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China's Western Development Strategy: Policies, Effects and Prospects

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Abstract

China's Western Development Strategy (WDS) has been carried out since 1999 with remarkable achievements, whereby Western China also experienced a rapid and stable development during the past decade. This paper analyzes policy actions and effects of WDS. The findings indicate that Western China's economic development has experienced a dramatic reversion after implementation of WDS, which to a certain extent, proves that WDS has played a significant role in promoting western regions' development. This paper also reveals some key constraints on Western China's economic development and then offers a set of policy ideas for the next stage of Western development.

Key words: Western Development Strategy, Regional Policy, Policy effects, Western China

JEL codes: E62, R11, R58

Ⅰ. Introduction

Ever since its founding in 1949 the People's Republic of China has adjusted its regional development strategy three times. The first stage (1949-1978) is known as *Balanced Development.* Its major property is to seek an absolutely balanced development. The second stage (1979-1991) is *Unbalanced Development* with a major property of preferentially developing regions with special advantages. The third stage is *Coordinated Development, whose* major properties are to promote the development of underdeveloped regions and reduce regional disparities.

Balanced Development Strategy was based on the ideas of balance, common wealth and "economy being subordinated to politics". National investment tended to favor central and western regions in this stage, meanwhile two "GO-WEST" campaigns were implemented as well. Statistics show that 58% of large and medium infrastructure projects were located in central and western regions from 1953 to 1980

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(Lu and Deng, 2009). In this stage hinterland economy developed greatly, especially when the central government deployed a large number of heavy industries and military industries in western regions. However, such achievements were obtained at the cost of an overall loss of economic efficiency. A large number of resources were compulsorily allocated to western regions while industries in eastern regions suffered a sharp recession. In 1978 Unbalanced Development Strategy replaced Balance Development Strategy. Preferential policies such as investment, structural reform and opening-up policies were implemented exclusively in certain eastern coastal regions. In this stage gross economy, especially economy in eastern regions grew rapidly. But only regions that were granted preferential policies obtained benefits from this open economy. Economic gap between coastal areas and hinterland gradually expanded and interregional conflicts were intensified dramatically. Reform and Opening-up have to be further pushed forward.

In 1991 and 1992 Coordinated Development Strategy and building up the market economy were conducted successively. The drive of opening-up gradually spread to hinterland. Areas along rivers, frontier as well as some provincial capital cities in hinterland were opened up in succession. Such an all-round opening-up not only enabled hinterland to obtain equivalent preferential policy supports but also put hinterland and coastal regions in an equal competitive environment (Gao and Tong, 2008). Coordinated development strategy and all-round opening-up policy played a positive role in western regions' economic development in 1990s. However policy of giving priority to coastal development in 1980s actually has helped eastern regions establish the advantage that other regions cannot match. Resources including foreign capital, hinterland capital and human capital flowed into and then concentrated in coastal regions. As a result, although central and western regions obtained an equal policy environment, their economic growth was much slower than that of eastern regions. Thus positive effects of opening-up policy in eastern regions were much greater than those in central and western regions in 1980s and 1990s (Guo, Lu and Gan, 2002). Regional disparities also exacerbated sharply from the early 1990s (Démurger, 2001; Chan and Wang, 2008; Fan and Sun, 2008; Fan, Kanbur and Zhang, 2010; etc.).

It was against such a background that China's central government proposed Western Development Strategy (WDS) in 1999 to accelerate western regions' development and reduce regional disparities. The State Council released a set of

policy measures of WDS in October 2000, marking the formal implementation of WDS. By 2010 WDS had been implemented for 10 years[1]. What happened in the past decade? What was the effect of WDS? and What should be done in the next stage? Answers to such questions are particularly important to the new round of western development. This paper will focus on these points following the logic of "Policies-Effects-Problems-Suggestions". It will mainly analyze policy actions, economic outcomes and problems of western economic development in the first 10-years of WDS and then put forward some proposals[2].

The rest of this paper is organized as follows: Part 2 reviews policies and corresponding actions; Part 3 analyzes the economic outcomes in the first 10-years development of western regions; Part 4 discusses key constraints on Western China's economic development; and the last part is proposals.

Ⅱ. Policy Actions of Western Development Strategy

According to the policy framework released by the State Council, relevant departments of central and local governments also issued some specific policies. These policies constitute a relatively complete policy system covering numerous fields of Western China's economic and social development. Here we will focus on major policy instruments and their actions of WDS.

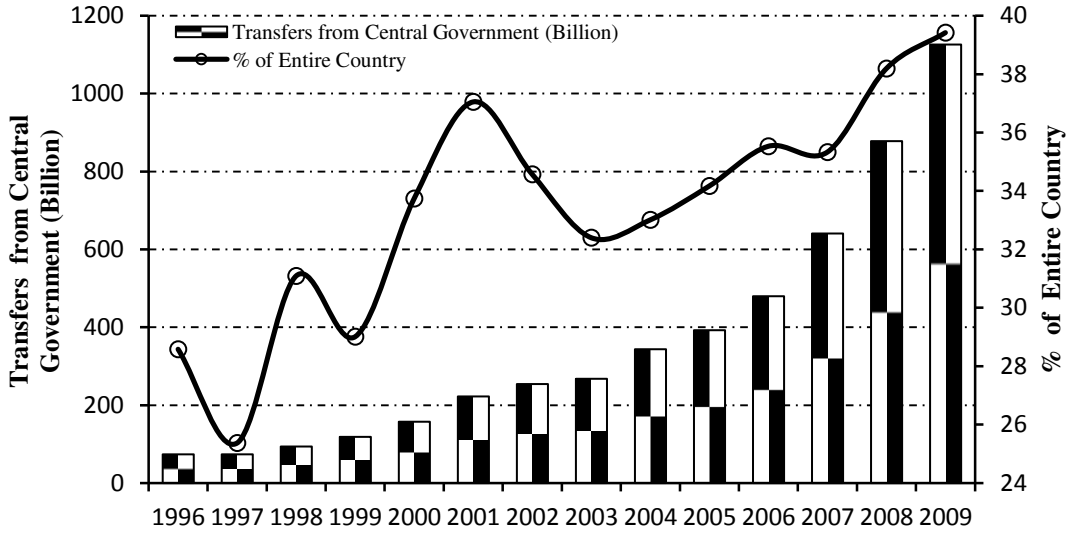
1. Fiscal Transfers and Tax Preference

As one of the fiscal policy instruments, Intergovernmental Fiscal Transfers play an important role in WDS. The central government also enhanced its transfers to the local governments in Western China. Between 2000 and 2005 with a gradually increased scale general transfer payments to local governments in Western China accumulated to RMB404.4 billion, accounting for 52.6 percent of the total (Ye, 2006). Increase of total transfers (including general transfers and special transfers) also reflected that fiscal transfers of the central government tended to western regions. In

[1]CPC Central Committee and State Council has promulgated a new policy paper which further improved and intensified policy measures in June 2010, key preferential policies validity was extended 10 years further.

[2]Western regions or Western China refers to 12 provincial administrative regions including Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang. Moreover, China mainland is divided into four parts in terms of the official economic regionalization at present. Besides Western China, other three regions are Eastern China (includes Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Guangdong and Hainan), Central China (includes Shanxi, Anhui, Jiangxi, Henan, Hubei and Hunan) and Northeastern China (includes Liaoning, Jilin and Heilongjiang). This paper will follow this kind of classification.

1999, 29.01% of the central government's fiscal transfers were allocated to Western China while in 2010 this ratio reached 39.42%, indicating a significant rising trend, especially after implementing WDS.



Note: % of Entire Country=Transfers from Central Government of Western China / Transfers to Local Government of Central Government. The data are calculated by author based on the statistical data from various *Finance Year Book of China* (China Ministry of Finance, various issues).

Figure 1: Transfers from Central Government of Western China

Tax reduction and exemption are the most import preferential policies of WDS. Enterprise income tax reduction is of primary importance while reduction or exemption of business tax, stamp tax, value added tax and resource tax, etc. are supplementary measures. Generally, preferential tax policies of WDS mainly contained: (1) For domestic and foreign-funded enterprises in Western China which belong to the category encouraged by the state, they can enjoy the 15% income tax rate. (2) For new enterprises of transportation, power, water conservancy, postal service, radio and television in Western China, domestic enterprises' income tax can be exempted in the first two years and reduced by half in the subsequent three years since the start of operation (known as the policy of "two-year exemption and three-year half deduction"). Foreign-funded enterprises can also enjoy the same policy since profit-making year if their operating period would exceed ten years. (3) For imported equipments used in the projects encouraged in western areas or in local competitive industries, tariffs and import value added tax can be exempted except commodities otherwise defined by the state, to which such policies are not applicable. (4) For pilot RCC (rural credit cooperative) in Western China, income tax was exempted from Jan. 1st, 2003 to the end of 2005. (5) For key infrastructure construction projects, government made corresponding special preferential tax

policies. For example, during the construction of Qinghai-Tibet Railway almost all kinds of taxes generated by the project were exempted.

2. National Investment

Since 2000 distribution of national key projects sponsored by national fiscal funds and national bonds tend to favor western regions, where in the past decade 143 key projects were commenced with a total investment of over RMB2,874.2 bn. Such projects cover the fields of infrastructure construction, ecological environmental protection, rural development, education, medical treatment and public health, etc.

Table 1: Key Projects Investment of Western Development by Year

Commencement Year	Number of Key Projects	Investment (RMB Billion)	Major Areas of Investment
2000	10	>100	Airport Construction, Infrastructure Construction of Western Universities, "Returning Grain Plots to Forests" Project
2001	12	>200	Qinghai-Tibet Railway, West-East Electricity Transmission Project, Highway Construction, "Return Grain Plots to Forests" Project, Urban Infrastructure Construction
2002	14	>330	West-East Gas Project I, Airport Construction, Water Pollution Control of Three Gorges Reservoir Area, "Returning Grain Plots to Forests" Project
2003	14	>130	Urban Infrastructure of Tibet and Xinjiang Municipality, "Returning Farmland to Forests" Project、 "Returning Grazing Land to Grassland" Project, Rural Drinking Water Project, Rural Energy Project, Ecological Immigration and Resettlement
2004	10	≈80	Arterial highway construction, Regional Airports Construction, Mining Engineering, Rural Infrastructure Construction
2005	10	>130	Railway Construction, Airport Construction, Mining Engineering Infrastructure Construction
2006	12	165.4	Highway construction, Airport Construction, Mining Engineering Infrastructure Construction, Hydropower Station Construction
2007	10	151.6	Regional Airports Construction, Social Programs (Education, Public Health, etc.)
2008	10	436.1	Highway Construction, Rural Road Construction and Reconstruction, Airports Construction, West-East Gas Project II
2009	18	468.9	Railway Construction, Highway Construction、Airports Construction、Water Infrastructure Construction、Power Infrastructure Construction
2010	23	682.2	Railway Construction, Airport Construction, Water and Power infrastructure Construction
2000-2010 Total	143	>2874.2	——

Note: Collected and processed by author based on various bulletins of Department of Western Region Development at National Development and Reform Commission.

From another perspective, increased state budget for investment in fixed assets also reflects the important role of government investment. From 2001 to 2010, average annual growth rate of state budget for investment in fixed assets in Western China was 30.76%, which was much greater than that in eastern, central and northeastern regions (22.22%, 26.64% and 27.14% respectively). State budget share of Western China also increased annually and was much greater than that of other regions. National bonds also played a significant role in WDS: about 40% of long-term national bonds were invested in western regions each year. According to statistic data, the central government assigned RMB341.4 billion bond-financed

projects fund to western regions from 2000 to 2005 (45.8% of total assigned funds). The share of long-term national construction bonds in western regions exceeded 1/3 of the total between 1999 and 2000, and 40% since 2001. Such bonds were mainly invested in the construction and improvement of infrastructure (Zhu, 2004; SIC, 2005; Ye, 2006). Moreover, local governments can apply for issuing local bonds from 2009. Provinces in Western China issued a total of RMB75.0bn local bonds in the same year.

Table 2: Regional Distribution of State Budget in Funds for Investment in Fixed Assets

Year	State Budget (RMB Billion)						Proportion(%)				
	National Total	Eastern China	Central China	Western China	Northeastern China	Not Classified By Region	Eastern China	Central China	Western China	Northeastern China	Not Classified By Region
2000	159.41	40.75	32.90	41.33	11.56	32.87	25.56	20.64	25.93	7.25	20.62
2001	205.23	50.21	37.74	52.57	18.10	46.61	24.46	18.39	25.61	8.82	22.71
2002	253.36	45.09	43.42	86.72	17.34	60.79	17.80	17.14	34.23	6.84	23.99
2003	210.32	51.33	40.82	81.35	16.67	20.16	24.40	19.41	38.68	7.92	9.58
2004	325.50	80.39	65.21	109.40	24.77	45.74	24.70	20.03	33.61	7.61	14.05
2005	415.43	99.74	82.51	136.45	37.41	59.32	24.01	19.86	32.84	9.01	14.28
2006	467.20	98.42	101.92	154.77	47.42	64.67	21.06	21.82	33.13	10.15	13.84
2007	585.71	129.82	142.88	188.11	65.36	59.53	22.17	24.39	32.12	11.16	10.16
2008	795.48	186.90	194.87	263.16	81.43	69.12	23.50	24.50	33.08	10.24	8.69
2009	1268.57	276.64	310.27	497.76	123.09	60.80	21.81	24.46	39.24	9.70	4.79
2010	1467.78	303.00	348.96	603.94	127.65	84.23	20.64	23.77	41.15	8.70	5.74

Source: Various issues of *China Statistical Yearbook* (China National Bureau of Statistics, various issues).

3. Financial and Credit Support

Capital shortage is a major constraint factor in western regions' development. In order to enrich development funds for WDS, governments and People's Bank of China (PBC) promulgated several measures to encourage financial institutions, especially national policy banks to augment loans for supporting western regions' development, encourage foreign banks to establish branches in West China, encourage private capital to participate in the construction of financial services institutions, and promote establishing and developing village banks, finance companies and rural fund cooperatives in western rural areas.

With the guidance and support of government policy, various financial institutions, especially state-owned commercial banks and policy banks increased their loan scale for western regions. By the end of 2010, loans balance of China Development Bank for West China reached RMB1008.19bn, accounting for 22.36% of its total loans, a remarkable increase compared with that in 2001 (i.e. 17.78%). The loan provided to Western China by Agriculture Development Bank of China, a major policy bank that mainly provides financial support for agriculture and rural

development, reached RMB336.02bn in 2009, also a noticeable increase of its loan share in western regions compared with that at the beginning of WDS. Meanwhile other major state-owned commercial banks also increased their loans in western regions in a similar manner.

Table 3: Loans Balance Share of Western China in Major Banks

	Policy Banks		Four Major State-owned Commercial Banks			
	ADBC	CDB*	ABC	CCB	ICBC	BC
1999	18.51		22.92	19.26		12.92
2000	18.30		23.67	18.68		12.52
2001	18.14	17.87	23.43	19.06		13.16
2002	17.55	19.14	22.83	18.89		13.62
2003	18.09	21.46	22.27	18.62		13.96
2004	18.15	22.47	22.18	18.42		13.96
2005	19.33	22.01	22.51	18.53	14.72	10.08
2006	19.61	22.14	22.15	16.34	14.69	10.00
2007	21.74	23.24	21.56	16.22	15.04	9.86
2008	22.36	21.62	21.23	16.76	16.02	10.52
2009	23.15	22.33	21.79	17.00	16.62	10.50
2010		22.36	21.97	17.00	16.82	11.11

Note: ADBC-Agriculture Development Bank of China, ABC-Agriculture Bank of China, BC-Bank of China, CCB-China Construction Bank, ICBC-Industrial & Commercial Bank of China, CDB-China Development Bank; *CDB has been transformed into state-owned commercial bank in Dec. 2008. The data are from various issues of *Almanac of China's Finance and Banking* (Research Bureau of The People's Bank of China, various issues) and annual reports of banks.

4. Guiding Policy

Guiding policies are supplementary policy instruments. The Chinese government employed four types of guiding policies in WDS: (1) guidance to investment of foreign and private capital; (2) incentive mechanism to encourage high-level talents to work in western regions; (3) window guidance to financial institutions to augment loans support and (4) policy to encourage eastern developed regions to provide aids to western regions.

In 2002, NDRC (National Development and Reform Commission) promulgated *Several Opinions on Promoting and Guiding Private Investment*, which suggested local governments vigorously support private investment in high-tech projects. NDRC also released *Catalogue of Priority Industries for Foreign Investment in the Central-Western Region* (First version was released in 2000, then revised in 2004 and 2009) to guide investment of foreign capital. In 2002 the Central Committee of the Communist Youth League of China (CYLC) and Ministry of Education (MOE) jointly launched *"Go West College Graduates Volunteer Program"*, in which every year college graduates were recruited as volunteers to work in western backward areas for one to two years, mainly in the fields of education, health care and poverty reduction.

Between 2003 and 2010 this program accumulatively recruited more than 90 thousand volunteers to service in west regions. Sponsors also encourage college students to obtain employment in western regions after graduation. In 2002 the central government formulated and implemented a *Ten-Year Plan for Developing Talented People in the Western Region.* The main ideas of the Plan were to mobilize all forces of eastern regions and large cities in western regions to help develop education in poor regions in Western China, strengthen personnel exchanges and interaction between Eastern and Western China, and to dispatch outstanding functionaries from central, eastern and midland governments to work in western areas or to exchange functionaries between governments in various areas. Official data showed that in the past decade 3,528 functionaries from western local governments were assigned to work in central and eastern local governments temporarily as the means to improve their administrative ability.

5. Interregional Mutual Aid Promotion Policy

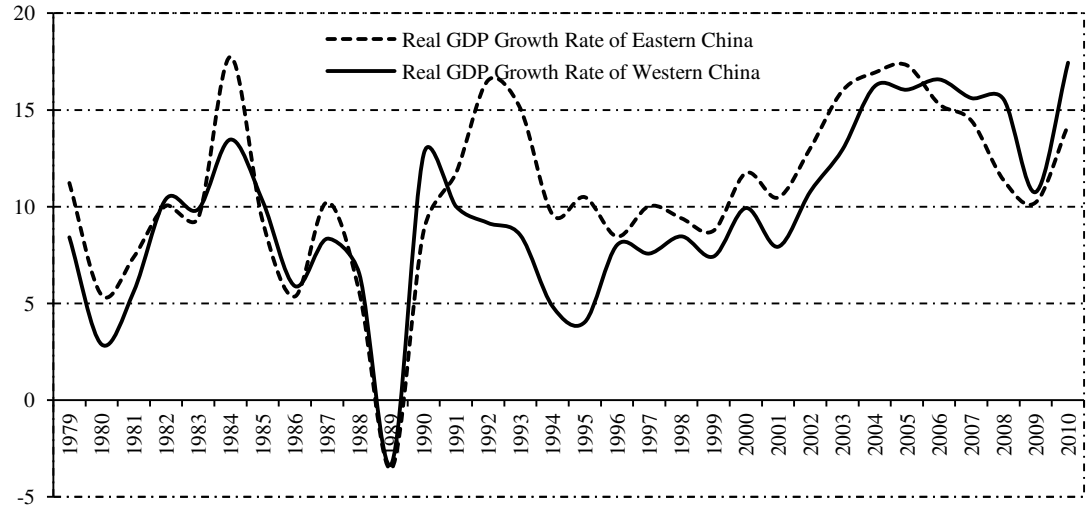
There are two types of interregional mutual aid promotion policies. The first one is called *Hand-in-Hand Aid* (HHA) or *Counterpart Support* policy. HHA is defined as that in order to promote the development of a region or an industry, government formulates a pairing mutual aid relationship or partnership between different regions or industries based on each other's advantage (TGPCC, 2001). To some extent HHA policy is a compulsory measure, whereby the central government will consider opinions of local governments but has the final saying in “who aids who” and “how to aid”. Aid fields of HHA involve various aspects of economic and social development, such as infrastructure construction, education, industrial development, technical assistance and direct capital investment. Up to now China has implemented four large HHA programs and all beneficiaries are in Western China, namely, Three Gorges reservoir area, Tibet, Xinjiang and Earthquake Hit Areas in Sichuan.

The second one is *East-West Interaction* (EWI) policy, which is defined as that in accordance with market rules, economic entities from eastern regions and western regions jointly promote cross-regional flow of production factors through exercising their comparative advantages and eventually achieve the goal of optimizing national distribution of productive forces (Cao, 2007). EWI was first proposed in 2005 and the official policy was released in 2007. Although East-West interaction has always been in the manner of self-promoting and self-enforcing through market

mechanism, this was the first time that it was promoted by central government as an official policy. Obviously there are essential differences between HHA and EWI by definition. EWI is based on voluntary action of eastern regions and central government mainly encourages enterprises in eastern regions to invest in western regions.

Ⅲ. Economic Outcomes of the First Stage Development

Achievements of WDS can be reflected in various fields, such as economic development, infrastructure, education, ecological and environmental protection, etc. This paper just focuses on economic development and residents' income, because the most important goal of WDS is to promote economic development and reduce regional disparities. Furthermore it is necessary to study whether economic outcomes exactly reflect the effect of policy actions.



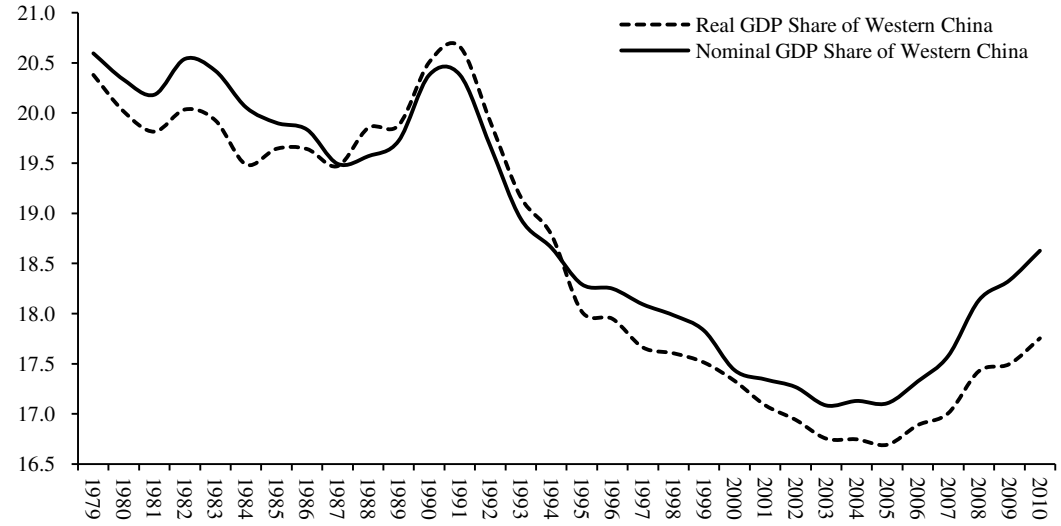
Note: Real GDP is the summation of real GDP of every provincial administrative region, i.e. we calculate the real GDP of every region using local nominal GDP and CPI(1978=100) at first, and then sum by region to get real GDP of Eastern, Central, Western and Northeastern China. The data are from various issues of every region's *statistical yearbook* especially the yearbook in 2011 which is the newest issue and the data also have been updated based on the newest *National Economic Census*, following indicators are from the same data sets unless we note expressly.

Figure 2: GDP Growth of Western China (1979-2010)

China's economic growth was very fast after implementing Reform and Opening-up strategy in 1978. It began to enjoy a rapid and stable growth especially after 1992 when China started transforming its planned economy into a market one. Average annual growth rate of China's GDP reached 10.12% between 1979 and 2010 while those of Eastern, Central, Western and Northeastern areas reached 10.79%, 9.98%, 9.57% and 8.5% respectively. Before implementation of WDS economic growth of western regions was much slower than that of other regions. However since

WDS was adopted western economy has entered a period of fastest growth with an average annual growth rate of 13.58% between 2000 and 2010, exceeding the growth of Central and Northeastern China. Since 2006 Western China's economic growth surpassed Eastern China and finally became the fastest growth region.

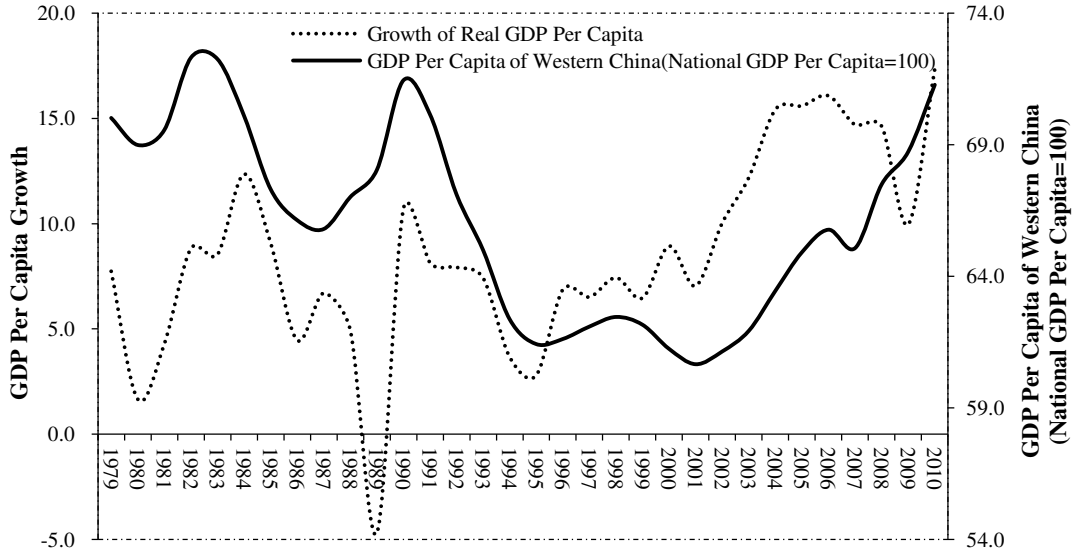
Rapid economic growth after implementation of WDS eventually led to a reversion of GDP share. In 1980s Nominal GDP share of Western China maintained around 20%, and then reduced rapidly from early 1990s. In 2003 it dropped to 17.09%. However it began to ascend recently and reached 18.63% in 2010.



Note: Calculation way and data source are the same as previous.

Figure 3: GDP Share of Western China in National GDP(1979-2010)

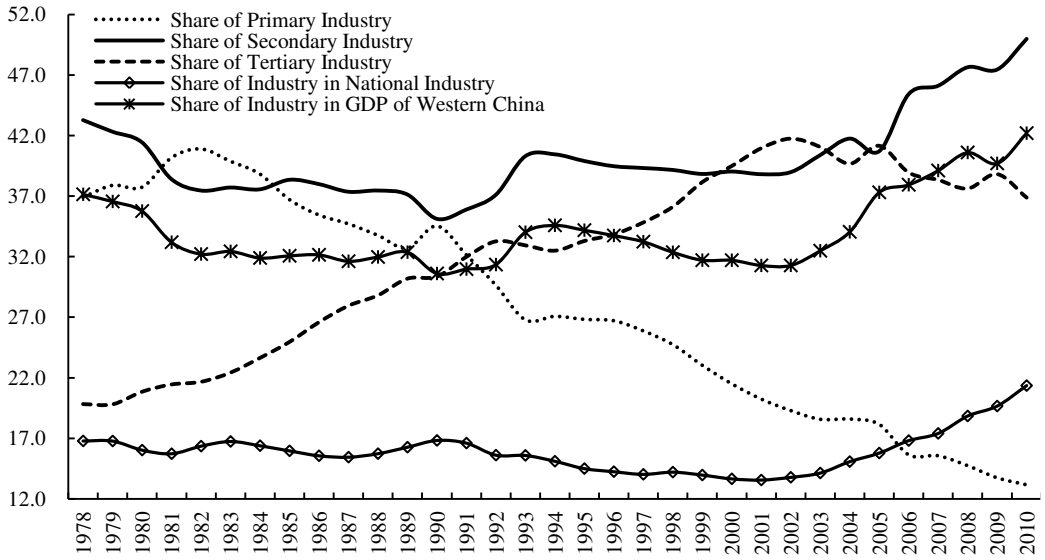
GDP per capita of Western China grew much faster after WDS. From 1991 to 2000 average annual growth rate of real GDP per capita was only 6.6%, then it rose to 13.26% from 2001 to 2010. Western China's ratio of GDP per capita to national GDP per capita ended descending trend and started to move up after WDS. It rose from 61.24% in 2000 to 71.28% in 2010. Moreover GDP per capita of Western China has exceeded US$3000 in terms of current prices and exchange rate.



Note: $GDP\ per\ capita = GDP_t/AP_t$, and $AP_t = (P_t + P_{t-1})/2$, where P_t is year-end population of period t, AP_t is average population of period t. GDP and Real GDP of Western China are summation of every region's value.

Figure 4: Real GDP Per Capita Growth of Western China(1979-2010)

Optimization of industrial structure is an important indicator of economic development. Theoretically, industrial structure shows a share descending trend of primary industry and an ascending trend of secondary and tertiary industry, and share of tertiary industry will increase rapidly after economy developing to a certain level. This law has been reflected definitely in the process of economic development in developed countries. Adjustment process of industrial structure in Western China also corresponds to this classic law, i.e. share of primary industry declined sharply in the past three decades and that of tertiary industry increased significantly. Nevertheless, share of secondary industry dropped in 1980s and then rose up especially after WDS. Combining with the trend of economic growth, it's easy to find that the rapid growth after WDS was mainly driven by the growth of industry (e.g. mining and manufacturing) output. In 2000 value-added share of industry in national total was only 13.65%, but it reached 21.35% in 2010. Value-added share of industry in GDP also increased sharply after WDS (42.19% in 2010).



Note: Data are calculated at current prices.

Figure 5: Industrial Structure of Western China(1978-2010)

Globalization is an inevitable trend of economic development. China did not obtain its due benefits from open economy before reform and opening-up strategy. In the past three decades international trade became the main driving factor of China's economic growth while FDI also contributed a lot (Graham and Wada, 2001; Whalley and Xin, 2010). Starting in early 1990s, degree of dependence on foreign trade began to rise year by year. Trade dependence index (TDI) increased from 32.86% in 1993 to 60.26% in 2006 and recently, it decreased significantly due to the global crisis starting in 2007 (46.07% in 2010). Actual utilized FDI increased from less than US$3.5bn in 1990 to over US$105.7bn in 2010, an average annual growth rate of 18.6%. On the contrary, Western China's foreign trade and economic cooperation lagged far behind other regions because of delayed opening-up, backward infrastructure, weak economic foundation as well as other negative local conditions. Fortunately things began to improve significantly in recent years. TDI exceeded 10% in 2003, rose to the highest 13.12% in 2007 and then dropped again to 10.61% in 2010 due to the global financial crisis. Inward FDI also grew rapidly after WDS. It was less than US$2.0bn in 1999, merely accounting for 4.87% of the nation's total. In 2010, it reached US$20.81bn and the share rose to 19.68%.

Table 4: Degree of Dependence on Foreign Trade (TDI, %)

	China	W-C	IM	GX	CQ	SC	GZ	YN	TB	SX	GS	QH	NX	XJ
1993	32.86	10.18	11.43	15.75	10.85		5.80	8.70	20.02	13.70	7.75	6.00	8.68	13.08
1994	44.64	14.55	12.75	23.34	16.22		7.99	14.71	29.94	17.73	10.54	9.61	10.66	18.18
1995	40.55	13.00	12.80	18.74	13.50		9.79	15.77	28.23	15.92	11.48	7.88	11.44	15.04
1996	35.39	9.61	8.19	11.82	11.36		7.15	12.05	21.24	12.46	7.03	9.26	9.16	10.97

1997	35.10	8.05	6.96	11.33	8.12	5.53	7.47	8.04	15.50	10.39	5.39	6.25	9.98	10.05
1998	32.31	7.75	6.10	10.34	5.61	5.70	6.53	7.18	8.17	12.01	5.19	6.68	10.19	12.64
1999	33.70	7.84	7.59	7.85	6.59	6.20	6.00	7.51	12.91	10.79	4.87	6.53	12.60	14.19
2000	39.71	8.94	12.83	9.09	8.56	5.85	7.14	7.76	10.47	10.96	5.44	7.11	14.93	15.70
2001	38.73	8.63	10.55	7.56	8.95	6.48	6.61	8.32	6.30	10.89	6.72	7.01	15.56	13.14
2002	42.46	9.04	11.37	8.55	7.50	7.82	6.85	8.33	6.39	10.23	6.98	5.69	10.85	15.82
2003	50.35	10.39	11.18	9.45	8.29	8.97	9.56	8.81	6.57	11.37	7.64	7.27	13.84	21.30
2004	56.72	11.54	11.91	11.65	10.17	8.68	12.33	10.03	6.21	11.88	9.63	11.50	17.43	22.56
2005	58.46	11.84	11.13	11.85	9.99	8.51	8.33	11.82	4.33	12.81	12.65	7.39	15.79	26.12
2006	60.26	12.38	9.86	12.78	10.84	9.79	7.54	12.75	6.23	11.63	15.54	11.51	17.71	26.73
2007	59.08	13.12	10.76	13.67	11.64	9.80	8.44	14.01	7.06	10.88	16.52	6.48	16.23	33.33
2008	53.40	13.11	8.53	14.70	10.85	10.98	9.37	11.38	6.15	9.93	14.39	5.46	14.89	41.47
2009	41.27	9.66	6.64	11.94	8.07	10.39	4.76	8.26	4.47	7.25	9.04	4.53	9.90	25.75
2010	46.07	10.61	6.78	13.83	10.10	10.36	5.09	9.68	7.86	7.83	12.14	4.10	10.29	26.60

Note: W-C=Western China, IM=Inner Mongolia, GX=Guangxi, CQ=Chongqing, SC=Sichuan, GZ=Guizhou, YN=Yunnan, TB=Tibet, SX=Shaanxi, GS=Gansu, QH=Qinghai, NX=Ningxia, XJ=Xinjiang; Total Imports & Exports are transformed from US$ to RMB using period average exchange rate in every year; trade dependence index(TDI)=(Total Imports & Exports)/GDP.

With rapid economic growth people's living conditions were also improved noticeably[3]. The average annual growth rate of real PIUH (Per Capita Disposable Income of Urban Households) in Western China was 6.27% and that of real PIRH(Per Capita Net Income of Rural Households) was only 2.91% between 1991 and 2000. However from 2001 to 2010 they grew faster and rose to 8% and 7.57% respectively, indicating a reduced growth gap between urban and rural residents. Furthermore, Chongqing obtained the highest PIUH (RMB19099.73) and Gansu got the lowest one (RMB13188.55) in 2010 while the maximum and minimum of PIRH were found in Inner Mongolia (RMB5530) and Gansu (RMB3424.7) respectively.

China's share of consumption in GDP or total expenditure is relatively very low because of high saving rate as well as some other factors (Aziz and Cui, 2007; Guo and N'Diaye, 2010). Western China's consumption share in GDP also appeared a same trend and at present it does not show an evident reverse. However, absolute purchasing capacity still has been strengthened. In 1990 Western China's TRSCG (total retail sales of consumer goods) was RMB144.15bn and then rose to RMB599.72bn in 2000 and RMB2733.25bn in 2010. In addition, Western China's share of TRSCG in the nation's total reversed after WDS. It was 19.82% in 1990 and dropped to 16.34% in 2003, and then increased yearly and reached 17.41% in 2010. Proportion of food consumption also declined substantially. Western China's urban and rural Engel coefficients (regional mean) were respectively, 54.7% and 62.4% in 1990, 42% and 58.3% in 1999, 38.3% and 43.7% in 2010. We find that urban Engel coefficient dropped 12.7 % from 1990 to 1999 and 3.6 % from 1999 to 2010, while

[3]In China's official statistics, Chinese citizens are divided into urban households and rural ones, and statistic yearbook issues per capita income of these two groups. That's why here we just use the average value of per capita income of residents in urban and rural areas to study the income level in Western China.

rural Engel coefficient dropped 4.1 % and 14.5 % in corresponding periods, which indicated that rural living level was improved a lot after WDS. Moreover, western rural poverty has also been improved significantly. There were 512.2 million people in rural area of Western China living under the poverty line. In 2000 the poverty incidence was 20.8% and in 2009 the poverty population and incidence respectively dropped to 237.2 million and 8.3% (RSD, various versions).

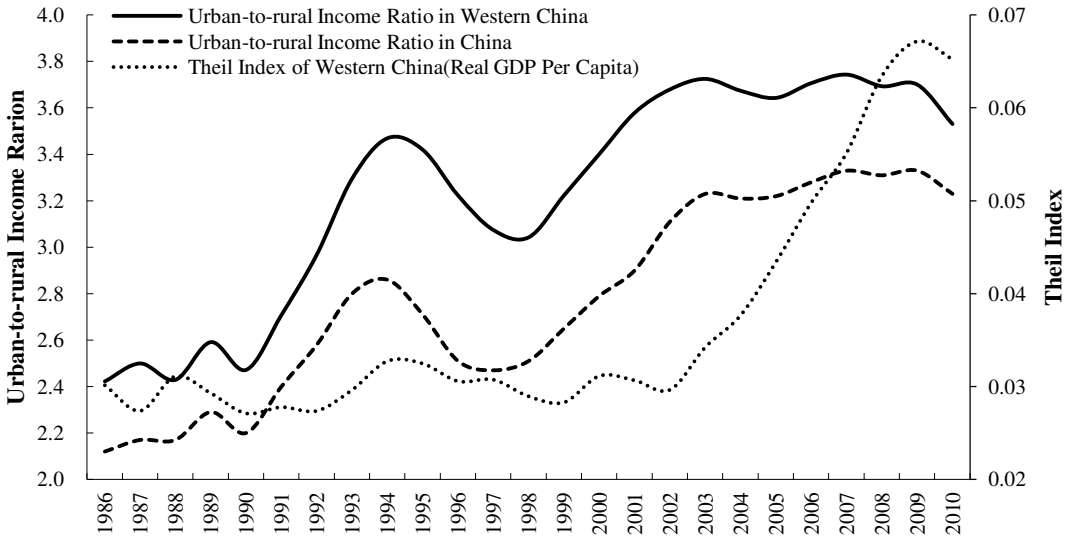
Ⅳ. Constraints on Western China's Economic Development

Previous analysis reveals that western development already obtained great achievements in the past decade. However various problems also surfaced, which doubtlessly would be serious constraints on the future economic development.

1. Intraregional Disparities and Growth Pole Development

In recent years an exciting performance of China's economic development is that China's interregional disparities has put up a declining trend (Liu and Zhang, 2007; Fan and Sun, 2008; Fan, Kanbur and Zhang, 2010). But unfortunately, Western China's intraregional disparities have enlarged significantly after WDS. Theil index based on real GDP per capita of western regions rose from 0.031 in 2000 to 0.065 in 2010. This evoked us to rethink whether a uniform development strategy to western regions was much more effective in partial regions. Because western China includes 12 provinces and regions distributed in south, north, southwestern and northwestern areas where there exist enormous natural, geographical and economic differences as well as comparative advantages.

Another kind of disparities are urban-rural income disparities. Urban areas and their surrounding areas develop much faster than remote rural areas. Thus development gap between urban and rural areas still widened in the past decade, and such gaps in Western China are much bigger than the national level. Although uniform regional policy should not be identified as the only factor of enlarging intraregional disparities of Western China, diversified policies meeting local conditions can indeed contribute to preventing further widening of such disparities.



Note: Urban-to-rural Income Ratio=U/R, where U is Per Capita Annual Disposable Income of Urban Households and R is Per Capita Annual Net Income of Rural Households. Urban-to-rural Income Ratio and Theil index are calculated by author based on income and regional GDP per capita of Western China, the data are from various issues of every region's statistic yearbooks.

Figure 6: Regional and Urban-Rural Income Disparities in Western China

Actually, although central government successively implemented several key projects to promote rural development after WDS, western rural developing situation is still very grim. In 2009 Western China's rural population accounted for over 30% of the nation's total rural population and over 60% of the total population in Western China. While PIRH in Western China is only 53.3% of that in Eastern China, 55.6% of income is from household operations. Incomes from wages, salaries and properties are very low[4]. Moreover, 60% of China's rural poverty population is located in Western China, and poverty incidence rate and poverty intensity are also much higher than those in other regions (RSD, 2010).

Since 1980s China has been using Growth Pole Theory (GPT) to guide economic development of eastern regions, and finally built three growth poles, i.e., Pearl River Delta, Yangtze River Delta and Beijing-Tianjin-Tangshan areas. Rapid development of these poles and their driving effect on surrounding areas have proved the effectiveness of this practice. Then fostering regional growth poles became an import strategy of Western and Central China's development. Up to now central government has approved *Pan-Beibu Gulf Economic Zone* (2008), *Guanzhong-Tianshui Economic Zone* (2009) and *Chengdu-Chongqing Economic Zone* (2011) as three national level growth poles, they respectively locate in the northern, central and southern region of Western China. At the same time, some local governments also published their plans

[4]Ratios are calculated by author based on the data from *China Population and Employment Statistics Yearbook* (China National Bureau of Statistics, 2010) and *China Statistical Yearbook* (China National Bureau of Statistics, 2010).

about fostering smaller growth poles. Fortunately, empirical studies also prove that there exist spread–backwash effects in Western and Central China (Ke and Feser, 2010; Ke, 2010).

However, GPT also states that there exist two effects, polarization and spreading, whose roles are opposite, thus whether economy eventually tends to develop in balance depends on the strength of polarization effect and spreading effect. Therefore, when growth pole is still in stage of self-reinforcing development, polarization effect may be stronger than spreading effect, and then regional economic as well as urban-rural disparities will enlarge. In the current stage of Western China's economic development, the problem may be that it still does not form a dominant growth pole whose spreading effect is stronger than polarization effect. These three national level growth poles need more time to strengthen and finally play their spreading roles.

2. Capital Shortage and Outflows

Capital shortage is a key factor restricting western regions' development and would sustain for a long time. Development capital of western regions still has a strong dependence on funds from policy and indirect financing. In terms of structure of investment in fixed assets, share of capital from national policy assignment and loans in Western China is much larger than that in other regions, while share of foreign and self-raising funds is relatively lower. Because of a lower return rate of investment and worse investment environment, western regions can hardly attract enough foreign capital, eastern regions' capital and private capital to invest in local industries.

Moreover, there exists serious capital outflow in Western China, which is definitely destructive in a region suffering from capital shortage, the ratio of loans to deposits supports this fact to a certain extent. According to statistical data from various local statistical yearbooks, Western China's ratio of loans to deposits reduced year by year in the past two decades, it declined from 125.37% in 1990 to 69.55% in 2010. For specific regions such as Tibet (23.27%), Xinjiang (56.06%) and Shanxi (60.85%), ratios were much lower than average level. Fortunately, governments have paid much attention to promoting trade and investment as well as improving investment environment as far as possible. However facts of capital shortage and outflow indicate that further efforts and more efficient solutions are required.

Another aspect is human capital shortage and brain drain. In recent years, central and local governments made great efforts on education and personnel training. Thanks

to the gradually increased education input and promoting of policies for talents “Go west”, stock of human capital of Western China has increased significantly. However, similar to investment capital, west regions are also suffering from shortage of human capital and brain drain. Due to disadvantages of income level, working and living environments, high level professionals tend to work in eastern coastal regions rather than western ones, e.g. even more than 90 percent of college and university graduates in Western China prefer to obtain employment in eastern regions (He, 2008).

Rural labor force drain in Western China is also remarkable. Since late 1980s, huge number of peasants began to leave their home and work in cities. The number of such peasants known as Rural Migrant Workers reached 154.33 million in 2009 (referring to outgoing rural migrant workers), of whom 31.6% were from Western China, and 59.1% of Western China’s rural migrant workers moved outside their provinces to, especially, eastern regions. More importantly, most of outgoing rural migrant workers are young, strong and relatively better educated peasants, while the remaining ones are mainly sick, old and poorly educated people (NBS, 2010). Obviously, Rural labor force drain may cause negative impacts on Western China’s rural economy, especially agriculture development and further national food security.

3. Backward Technology and Innovation Capability

Technology progress is the source of long-term economic growth, it can not only improve factor productivity but also contribute to optimizing industrial structure while conversely, economic development can also promote technology progress. Generally, regions with higher technical level indicate higher economic development level. The problem is that both technology and economic development level of Western China are very low, recent studies also have proved that TFP contribution to growth in Western China was much lower than that in other regions (Jefferson, Hu and Su, 2006; Li, 2009).

As a key force of promoting technology progress, R&D expenditure scale of Western China increased significantly in the past decade, but even so, its shares in both GDP and national total are the lowest, and the share in national total expenditure reduced annually after WDS. For intra-regions of Western China, shares of Sichuan, Shaanxi and Chongqing remain some distance ahead of the other regions, and shares of Inner Mongolia and Guangxi increased sharply in recent years while other regions shared a small proportion.

Table 5: R&D Expenditure Level of Western China

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
R&D Expenditure Share in GDP (%)												
Western China	0.57	0.62	0.82	0.84	0.88	0.93	0.88	0.92	0.89	0.90	0.89	1.08
Eastern China	0.67	0.79	1.08	1.14	1.27	1.31	1.42	1.49	1.59	1.64	1.74	1.94
Central China	0.39	0.47	0.61	0.62	0.68	0.71	0.69	0.74	0.83	0.86	0.95	1.18
Northeastern China	0.58	0.60	0.71	0.85	1.04	1.10	1.18	1.24	1.18	1.20	1.16	1.36
National	0.58	0.68	0.91	0.96	1.07	1.12	1.17	1.23	1.29	1.33	1.38	1.59
R&D Expenditure Share in National Total R&D Expenditure (%)												
Eastern China	59.42	61.38	63.40	63.79	64.49	64.75	66.97	67.31	68.28	68.21	67.97	65.84
Central China	13.25	13.58	13.06	12.34	11.97	11.80	11.13	11.26	12.03	12.29	13.17	14.38
Western China	17.41	16.32	15.72	15.19	14.19	14.27	12.86	12.74	11.90	11.90	11.72	12.49
Northeastern China	9.92	8.71	7.82	8.68	9.35	9.18	9.04	8.69	7.78	7.61	7.14	7.29
Provincial R&D Expenditure Share in R&D Expenditure of Western China (%)												
Inner Mongolia	1.46	1.89	2.37	2.45	2.62	2.86	3.08	3.75	4.61	5.48	6.27	7.18
Guangxi	1.84	2.18	5.94	5.05	4.92	5.04	4.69	4.68	5.10	4.99	6.07	6.51
Chongqing	6.21	6.67	7.19	6.30	6.86	7.82	9.35	10.24	10.33	10.65	11.12	10.96
Sichuan	35.65	35.98	31.87	36.24	33.65	35.61	30.85	30.94	30.17	31.52	29.63	29.59
Guizhou	3.08	3.04	2.97	3.37	3.30	3.54	3.43	3.54	4.06	3.11	3.50	3.64
Yunnan	5.27	5.66	4.83	4.86	5.32	4.94	4.95	6.83	5.85	5.86	5.73	5.14
Tibet	0.46	0.10	0.17	0.13	0.27	0.14	0.14	0.11	0.14	0.16	0.23	0.20
Shaanxi	33.51	32.41	35.12	32.60	33.00	30.48	33.02	29.62	28.35	27.58	26.49	26.14
Gansu	8.22	7.66	5.15	5.28	5.96	5.73	5.69	6.28	6.70	5.83	5.88	5.14
Qinghai	0.98	0.85	0.92	0.74	1.13	1.08	1.20	0.95	0.93	0.86	0.72	1.05
Ningxia	1.03	0.92	1.17	0.96	1.06	1.07	1.21	1.02	1.39	1.69	1.40	1.44
Xinjiang	2.29	2.65	2.30	2.02	1.91	1.70	2.38	2.05	2.37	2.27	2.96	3.01

Note: The share are calculated by author based on R&D expenditure (current prices) of every regions, National total value is summation of provincial value. The Data are from various issues of *China Statistical Yearbook on Science and Technology* (Ministry of Science and Technology of National Bureau of Statistics, Various Issues).

To improve technological level, western regions need to enhance innovation capabilities. In fact, although innovation capability of Western China in general is much weaker than that of Eastern and Central China, economic benefit derived from innovation capability is not too bad: even better than that in Central China. Innovation capability of Sichuan and Shaanxi province is stronger than that in most regions in Central China and also stronger than certain regions in Eastern China (Liu and Hu, 2002). Therefore, building up a better innovation environment will be an effective solution to promoting technology progress and eventually benefitting industrial structure upgrading.

4. Industry Development and Ecological Environment

Western China is now in the stage of a rapid industrial restructuring, where certain pressing issues need to be addressed seriously. Firstly, contributions of industrial and service sectors to employment are very low although they obtained a very high share in GDP, over half labors are employed by the primary industry. Secondly, western regions mainly focused on resource-intensive and labor-intensive industries with a slow growth of high-tech and emerging industries. The last one is the extremely

uneven distribution of industries in Western regions, where industries are mainly distributed in Sichuan, Shaanxi and Guangxi province. The level of industrialization in Western China's other regions' remains very low and these regions have not yet found appropriate leading industries with comparative advantages. Moreover, underdeveloped service industries, especially producer services such as logistics and financial industries, cannot match the rapid growth of manufacturing industry.

Inefficient resource development resulted in serious resources waste and environmental damage due to backward technology, lack of scientific planning and over-exploitation, thus ecological environment in Western China deteriorated rapidly especially in 1990s. Since late 1990s, the government successively implemented several effective projects such as "Return Grain Plots to Forests", "Returning Grazing Land to Grassland", "Protection of Natural Forests", "Soil and Water Conservation" and so on; by which environmental deterioration slowed down in recent years. However, the situation of "partial improvement and overall deterioration" remains to be changed. Studies show that soil erosion areas in Western China currently accounted for more than 80% in the nation's total and the area of desertification accounted for over 90% (Liu, 2011). Deterioration of ecological environment finally caused constant natural disasters and also resulted in huge economic losses. If exploitation of resources remains in an inefficient, high waste and high damage pattern, a fragile ecological environment will be a significant constraint on the sustainable development in western areas.

5. Patterns for Infrastructure Construction

There exist mainly three problems in the public infrastructure in Western China. The first one is the inadequate and backward public infrastructure, especially in the fields of transportation, health and medical service, education and social security, and it is particularly prominent in rural areas. The second one is that infrastructure construction excessively depend on state funds and bonds, while private investment in infrastructures has not yet been widely utilized. These two problems are not so difficult in that they can be solved through increasing investment and reforming investment system.

The last but also the most important one lies in benefit allocation. Following the current construction pattern, most of social and economic benefits created by infrastructure construction flow out rather than localize in western regions. Firstly, a

large portion of funds invested in construction projects are actually spent on engineering equipments, which are mainly produced in eastern regions, thus western regions just gain fewer economic benefits in the construction period. Secondly, some key projects, such as "West-East Electricity Transmission" and "West-East Gas Transmission", are national strategic programs, in which raw materials and energy are transmitted to eastern regions at a very low price, thus western regions where upstream industries mainly locate can only gain a small share of the benefits with eastern regions being the chief beneficiaries. Thirdly, key projects in Western China are mainly implemented by state-owned central enterprises, part of whose income tax is channeled to the central government based on the current tax system, thus little profit is left in western regions. Moreover, resource development dominated by large enterprises owned by the state government has little industrial relevancy with western local industries and therefore, its driving effect on western industries development is also weak.

Ⅴ. Conclusions and Prospects

Based on the above a statistical description and analysis on various economic indicators in this paper, we can find that Western China's economic development occurred a dramatic reversion after implementation of WDS, which implies that, to some extent, WDS has played a significant role in promoting economic development of western regions. Economic performance in the past decade demonstrates that West China has entered a period of rapid and stable development, where gradually improved infrastructure and increased key preferential policies provide basic supports for future development. But even so, appropriate strategy upgrading is necessary as usual for western development in next stage.

Policy framework should be updated appropriately at first. Promoting policies to western regions are supposed to match local conditions, taking differences in natural and geographical environment as well as economic bases and comparative advantages into consideration. The present unified policies employed in different western regions would hinder areas to develop their own economies in the light of local conditions. Actually, learning from the practice of European Union, we can make different policies for different regions according to local conditions. For example, Western China can be divided into several territorial zones according to levels of economic development, and then carry out different development policies in each zone.

Furthermore, it is feasible to expand policymaking power of local governments. The current policy framework leads to an over-reliance on support from the central government, which places local governments in a harmful competition for funds and special benefits from above rather than to work out solutions by themselves. Moreover, a decentralized legislative power exercised by local governments will maximize the role of market mechanism and reduce mandatory intervention policies. For instance, we consider that HHA policy must be weakened and EWI policy should be strengthened.

As far as fiscal policies are concern, we believe that three aspects need to be strengthened. First of all, the central government must unceasingly increase transfers to local governments in Western China so as to narrow financial strength gap and further equalize the levels of public service. In fact, transfer payments used to adjust local governments' financial strength are very limited in China. Generally, 30%-40% of local governments' fiscal revenues is from superior government's financial transfers in developed countries. However, in China the ratio of general transfers from the central government to total local government revenues was 18.14% in 2010, and dedicated transfers used to equalize local governments' financial strength was only 6.52% of the total local government revenues (MOF, 2011). We can also enhance local governments' financial strength through increasing their proportion in shared taxes (i.e. central and local government shares with fixed rate, for instance, 75% of value-added tax is now for the central government and 25% for local ones). Finally, more financial subsidies should be provided to western regions' manufacture insofar as they conform to WTO rules. For example, the government can subsidize the loan interest to reduce the capital use cost of enterprises in their implementation of projects encouraged by the state.

Tax preferential policy played a key role in WDS, yet the range of beneficiaries was not as wide as should be. An investigation report revealed that enterprises benefitted from tax preferential policy of WDS accounted for less than 5%, and if enterprises enjoying special tax preference (e.g., Tax on the Use of Arable Land) were excluded, actual beneficiaries were less than 2% (Zhou et al, 2009). Obviously, it is very important to lower the entering benchmark of preferential policy and expand preferential range. Besides, the present value-added tax (VAT) system in Western China has to be reformed. In 2004 a pilot program was initiated in Northeastern China whereby consumption VAT substituted for production VAT and

then in 2007 this program was extended to Central China. VAT reform has greatly stimulated the technological updating, industrial restructuring and the development of industrial clusters in these regions. However, at present production VAT is still adopted in Western China.

For industrial capital constraints and financing difficulty of small and medium-sized enterprises (SMEs), establishing investment funds and microfinance institutions are usually useful strategies. As we know, regional investment funds have played a significant role in developing underdeveloped area in some countries and regions. In fact, establishing development funds for Western China was proposed by some scholars even before WDS was implemented, we still consider that it is a quite good option for improving WDS. Private Equity Fund (REF) can also be an important fund source for local industrial development. In 2008 the first REF in Western China, i.e. an industrial investment fund was approved and established in Mianyang, Sichuan province. Funds thus raised were mainly invested in high-tech industries, environmental protection industries and urban infrastructure construction, and the results were quite encouraging. Microfinance institutions can not only provide financing channels for SMEs and minor enterprises but also improve financial services in rural areas. Although in western regions some local commercial banks and township banks were established under the promotion of government, and microfinance market was developed in a satisfactory way in the past decade, microfinance still needs to be further expanded and improved.

Inadequate transportation infrastructure remains a bottleneck in the development of Western China. One of the most important projects is to further improve interregional transportation network within Western China so as to promote western integration. Geographically Western China is divided into three areas, namely, southwestern, northwestern and Qinghai-Tibet Plateau, each with enormous differences in natural conditions. Transportation network connecting these three areas is still inadequate, thus it is necessary to build or improve highways and railways between Sichuan and Tibet, Chongqing and Shaanxi as well as Xinjiang and Tibet. Meanwhile, transportation infrastructure in rural areas, poverty-stricken areas, remote mountain areas and areas inhabited by minority nationalities should also be improved unceasingly. Governments in western areas should further intensify their efforts to develop education, science, technology and exploitation of human resource so as to boost innovation capacity and solve the problem of human capital shortage

and brain drain.

As for policies concerning resource development and environmental protection, the most urgent task is to reform the existing resource tax and development pattern. Currently, the resource tax rate is very low (for example, real tax rate imposed on petroleum and gas is less than 5%), which is definitely not conducive to energy saving and environmental protection. Therefore, tax rate should not only be increased appropriately but also be diversified according to degrees of threats to local environment. In regions where environment has been severely damaged due to inappropriate resource development, tax must be imposed at a higher rate, and resource tax revenues should be mainly used for local environmental protection. We also hold the opinion that it is necessary to establish a reasonable benefit allocation system for national projects related to western resource development so that western regions can obtain their deserved benefits.

Finally, in order to address the issue that "how to increase farmer's profits", we propose adopting a farm produce subsidy known as "*Subsidy to Circulation Link If High Price, and Subsidy to Production Link If Low Price*", which means that the government provides financial subsidies to those engaged in processing, marketing and consuming agricultural products when the prices of such produce are too high, and provides financial subsidies to farmers when the prices are too low. This subsidy policy can not only stabilize the final prices of agricultural products but also protect farmers' benefits. However, the most effective solution to the foresaid issue remains to further reform the system of dual- ownership of land in rural areas, and allow land to be used for investment and/or operation in various patterns, thus farmers can obtain additional profits from intensive and scale operation of land.

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