring about the foreign capital but also the advanced technique and managerial experience.

Table 3.5 provides two FDI related factors both at the six provinces and whole country level in 2001. The conclusion behind the data indicates the poor FDI absorbability of the three provinces in the west. This may partly attribute to such factors as the geological position, etc. Even the best performed Shaanxi province account for less than 1/4 of the average national FDI per capita. Comparatively, it seems totally unanimous with the proportion of FDI to gross investment. By Contraries, the three provinces in the east are generally higher than the average national level.

Table 3.5 FDI of six provinces in 2001

	Mean per capita FDI in recent three years （US$）	FDI/Mean Gross investment in recent three years
Shaanxi	8.10	0.03
Sichuan	5.32	0.02
Yunnan	2.72	0.01
Shanghai	215.71	0.13
Guangdong	148.07	0.27
Jiangsu	88.22	0.14
China	33.56	0.10

Data Source: 2002 China Statistical yearbook

（4）Technological import expense

The technological import expense factor directly reflects the regional capacity of

technological attraction. Table 6 provides the technological import expenses in six provinces and the whole country in 2001. The data show that Shaanxi and Sichuan are not so optimistic in this aspect. However, unlike other indexes, the technological import expense factors of Yunnan province is surprising good and rank the 5th among all provinces in China. Though the table show the average contracted technological import value in west are below the national average level, the technological import of Yunnan, both in terms of total contract volume and the per capita contract value are still higher than most of the other provinces in respect that most of the technological import contract are geologically concentrated on the several provinces (Beijing, Tianjin and Shanghai), with the 7th rank in the whole country. As for the factor of royalty per capita, Yunnan Province also have an outstanding performance, with nearly 25% higher than the average national level, while by contrary, another two west provinces only reach about 1/5 and 1/7 of average national level.

Table 3.6 Technological import expense of six provinces in 2001 (US$)

	Value of contacted technological import per capita	Royalties per capita
Shaanxi	0.55	0.46
Sichuan	.0.72	0.68
Yunnan	4.76	4.32
Shanghai	88.20	53.90
Guangdong	5.31	4.78
Jiangsu	3.27	3.26
China	7.17	3.47

Data Source: 2002 China Statistical yearbook

（5） Physical Infrastructure

Physical infrastructure factor refers to the regional ability of information dissemination as well as information acceptance. Information are increasingly becoming a new important resource in contemporary economic development, especially in constantly emerging of the economic globalization. The convenient and all round information dissemination can accelerate economic development.

Table 3. 7 provides the physical infrastructure condition of six provinces in 2001. According to data in the table, with the number of internet user per 1000 people only slightly higher than half of the average national level, Sichuan is the poorest province with respect to information facility. Though situation in Yunnan is slightly better than Sichuan, the gap between Shaanxi and average national level is minimum among the three provinces in the west. General speaking, every physical infrastructure factor in west is below the average national level. Correspondingly, the physical infrastructure

in the east are much better, in particularly Shanghai and Guangdong, with almost 2 times of each factors higher than the average national level.

Table 3.7 Physical Facility of Six Provinces in 2001

	Number of Mobile phone per 1000 people	Number of Internet User per 1000 people	Number of Fixed telephone per 1000 people
Shaanxi	79.72	19.07	116.37
Sichuan	69.43	14.01	78.97
Yunnan	78.98	16.78	83.95
Shanghai	380.86	122.23	382.78
Guangdong	309.74	57.11	219.85
Jiangsu	139.55	55.86	190.86
China	107.25	26.42	135.04

Data Source: 2002 China Statistical Yearbook

IV. Business Environment of Yunnan, Sichuan and Shaanxi

There exist a lot of factors which determine the business environment, including its hardware and software. From a macro perspective, the business environment of one region in China hinges on: (1) whether the link with the outside business is expedite; (2) whether the economic ties between internal parts are convenient; (3) whether the labor resources and talent resources are abundant; (4) whether the environment that encourages new businesses and the policy of opening up are favorable; (5) whether the ability of local governments to provide public services is strong; (6) whether the potential of local markets favors the growth of the scale economy. Due to the shortage of relevant data, we evaluate in this Part the business environment of these three provinces from their infrastructure, their human capital, the development of non-state-owned economy, the market-oriented degree, the policy of opening up, the financial capacity of local governments, and the potential size of local markets.

By comparison, we can conclude that the overall business environment of those three provinces is relatively good, though there exist some problems:

(1) Although these three provinces are located in the west of China, their links with the outside world are expedite. The length of highways of Yunnan Province ranks the first in China. Since the implementation of the strategy for the development of the western region, many important construction projects which link the western region with the outside world have been carried out, for example, "Lantsang-Mekong International Waterway", "Kunming-Bangkok Highway", "Kunming-Rangoon Highway", "China-Burma Irrawaddy Land-Water United Transportation Tunnel", "Trans-Asia Railway". The completion of these projects will create favorable transportation conditions for Yunnan's opening up to Southeast Asia and South Asia. The golden waterway of Yangtse River runs across Sichuan, and its provincial capital

Chengdu is the aerial hub of Southwest Region; Longhai Railway crosses Shaanxi, and its provincial capital Xi'an is the aerial hub of Northwest Region.

It should be noted that the internal links among Yunnan and Sichuan are not so convenient due to the imposing mountains in these two provinces. As table 4.1 shows, although the internal highway density of these three provinces is higher than the average national level, it is lower than that of coastal provinces such as Guangdong and Zhejiang.

Table 4.1 Density of Traffic Lines of Yunnan, Sichuan and Shaanxi in 2003

	Length of Transportation Routes (km)		Density of Transportation Routes (km/10000 sq.kms)			
				Highway		
	Railway	Highway	Railway		Thereinto: Expressway	First and Second Class Highways
Yunnan	2340	166133	59	4217	27	74
Sichuan	2962	112543	61	2320	31	221
Shaanxi	2892	50019	141	2433	41	269
Guangdong	2113	110253	119	6194	129	1262
Zhejiang	1250	46193	123	4538	141	805
Nation	73002	1809828	76	1886	31	252

Sources: *China Statistical Yearbook 2004*

Table 4.2 Freight Traffic of Yunnan, Sichuan and Shaanxi in 2003

	Freight Traffic (10000 tons)				Proportion of the National Level (%)			
	Total	Railway	Highway	Waterway	Total	Railway	Highway	Waterway
Yunnan	58170	4146	53864	160	3.7	1.9	4.6	0.1
Sichuan	57527	7278	47467	2782	3.7	3.3	4.1	1.8
Shaanxi	34961	6686	28165	110	2.2	3.0	2.4	0.1
Guangdong	100565	6391	73087	21087	6.4	2.9	6.3	13.3
Zhejiang	103833	3328	70907	29598	6.6	1.5	6.1	18.7
Nation	1561422	221178	1159957	158070	100	100	100	100

Sources: *China Statistical Yearbook 2004*

Table4.3 Turnover Volumn of Freight Traffic of Yunnan, Sichuan and Shaanxi

2003	Turnover Volumn of Freight Traffic (100 million tons-km)				Proportion of the National Level (%)			
	Total	Railway	Highway	Waterway	Total	Railway	Highway	Waterway
Yunnan	612.2	253	358	2	1.1	1.5	5.0	0.0
Sichuan	768	534	220	15	1.4	3.1	3.1	0.1
Shaanxi	849	668	181	0	1.6	3.9	2.5	0.0
Guangdong	3158	286	553	2318	5.9	1.7	7.8	8.1
Zhejiang	2047	253	314	1481	3.8	1.5	4.4	5.2
Nation	53859	17247	7100	28716	100	100	100	100

Sources: *China Statistical Yearbook 2004*

(2) The equipment and technology of communications networks of these three provinces have caught up with the new development of communications technology

of the world. And on the whole these three provinces have built up large-capacity and high-speed Communication Transmission Digital Networks which are mainly formed by optical wires with the complements of digital microwave radio and satelite communication. The communication ability of all regions is indicated in the table 4.4.

Table 4.4 Communication Level of Yunnan, Sichuan and Shaanxi in 2003

	Main communication capacity					Per capita communication resources				
	Capacity of Long-distance Telephone Exchanges (circuit)	Capacity of Local office Telephone Exchanges (10000 line)	Capacity of Mobile Telephone Exchanges (10000 subscribers)	Length of Long-distance Optical Cable Lines (km)	Length of Long-distance Microwave Lines (km)	Long-distance Telephone Exchanges (circuit/10000 persons)	Local office Telephone Exchanges (line/100 persons)	Mobile Telephone Exchanges (subscriber/100 persons)	Long-distance Optical Cable Lines (km/10000 persons)	Long-distance Microwave Lines (km/10000 persons)
Yunnan	197478	684.6	788.0	18031	4229	45	16	18	4.12	0.97
Sichuan	565500	1520.1	1470.9	25481	2384	65	17	17	2.93	0.27
Shaanxi	216010	922.2	785.2	25387	3323	59	25	21	6.88	0.90
Guangdong	1414646	3356.5	5328.1	41333	7007	178	42	67	5.20	0.88
Zhejiang	440981	2193.8	2492.3	20464	3416	94	47	53	4.37	0.73
Nation	8693998	35082.5	33698.4	594303	119886	67	27	26	4.60	0.93

Sources: *China Statistical Yearbook 2004*

(3) Human resources of these three provinces are abundant, especially Sichuan, whose population within working age (15-64 years old) is over 6.1 million, ranking the third in China. But so abundant labors result in their low prices. As table 4.5 shows, the average money wage of staff and workers in Yunnan is only 12,870 yuan in 2003; it is 12,441 yuan in Sichuan, and 11,461 yuan in Shaanxi, far below that of Zhejiang and Guangdong, which are 21,367 and 19,986 yuan respectively.

At the same time, talent resources of these three provinces are also abundant, especially Shaanxi, whose proportion of population who have received formal higher education is larger than that of the average national level. The technological strength of Sichuan and Shaanxi is in the front rank of all 31 provinces in China (mainland). In addition, there are a lot of universities in Chengdu and Xi'an, and Xi'an is also a famous "technological high land" of China. By comparison, the talent resources of Yunnan is relatively insufficient.

Table 4.5 Labor and Human Resources of Yunnan, Sichuan and Shaanxi

	Population Within Working Age in 2002 (10000 persons)	Average Wage of Staff and Workers in 2003 (yuan)	Educational Level Composition of Employment in 2003 (%)				Number of Students in School every 10000 persons in 2003 (person)		
			Senior School	College	University	Graduate	Institutions of Higher Education	Specialized Secondary Schools	Regular Secondary Schools
Yunnan	2950	12870	4.6	1.4	0.6		40.1	33.9	522.1
Sichuan	6104	12441	10.4	3.3	1.3		58.9	22.9	552.9
Shaanxi	2558	11461	17	5.8	2.2	0.1	135.3	34.1	800.7
Guangdong	5240	19986	16.2	5.6	1.8	0.1	73.9	38.6	686.3

| Zhejiang | 3355 | 21367 | 14.3 | 5.4 | 2.6 | 0.2 | 103.5 | 25.8 | 578.4 |
| Nation | 89899 | 14040 | 13.6 | 4.8 | 1.9 | 0.1 | 85.8 | 38.9 | 664.2 |

Sources: *China Statistical Yearbook 2004* and *China Labor Statistical Yearbook 2004*

(4) Compared with their coastal counterparts, the development of non-public sector of the economy in these three provinces is relatively slow and the market-oriented degree is also lower. As table 3-6 indicates, the gross industrial output value of state-owned and state-owned share-holding enterprises of Yunnan and Shaanxi accounts for more than 70% of the total value; this percentage of Sichuan is near to 50%, 10 percentage points higher than the average national level. According to the survey, the market-oriented degree of these three provinces is at the low level in China. However, a series of polices and measures have been implemented in these three provinces, including widening the fields into which private economy can enter, reducing administrative approval items on a large scale, encouraging the development of non-public economy, and improving the market-oriented degree.

Table 4.6 Ownership Structure in 2003

	Gross Industrial Output Value		Investment in Fixed Assets	
	Percentage of State-owned and State-owned Share-holding (%)	Percentage of Non-state-owned (%)	Percentage of State-owned Economy (%)	Percentage of Non-state-owned Economy (%)
Yunnan	74	26	53	47
Sichuan	48	52	37	63
Shaanxi	74	26	57	43
Guangdong	18	82	30	70
Zhejiang	13	87	29	71
Nation	38	62	39	61

Sources: *China Statistical Yearbook 2004*

(5) The present levels of opening up of these three provinces are all not so high. As table 4.7 shows, the total import and export value (by destination and source of goods by region) of these three provinces only account for 1.3% of that of the whole nation in 2003, while the total import and export value of Guangdong makes up 33.3% of that of the whole nation and FDI attracted by Guangdong accounts for 14.6%. In order to rectify this situation and utilize the foreign market and capital sources more efficiently, a lot of active measures in these three provinces are under way, including lifting the limits on foreign investment in industrial finance, types of investment, the operation range, the stock share, the export proportion, simplifying the approval procedure of foreign investment, perfecting the protection system of the rights of foreign investors. With the implementation of these measures, the foreign investment environment of these three provinces will be greatly improved.

Table 4.7 Foreign Trade and Foreign Investment in 2003

| | Import and Export (100 million dollars) | | | | FDI in 2003 (100 million dollars) | Percentage of the whole nation (%) |
	Export	Percentage of the whole nation (%)	Import	Percentage of the whole nation (%)		
Yunnan	9.9	0.2	16.7	3.8	0.8	0.2
Sichuan	24.2	0.6	32.1	0.7	4.1	0.8
Shaanxi	10.4	0.3	17.3	0.4	3.3	0.6
Guangdong	1307.0	31.7	1529.4	34.9	78.2	14.6
Zhejiang	198.1	4.8	416.0	9.5	49.8	9.3
Nation	4128	100	4384	100	535.0	100

Sources: *China Statistical Yearbook 2004*

(6) The financial ability of these three provinces is at the low middle level in China. The per capita financial revenue of Yunnan is 239 yuan fewer than that of the nation; it is 375 yuan fewer for Sichuan, and 281 yuan fewer for Shaanxi. The per capita financial expenditure of Yunnan is almost equal to that of the nation; it is 491 yuan fewer for Sichuan, and 200 yuan fewer for Shaanxi. All these data are indicated in table 4.8. Certainly, the financial ability of these three provinces is relatively strong in western regions, for example, the financial ability available within budget of Yunnan ranks the second in western provinces. Since the implementation of the strategy for the development of the western region, the state has provided the western region with greater support in transfer payments. In terms of the need of constructing harmony, the state will continue to provide the west region with greater support from the central budget in the future. Therefore, it can be judged that the financial ability of these three provinces and thus their ability to provide public goods will be improved more quickly.

Table 4.8 Situations of Financial Revenue and Expenditure in 2003

	Financial Revenue (100 million yuan)	Percentage of GDP (%)	Per Capita Financial Revenue (yuan)	Financial Expenditure (100 million yuan)	Per Capita Financial Expenditure (yuan)
Yunnan	229	9.3	523	587	1342
Sichuan	337	6.2	387	732	842
Shaanxi	177	7.4	481	418	1133
Guangdong	1316	9.7	1654	1696	2132
Zhejiang	707	7.5	1510	897	1916
Nation	9850	8.4	762	17230	1333

Sources: *China Statistical Yearbook 2004*

(7) These three provinces all have a large population, with over 40 million for Yunnan, nearly 90 million for Sichuan, and approximately 37 million for Shaanxi. A large population means a large market potential. Presently, the annual income of residents per capita in these three provinces is relatively low. The disposable income of urban residents per capita of Yunnan is 7,644 yuan in 2003, and it is 7,042 yuan for

Sichuan, and 6,806 yuan for Shaanxi, all below the average national level of 8,472 yuan. The net income of rural residents per capita of Yunnan is 1,697 yuan in 2003, and it is 2,230 yuan for Sichuan, and 1,676 yuan for Shaanxi, all below the average national level of 2,622 yuan. In addition, the household consumption level of Yunnan is 2,495 yuan, and it is 839 yuan for Sichuan, and 2,548 yuan for Shaanxi, all 1,200-1,600 yuan fewer than the average national level. This poor consumption ability of these three provinces leads to their real scale of consumption market which is not so commensurate with their scale of population. In 2003, the population of these three provinces accounts for 13.0% of the whole nation while the total retail sales of consumer goods only make up 8.1%. However, with the improvement of the income of residents, the market potential of these three provinces will be released and the industries with the characteristic of scale economy will grow more rapidly.

Table 4.9 Income and Consumption of Yunnan, Sichuan and Shaanxi in 2003

	Total Population (10000 persons)	Disposable Income of Urban Residents Per Capita (yuan)	Net Income of Rural Residents Per Capita (yuan)	Total Retail Sales of Consumer Goods (100 million yuan)	Per Capita Retail Sales of Consumer Goods (yuan)
Yunnan	4376	7644	1697	783	1788
Sichuan	8700	7042	2230	2091	2403
Shaanxi	3690	6806	1676	853	2313
Guangdong	7954	12380	4055	5606	7048
Zhejiang	4680	13180	5389	3157	6747
Nation	129227	8472	2622	45842	3547

Sources: *China Statistical Yearbook 2004*

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