FOREIGN INVESTMENT AND REGIONAL ECONOMIC DEVELOPMENT IN CHINA[1]

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ABSTRACT Since 1979, the Chinese economy has experienced a widening economic disparity between the Eastern and Western Regions. One important factor contributing to the increased inter-regional disparity is direct foreign investment (DFI). This paper conducts an empirical investigation of the impacts of DFI on the regional economic development of China. Regression analysis indicates that the impact of DFI on economic growth was stronger in the Eastern (coastal) Region and very weak in the Western (far inland) Region, hence reinforcing the inter-regional economic disparity. Many other factors also contributed to the widening gap.

1. INTRODUCTION

China consists of three macro-regions. The Eastern (coastal) Region includes eleven provinces and cities: Guangdong, Fujian, Jiangsu, Zhejiang, Shanghai, Shandong, Hebei, Beijing, Tianjin, Liaoning and Hainan. The Central (inland) Region contains nine provinces: Heilongjiang, Jilin, Inner Mongolia, Shanxi, Henan, Hubei, Hunan, Jiangxi and Anhui. The Western (far inland) Region includes nine provinces: Shaanxi, Sichuan, Gansu, Qinghai, Xinjiang, Ningxia, Guizhou, Yunnan and Tibet.

During the reform era since 1979, the Chinese economy has been characterised by rapid growth and increasing inter-regional disparity. The economic growth in the Eastern Region has been faster than that in the Western Region. During the period from 1980 to 1993, the real GDP of the Eastern Region grew at an annual rate of 11.2 per cent on average, compared to 9.2 per cent in the Western Region[2], resulting in a widening inter-regional economic gap between the two regions. This disparity can be attributed to many factors such as economic reforms and open-door policy in favour of the Eastern Region, different economic structure and resource conditions, coast-oriented regional policy and direct foreign investment.

A number of studies have examined the influence of economic reforms and regional policy on regional economic development in China. These include Chai and

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[2] Although this paper included brief references to the Central Region, it focuses on the Eastern and Western Regions. All statistics in this paper, unless otherwise specified, are sourced from the State Statistical Bureau of China (SSB), 1981-94.

Leung (1985), Falkenheim (1985), Pannell (1987), Rothenberg (1987), Lo (1987, 1990), Walker (1989), Yang (1990), Cannon (1990), Kueh (1992), Tsui (1992), Jia and Tisdell (1993) and Chai (1994). Fan (1992) presented an empirical investigation on the regional impacts of foreign trade in China for the period 1984 to 1989 using the expansion approach (see Casetti, 1972, for details). He found that the effect of foreign trade on the economic growth of the Eastern Region was stronger than that on the Western Region. Other authors addressed foreign investment in the context of its geographic distribution and the possible influence on the regional development, for example Phillips and Yeh (1990), Leung (1990), Pomfret (1991, Ch.5) and Chai (1994). These studies, however, were not focused specifically on the impact of foreign investment on regional economic development in China. Hence a systematic study, especially an empirical investigation is still needed.

The purpose of this paper is to investigate the impact of direct foreign investment (DFI) on the regional economic development of China using regression analysis. It is hypothesised that the impact of DFI on economic growth varies from one region to another - more specifically that it is stronger in the Eastern Region and weaker in the Western Region. By promoting capital formation, technology upgrading and exports, DFI contributed significantly to the economic growth of the East, while it had little influence on the West. As a result, DFI reinforced the economic disparity between the two regions.

This paper is organised as follows: Section 2 discusses the pattern of the regional distribution of DFI in the context of the open-door policy and regional difference in investment environments. Section 3 presents an empirical investigation on the effect of DFI on economic growth in both the Eastern and Western Regions, using pooled time-series and cross-section data for 16 provinces over a 7-year period (1986-1992). This is followed by a discussion of other important factors influencing regional economic development including rural industry development, differential growth of fixed capital investment and exports, and domestic capital flow from the Western Region to the Eastern Region. In Section 4, some conclusions and policy implications will be drawn.

2. THE REGIONAL PATTERN OF DFI DISTRIBUTION IN CHINA 1979-1993

The regional distribution of DFI in China is primarily determined by the investment environment and return on capital in the different regions. The investment environment in a region is affected by a number of social and economic factors, which in the theory of international investment are termed location-specific factors. These include infra-structure, transportation, economic structure and development level, economic policy, legal system and resource endowment.

In the case of China, the location-specific factors differ considerably between the Eastern and Western Regions. In general, the Eastern Region is more developed economically and culturally. The Eastern Region has better infrastructure, especially in its transportation and communication systems, as well as a more developed economic structure and financial system. Traditionally, all economic centres of

China as well as major seaports and airports are concentrated in the eastern coastal region. In addition, the better service facilities and human resources make the investment environment in the Eastern Region superior to that of the Western. In terms of economic structure, the share of manufacturing industry in GDP of the Eastern Region is significantly higher with 52.5 per cent in the ten Eastern provinces in 1985, compared to 40.7 per cent in the nine Western provinces[3].

These traditional advantages of the Eastern Region over the Western Region in economic development and investment environment were reinforced by the coast-oriented economic reforms and open door policy since the early 1980s. The Chinese government committed a large amount of capital to the Eastern Region to improve infrastructure such as transportation, communication, public utilities and service facilities. Furthermore, the government granted a package of preferential policies to the Eastern Region, including favourable policies on taxation, foreign trade and investment, and more autonomy in economic decision making, all of which resulted in a better investment environment.

In particular, the open-door policy has been pursued with a remarkable spatial dimension. In 1979, the Chinese government initiated the open-door policy by establishing four Special Economic Zones (SEZs) in the Southeast coastal region. These SEZs were initially designed as laboratories for use of foreign investment, where special economic policies were adopted. The spatial proximity to Hong Kong where about 80 per cent of total DFI in China comes from was important. In the initial stage, DFI was highly concentrated in the four SEZs (Shenzhen, Zhuhai, Shantou and Xiamen) and during the period from 1979 to 1983, about 80 per cent of total DFI projects was located in the four SEZs. However, as the government used administrative regulations to isolate the SEZs economically from the rest of the country, the SEZs in essence became foreign enclaves with little economic linkages with other regions.

In 1984, 14 coastal cities were opened to foreign investment. As in the SEZs, a series of special economic policies were practised in these open coastal cities (OCCs). This helped DFI to diffuse spatially from the SEZs to the fourteen OCCs across ten coastal provinces. Consequently, the contracted DFI in the fourteen OCCs exceeded that in the SEZs. Since 1986, DFI has gradually spread to the other regions including the other coastal areas and the vast inland regions. In 1990, the new emphasis of open policy shifted to Shanghai Pudong New Area, Changjiang (Yangtse River) Delta and Minnan Delta. This was followed by a rapid expansion of DFI to the inland regions after Deng Xiaoping's "south tour" in early 1992. As a result, DFI diffused quickly to the inland regions and scattered widely across the country.

However, as the investment environment in the Eastern Region is more favourable for foreign investors, DFI has been concentrated in the Eastern Region since the beginning of the open-door policy. As Table 1 shows, during the period of

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[3] Calculated from provincial statistical yearbooks of 19 provinces (and cities), including 10 coastal provinces (Hainan and Guangxi are excluded) and 9 western inland provinces (Tibet is excluded).

Table 1. Regional Distribution of Direct Foreign Investment (utilised) in China 1983-93 (US$m)

	1983-85		1986-89		1990-1993		1983-93	
Regions/Provinces	Value	%	Value	%	Value	%	Value	%
All Regions	2779.8	100.0	8497.7	100.0	45387.0	100.0	56664.7	100.0
Eastern Region	2573.7	92.6	7651.7	90.0	40575.2	89.4	50800.4	89.7
Guangdong	1701.4	61.2	3440.0	40.5	14482.0	31.9	19623.4	34.6
Fujian	185.5	6.7	571.9	6.7	5047.4	11.1	5804.8	10.2
Guangxi	59.6	2.1	141.3	1.7	1108.0	2.4	1308.9	2.3
Zhejiang	37.0	1.3	123.3	1.5	1411.6	3.1	1571.9	2.8
Jiangsu	62.7	2.3	261.2	3.1	4643.4	10.2	4967.3	8.8
Shanghai	160.6	5.8	1016.7	12.0	3973.1	8.8	5150.3	9.1
Shandong	42.8	1.5	217.6	2.6	3176.9	7.0	3437.3	6.1
Beijing	199.9	7.2	1056.5	12.4	1538.6	3.4	2795.0	4.9
Tianjin	70.6	2.5	216.6	2.5	815.9	1.8	1103.1	1.9
Hebei	14.4	0.5	57.9	0.7	593.4	1.3	665.7	1.2
Liaoning	39.2	1.4	339.7	4.0	2371.7	5.2	2750.6	4.9
Hainan	41.1	1.5	250.9	3.0	1438.5	3.2	1730.5	3.1
Central Region	86.2	3.1	390.7	4.6	3421.9	7.5	3898.8	6.9
Western Region	95.7	3.4	455.6	5.4	1361.3	3.0	1912.6	3.4

Notes: The figures for 1983-85 includes direct foreign investment and other forms of investment such as compensation trade, processing assembly and international leasing. The figure for 1986 and after refer only direct foreign investment.
Source: *Almanac of China's Foreign Economic Relations and Trade, 1984-1994; Statistical Yearbook of China 1991-1994*; and *China Foreign Economic Statistics 1979-1992.*

1983-1993, 89.7 per cent of the realised DFI in China was located in the coastal region, with 6.9 per cent and 3.4 per cent in the central inland and the western inland regions respectively. Although DFI has spread to the inland regions since the mid-1980s, the Eastern Region is still the primary location of foreign investment. For example, Guangdong Province is the single largest recipient of DFI, amounting to US$19.6 billion which accounted for 34.6 per cent of the national total for the period from 1983 to 1993. In the initial stage (1983-85), 61 per cent of total DFI flowed into Guangdong. Since the mid-1980s Guangdong has maintained the most important location for DFI although its share in the national total has declined. Fujian Province is second only to Guangdong, with DFI amounted to US$5.8 billion during the period from 1983 to 1993, or 10 per cent of the national total. At the other end, however, both the Central and Western regions got a very small share of DFI. The sum of the DFI in these two inland regions was less than 30 per cent of the DFI in Guangdong for the period of 1983 to 1993. The DFI which flowed into the Western Region (9 provinces) was only equal to 10 per cent of the DFI in Guangdong Province over the same period. Therefore, the regional distribution of DFI in China was highly unbalanced.

3. DFI AND REGIONAL ECONOMIC DEVELOPMENT: REGRESSION ANALYSIS

3.1 The Approach, Study Period, Spatial Scope and Data

Because of the imbalance of the spatial distribution of DFI in China between the Eastern Region and the Western Region, the impact of DFI on the economic development of China should differ between the two regions. In order to investigate this difference, a regression analysis is performed.

Prior to the mid-1980s, DFI was highly concentred in the coastal open areas, with little extension to the inland region. For most of Western provinces, DFI started after 1986 when China began to spread the open-door policy to the inland regions. In order to make comparative analysis of the effect of DFI on economic growth between the Eastern and Western Regions, the period covered in this study is from 1986 to 1992. The spatial scope of this study includes 9 of the 11 Eastern provinces and 7 of the 9 Western provinces. In order to make the regions more comparable, Shanghai and Tianjin are excluded from the regression analysis. They are the two largest coastal cities and commercial centres in the Eastern Region and are much different from other provinces in economic structure and condition. Two Western provinces, Qinghai and Tibet, are also not included in this study because almost no DFI in these two provinces existed prior to 1992. The source of data are mainly provincial statistical yearbooks for each province and The Statistical Yearbook of China from 1986 to 1993. As this study covers 16 provinces over a 7-year period, the sample size is 112 observations for each variable.

The regression model is based on the classical production function, which expresses output as a function of capital and labour. Capital includes domestic and

foreign capital. Thus, the production function is: $GDP = f(DK, DFI, L)$. In logarithmic form it is as follows:

$$\text{Ln}(GDP) = \alpha + \beta_1\text{Ln}(DK) + \beta_2\text{Ln}(DFI) + \beta_3\text{Ln}(L) + u \quad (1)$$

where GDP = Gross Domestic Product, DK = domestically financed fixed capital investment, DFI = direct foreign investment, L = labour force (the number of labour employed) and u = stochastic error term.

In this study, pooled time-series and cross-section data are used. Because of this, some conventional methods and diagnostic tests that apply to time-series analysis lose efficiency. Instead of using conventional methods, a special approach (Pool) designed particularly for pooled time-series and cross-section data in the latest version of the Shazam econometrics computer program is used. As this method applies the Generalised Least Square (GLS) technique to pooled data, taking time-wise autocorrelation and cross-sectional heteroskedasticity into account, it will produce a more efficient regression estimation than that obtained by other methods like OLS (ordinary least squire) and ILS (indirect least squire).

In order to remove the influence of inflation on the variables and their relations, GDP, DK and DFI are expressed in constant prices (1986=100). The current values of GDP and DK are converted into real values using 1986 constant prices for each province. The values of DFI, originally expressed in current U.S. dollars, are deflated using the U.S. GDP implicit price deflators published in *Survey of Current Business* (September 1994, p.44). In addition, to eliminate the influence of annual fluctuations in DFI, which is highly subject to political events and policy change in China, the three-year moving average values are used.

To measure the variation in the effect of DFI on the economy between the Eastern and Western Regions, a dummy variable (D) is used. It takes the value 1 for the Eastern Region and 0 for the Western Region. Thus the regression formula is expressed as follows:

$$\begin{aligned}\text{Ln}(GDP) = {} & \beta_0 + \beta_1 D + \beta_2\text{Ln}(DK) + \beta_3\text{Ln}(DK)D + \beta_4\text{Ln}(DFI) \\ & + \beta_5\text{Ln}(DFI)D + \beta_6\text{Ln}(L) + \beta_7\text{Ln}(L)D + u \end{aligned} \quad (2)$$

where β_0 is the intercept for the Western Region; β_1 is the differential intercept for the Eastern Region; β_2, β_4 and β_6 are the estimated coefficients of DK, DFI and L for the Western Region, i.e. the elasticity of GDP with regard to DK, DFI and L respectively; and β_3, β_5 and β_7 are the differential coefficients of DK, DFI and L, i.e. the elasticity of GDP with regard to DK, DFI and L respectively for the Eastern Region. If β_3, β_5 and β_7 are significantly different from zero, the effects of DK, DFI and L on GDP are significantly different between the Eastern and Western Regions. The extent to which the effects differentiate between the two regions depends on the level of the estimated coefficients, the relevant t-ratios and real growth rates of these three inputs. The regression can also be run separately for each region without a dummy variable; the results in this case should be the same as that obtained for two regions using regional dummy variables.

3.2 Regression Results and Explanation

The two sets of results are presented in Table 2. The regression results are suggestive. They indicate:

1. The effect of DFI on GDP is significantly different between the Eastern Region and the Western Region. It is stronger in the Eastern Region than in the Western Region. This supports the hypothesis raised at the beginning of this paper.
2. There is no significant difference in the elasticities of GDP with regard to DK and L between the two regions. This indicates that the responsiveness of GDP to a unit change in the domestically financed fixed investment (DK) and labour force (L) is not significantly different between the two regions.

Using the estimated elasticity coefficients of GDP with regard to DK, DFI and L, the relative contributions of these inputs (DK, DFI and L) to the output (GDP) in the two regions can be identified. During the period of 1986-93, the average annual growth rate of GDP was 11.2 per cent in the Eastern Region, and the growth rates of DK, DFI and *L* were 17.02 per cent, 47.13 per cent and 2.26 per cent respectively. During the same period, the GDP of the Western Region grew at 8.5 per cent on the average. DK, DFI and L grew at annual rates of 12.0 per cent, 40.82 per cent and 2.58 per cent

Table 2. Difference in Production Function between the East and the West

Variables Name	Estimated Coefficient	Standard Error	T-Ratio	Partial Correlation
LDK	0.4618	0.0430	10.73*	0.725
LDKD	-0.0492	0.0633	-0.777	-0.076
LDFI	0.0180	0.0137	1.315	0.128
LDFID	0.0543	0.0178	3.049	0.286
LL	0.5446	0.0326	16.70*	0.853
LLD	-0.0203	-0.0667	-0.304	-0.030
Constant(C)	-0.5138	0.1677	-3.065	-0.288
CD	0.4152	0.3831	1.084	0.106
Base (1973) R^2 = 0.9823, Base (1979) R^2 = 0.7517, d.o.f = 104. F-statistic = 889.84				
For the Eastern Region:				
LDK	0.4126	0.0476	8.661*	0.748
LDFI	0.0723	0.0117	6.176*	0.627
LL	0.5243	0.0597	8.787*	0.753
Constant	-0.0986	0.3531	-0.279	-0.036
Base (1973) R^2 = 0.9325, Base (1979) R^2 = 0.7804, d.o.f. = 59, F-statistic = 271.83				
For the Western Region:				
LDK	0.4618	0.0435	10.63*	0.846
LDFI	0.0180	0.0138	1.302	0.191
LL	0.5446	0.0329	16.53*	0.927
Constant	-0.5138	0.1694	-3.033	-0.412
Base (1973) R^2 = 0.978, Base (1979) R^2 = 0.7035, d.o.f = 48; F-statistic = 715.304				

* t-ratio is statistically significant at 5% level.

respectively. Thus, the estimated GDP growth functions for the Eastern and Western Regions can be expressed as:

(1) For the Eastern Region:

$$GDP^* = 0.4126DK + 0.0723DFI + 0.52431L$$
$$= (0.4126 \times 17.12) + (0.0723 \times 47.13) + (0.5243 \times 2.26)$$
$$= 7.022 + 3.407 + 1.185$$
$$= 11.6$$
$$GDP^r / GDP^* = 11.2 / 11.6 = 0.97$$

where GDP^r is the real GDP growth rate and GDP* is the estimated growth rate. Therefore, the relative contributions of the three inputs (DK, DFI and L) to output (GDP) for the Eastern Region are respectively:

$$DK^* / GDP^* = 7.02 / 11.6 = 0.605, \text{ or } 60.5\%$$
$$DFI^* / GDP^* = 3.41 / 11.6 = 0.294, \text{ or } 29.4\%$$
$$L^* / GDP^* = 1.19 / 11.6 = 0.102, \text{ or } 10.2\%$$

(2) For the Western Region:

$$GDP^* = 0.4618DK + 0.018DFI + 0.5446L$$
$$= (0.4618 \times 12.0) + (0.018 \times 40.82) + (0.5446 \times 2.58)$$
$$= 5.554 + 0.735 + 1.405$$
$$= 7.7$$
$$GDP^r / GDP^* = 8.5 / 7.7 = 1.104$$

Thus, the relative contributions of the three inputs to the output are:

$$DK^* / GDP^* = 5.55 / 7.7 = 0.721, \text{ or } 72.1\%$$
$$DFI^* / GDP^* = 0.74 / 7.7 = 0.96, \text{ or } 9.6\%$$
$$L^* / GDP^* = 1.41 / 7.7 = 0.183, \text{ or } 18.3\%$$

These results indicates that:

1. Domestically financed investment (DK) is the largest contributor to economic growth in both the Eastern and Western Regions. In the Eastern Region, 60.5 per cent of GDP growth was accounted for by the increase in DK during the period 1986 to 1993. In the Western Region, DK's relative contribution to GDP growth is even larger (72.1 per cent). This implies that the economic growth in the Western Region is more dependent on domestic investment than in the Eastern Region.
2. Direct foreign investment (DFI) has become the second largest contributor to the economic growth of the Eastern Region. About 30 per cent of GDP growth in this region was generated by the increase in DFI during the period 1986 to 1993. In comparison, the contribution of DFI to the economic growth of the Western

Region is less significant. About 10 per cent of the GDP growth in this region was brought by the increase of DFI during the same period.

3. Labour (L) increase contributes to economic growth in the both regions at different levels of significance. In the Eastern Region, about 10 per cent of GDP growth was generated by an increase in the labour force compared to 18.3 per cent in the Western Region. This suggests that labour-intensive industries account for a larger share in the economic structure of the Western Region than that in the Eastern Region.

The above findings suggest that DFI has become an important dynamic force propelling economic growth in the Eastern Region. At the same time, however, DFI only contributed slightly to economic growth in the Western Region where DFI's share is very small and its effect is insignificant. This is one of the primary reasons for the different rates of economic growth in the Eastern and Western Regions. During the period from 1980 to 1993, the economy of the Eastern Region grew at 11.2 per cent per year on average, 2 percentage points higher than that of the Western Region (9.2 per cent)[4]. As a result, inter-regional economic disparity between the two regions has widened. This indicates that the coast-dominated DFI have played an appreciable role in reinforcing the existing inter-regional economic disparity.

3.3 Other Relevant Factors

In practice, many factors contributed to the widened inter-regional disparity. DFI worked jointly with a number of other factors in accelerating the economic growth in the Eastern Region and enlarging the economic disparity with the Western Region. These other factors include the coast-oriented economic reforms and open policy, regional development strategy giving first priority to the coast, the decentralisation of fiscal power and decline in the central government's ability to redistribute fiscal revenue between regions, the advantages of the East over the West in transportation facilities, well-developed industrial structure and more autonomy in decision making. These factors have been carefully discussed by other studies mentioned at the beginning of this paper. These factors together with DFI determined the disparity between the Eastern and Western Regions in economic development.

Due to the divergence in the economic conditions and policy treatment, the two regions have experienced distinct economic achievements. Among the direct factors contributing to the inter-regional difference in economic performance, the rural industry development is one of importance. It has an explicit bearing on the widened inter-regional economic disparity, especially on the income per capita gap. This is because the rural industry provides one primary source of income for the rural population, which accounts for 80 per cent of the total population of China. One principal indicator for the rural industry development is the growth of the sales of enterprises run by townships and villages. During the period from 1981 to 1992 the

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[4] Calculated from the statistical yearbooks of all the province listed for period from 1986-93, and Statistical Yearbook of China 1994.

total sales of township and village enterprises (TVEs) in the Eastern Region grew at 23.1 per cent per year on average, with the value increasing from 44.9 billion yuan to 750.1 billion yuan. The TVEs sales per capita in the Eastern Region increased from 121 yuan in 1981 to 1750 yuan in 1992.

In comparison, the TVE development in the Western Region was relatively slow. During the same period, the total sales of TVEs of this region grew by 19.7 per cent per year on average. The TVEs sales per capita increased from 25 yuan in 1981 to 273 yuan in 1992. The ratio of TVEs sales per capita of the Eastern Region to that of the Western Region increased from 4.84 in 1981 to 6.41 in 1992. This indicates that income per capita generated by the rural industry become more divergent between the two regions.

Two other factors exacerbating the inter-regional economic disparity are the different investment rates and openness of the regional economies. During the period from 1982 to 1993, the fixed capital investment in the Eastern Region maintained a higher growth rate than that of the Western Region. The investment/GDP ratio of the Eastern Region was 28.8 per cent on average over this period, compared to 26.5 per cent in the Western Region. In addition, the economy of the Eastern Region is more open to the outside world. For instance, the export/GDP ratio of the Eastern Region was 23.1 per cent in 1993, which was significantly higher than that of the Western Region (6.2 per cent). In terms of exports per capita, the Eastern Region is far ahead of the Western Region, with the exports per capita in 1980 at US$44.8, compared to US$1.2 in the Western Region. By 1993 the exports per capita in the Eastern Region reached US$157.6, which was US$140 more than that of the Western Region.

DFI is an important contributor to both domestic investment and exports in the Eastern Region. In 1992 and 1993, the share of DFI in the total fixed capital investment was 13 per cent and 17.5 per cent respectively in this region, compared with 1.1 per cent and 4 per cent in the Western Region. In the Southeast coastal provinces, the contribution of DFI to the capital formation is more significant. For example, DFI accounted for 21.2 per cent and 26.4 per cent of the total fixed capital investment of Guangdong Province in 1992 and 1993 respectively (Guangdong Statistical Bureau, 1992, 1993, GSB, hereafter). In Fujian Province, DFI's contribution was even larger. The ratio of DFI to the total fixed capital investment reached 39.6 per cent and 44.5 per cent in 1992 and 1993 respectively (Fujian Statistical Bureau, 1992, 1993. FSB, hereafter). Another important contribution of DFI to the economic growth is promoting exports. In 1992 and 1993 foreign-invested enterprises (FIEs) provided 20.4 per cent and 27.5 per cent respectively of the total exports of China. Since DFI was highly concentrated in the Eastern Region, most of the exports by FIEs occurred in this region. For instance, FIEs provided 41.6 per cent of Guangdong's total exports in 1991, and 44.3 per cent in 1992 (GSB, 1992, 1993).

Finally, the flow of economic resources from the Western Region to The Eastern Region is an influential factor for the inter-regional economic disparity. Since the mid-1980s, a large number of technicians, engineers, managers and other professional people have shifted from the inland regions to the coastal region. Although they contributed significantly to the economic development of the Eastern Region, the economy of the Western Region has suffered from the lack of technical

and management professionals, and thereby from a lower productivity and efficiency.

Similarly, capital flow from the Western Region to the Eastern Region became noticeable in recent years. For example, the net capital outflow of Shaanxi Province amounted to 1,881 million yuan in 1990 and 3,019 million yuan in 1992. These two figures were equal to 18.1 per cent and 22.6 per cent of the total provincial fixed capital investment respectively in these two years (Shaanxi Province Statistical Bureau, 1994). Another example is Guizhou, the poorest province in the Western Region. Exports of capital from Guizhou in 1984 were estimated at over 700 million yuan, virtually equal to the fiscal subsidies from the central government (Yang, 1990, p.255). Capital outflow also occurred in other inland provinces in various degrees. This phenomenon can be attributed to the better investment environment, favourable policy treatment and an attractive return to capital in the Eastern Region.

The influence of the inter-regional capital outflow on the two regions is different. It further augmented capital supply, hence promoting investment and economic growth in the Eastern Region. At the same time, it impaired capital formation and hindered economic growth in the Western Region. In the case of Shaanxi Province, when a large amount of capital outflow occurred in 1990 and 1992, the GDP growth rate was only 2.9 per cent and 6.3 per cent respectively, remarkably lower than the national average (3.9 per cent and 13.6 per cent). As a result, the income per capita gap between Shaanxi and the national average increased from 301 yuan in 1988 to 524 yuan in 1992 (SSB, 1994 and Shaanxi Statistical Bureau, 1994).

These factors collectively contributed to the widening inter-regional economic disparity and resulted in an enlarged income per capita gap between the two regions. Theoretically, the per capita income is determined by economic growth and population change. During the period from 1981 to 1992, the population in the Western Region grew by 1.28 per cent per annum, slightly lower than the population growth rate (1.3 per cent) of the Western Region. This suggests that the relative change in population is not a factor leading to the increased income per capita gap. Therefore, the factors contributing to the differential economic growth of the two regions are the causes of the increased income per capita gap. This can be demonstrated in the Table 3.

As Table 3 shows, the East/West income per capita ratio displays a clear increasing trend. It is positively correlated with the East/West ratios in domestic investment per capita, DFI per capita, township and village enterprises' sales income per capita and the divergence between the two regions in exports per capita. This indicates that the increased disparity between the Eastern Region and Western Region in fixed capital investment, foreign investment, exports and in rural industry development are primary reasons for the growing income inequality.

The increased inter-regional economic disparity reveals that the economic boom of the Eastern Region has not spread efficiently to the Western Region. The diffusion of growth (or "trickle down effect") from the Eastern Region to the Western Region has not happened, or has not been empirically evidenced, as Chai (1994) and Rothenberg (1987) maintain. The major reason for the deficiency of the diffusion of

Table 3. East/West per Capita Ratios 1982-92

Year	Income	DFI	Investment	TVE Sales	Export Divergence in $US
I	II	III	IV	V	VI
1982	1.595	N/A	1.701	4.895	42.6
1983	1.595	7.857	1.689	4.896	57.8
1984	1.625	8.095	1.709	5.012	45.1
1985	1.729	8.398	1.784	5.073	47.3
1986	1.789	9.671	2.094	5.345	43.8
1987	1.820	6.292	2.253	5.734	54.5
1988	1.990	9.267	2.372	6.277	61.9
1989	1.933	14.669	2.205	6.146	66.3
1990	1.884	22.127	2.158	6.074	77.5
1991	1.933	35.321	2.163	6.194	88.3
1992	2.098	30.951	2.410	6.415	109.5
Correlation	1.000	0.666	0.736	0.968	0.790

Notes: Column II is the East/West per-capita income ratio. Column III is the East/West per-capita DFI ratio (the figures for 1983-85 refer to total foreign investment (utilised) including DFI and other foreign investment, and to DFI only after 1986). Column IV is the East/West ratio of the fixed capital investment per capita. Column V is East/West ratio of township and village enterprise (TVE) sales income per capita. Column VI is the difference of exports per capita between the East and the West. The correlation coefficients listed on the bottom line are the correlation coefficients between Column I and each of other columns.

Sources: The figures for 1982-91 in Column II are cited from Chai (1994, Table 1). The figures for 1992 in Column II are calculated based on *Statistical Yearbook of China 1994*. The figures in other columns are calculated from *Statistical Yearbook of China 1982-93* and *China Foreign Economic Statistics 1979-91,* and also provincial statistic yearbooks for 9 Eastern and 8 Western provinces over 1988-93.

growth is the lack of effective inter-regional industrial linkages and economic co-operation based on these linkages.

Under the open-door policy, the Eastern Region has been encouraged to be more involved in the international markets for both exports and imported materials. This development strategy was formally confirmed at the 13th Congress of the Chinese Communist Party in 1987. As a result, the economy of the Eastern Region became more foreign market-oriented. This is particularly the case in Guangdong and Fujian provinces. The economic integration between the Guangdong, Fujian, Hong Kong and Taiwan has rapidly developed, and it is the most important characteristic and cause of economic development of the Southeast Region of China. However, as the coastal region has increasingly shifted to overseas markets, the economic linkages between the coastal region with inland regions including the Western Region have weakened.

In addition, the less-developed domestic market is an important reason for the lack of effective regional economic linkages. Since the early 1980s, the Chinese economy has been undergoing a transformation from the traditional centrally-

planned system to a market economy. The market-oriented reforms are more progressive and far-reaching in the Eastern Region than in the Western Region. The regionally unbalanced reform progress impedes the formation and development of the integrated domestic market and restrains the economic linkages and co-operation between the two regions. As a result, economic growth in the Eastern Region can not effectively diffuse to the Western Region as the "dualism" theory expects. Consequently, the inter-regional economic disparity has increased.

4. CONCLUSION AND IMPLICATIONS

Throughout the reform era of 1979 to 1994, the Chinese economy has experienced rapid growth and a widened inter-regional economic disparity, with many factors contributing to this. Economic structure and resource conditions, economic reforms and open-door policy with emphasis on the Eastern Region, increased the divergence between the Eastern and Western Regions. As a result of the divergent economic environment, both DFI and domestic investment witnessed different growth in the two regions, leading to economic disparity. The regression analysis presented in this paper indicates that the effect of DFI on economic growth was strong in the Eastern Region, significantly promoting exports and capital formation, and weak in the Western Region. Consequently, the inter-regional economic inequality has been reinforced. Other factors like the rural industry development and domestic capital flow from the western provinces to the eastern provinces also accounted for the increased inter-regional economic differences.

The disparity is also closely related to the regional policy of the Chinese government. Basically, regional policy throughout the reform era was based on regional comparative advantages. Under this policy, the coastal region, due to its superior geographic location and factor endowment, has been given a pivotal role as "growth pole" or "engine of growth". To facilitate this growth, the central government pursued special economic policies and committed a large amount of capital to improve infrastructure in this region. Consequently, the investment environment in the coastal region was much better than in the inland. Domestic and foreign capital therefore flowed into the coastal region, accelerating its economic growth. Due to the lack of effective inter-regional industrial linkages and a well-functioning domestic market, the economic boom in the coastal region has not noticeably diffused to the inland, resulting in a widening inter-regional economic disparity.

Some conclusions can be drawn from the Chinese experience with rapid growth and inter-regional disparity. First, inter-regional disparity is often unavoidable in the process of economic development, especially for a developing country. Since the conditions for development in each region are different, regional policy based on comparative advantages tends to reinforce the existing regional differences. Thus, regional "equality" and "efficiency" of development are two primary issues faced by a government. In the initial stage of development, a government may place priority on coastal (well established) regions which can result in overall national economic growth.

Second, a government should pay particular attention to growing inter-regional disparity. In order to facilitate the diffusion of growth from the growth region to a relatively stagnant region, inter-regional economic linkages should be promoted through a series of policy tools and the encouragement of economic co-operation. All artificial barriers to inter-regional economic linkages and integration should be removed. In the Chinese context, economic regulations which isolate the SEZs or other coastal areas from the inland regions should be eliminated. At the same time, bilateral trade, investment and other linkages between the coastal and the inland regions should be promoted, rather than the coastal region being encouraged to rely more on foreign markets.

Another important point for a less-developed market economy or one undergoing the transformation from a central planning system to a market economy, is the enhancement of the market mechanism. As a well-developed market can allocate resources efficiently, the overall efficiency of an economy can be significantly improved. However, since market forces could result in regional inequality in the first stage of economic development, a suitable regional policy which can foster market efficiency and domestic market integration and facilitate economic linkage and co-operation between regions, is critical.

Third, at present, it is important that the Chinese government standardises the open policy in all regions and eliminates prevailing policy differences which discriminate against the Western Region. The coast-oriented open policy is one of the most important causes of the widened economic gap between the Western and the Eastern Regions. This policy should be extended as much as possible to the vast inland region where a huge potential for development exists. The differences in policy treatment between the West and the East would then be eliminated, enabling the West to greatly improve its development potential.

Fourth, improvement in transportation links between the Eastern Region and the Western Region is essential for enhancing inter-regional linkages. The central government should allocate fiscal funds to finance some important regional transportation projects, and should also encourage local capital to invest in infrastructure so as to improve the local investment environment. To this end, some special programs stimulating investment in the Western Region are necessary.

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