

# Regional Economic Disparities in China and Their Evolution from 1952 to 2000: Evidence by Theil Coefficient Based on Comparable Prices

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**ABSTRACT:** Since the late 1970s scholars have conducted many studies on the issue of regional economic disparities, but different scholars have reached different conclusions on the subject. This is mainly because the studies adopted different analytic approaches, perspectives, spatial units and statistical indicators, and examined different periods. On the basis of previous analyses and findings, this paper calculated and decomposed Theil coefficients based on comparable prices, and revealed inter-regional disparities and intra-regional disparities in economic development in China and trends in their evolution from 1952-2000.

## 1 BACKGROUND

In the late 1970s, an increasing number of foreign scholars began studying the issue of disparities in regional development in China. Lardy (1978, 1980) studied the disparities in output and income between rural and urban areas, between agriculture and industry, and between inland and coastal regions before China began to reform and open up to the outside world. He found that due to limited data there was no solid evidence of an expansion in income disparities in different regions of China. Studies by Car (1978) and Lippit (1987) showed that disparities in income between provinces had drastically prior to reduced reform and opening up. Compared with other developing countries, China had achieved remarkable progress, especially in social security. By contrast, Friedman (1987) and Selden (1988) et al. argued that prior to the introduction of reforms, disparities in regional development in China had been growing. Apparently, there are great differences in the way these scholars view the issue of disparities in regional development in China. Moreover, because of the low reliability of the data they had used, their conclusions lack credibility.

In the 1980s, the release of a substantial amount official data in China and the opening up of the country allowed new methodologies to be employed in research. Some scholars have turned their attention to the evolution of regional disparities in development in China since the period of reform and opening up (Keidel 1995; Jian et al 1996). Among them are Aguihier (1988) and Yang (1990), who studied regional disparities since the late 1970s and analysed the strategic modes of regional development in China and their evolution. They argued that a policy of bias in development enlarged the disparities in development between the coastal areas of the country and the western region. Tsui (1991,1998) analysed average per capita national income (NI), and found that disparities in regional development in China showed little change during the period 1952-1970, but grew in the period 1970-1985.

Lyons (1991) examined the per capita net output value in each region of China from 1952 to 1987 using the data released by China's State Statistical Bureau (SSB). He discovered that

relative disparities grew in the periods of the 'Great Leap Forward' (1958-1960) and the 'Great Cultural Revolution' (1966-1976), but diminished in the period 1978-1987.

In the 1990s, a series of new analytical methods was adopted to further analyse the composition and sources of regional disparities in China. Rozelle (1994) argued that regional disparity greatly expanded in the coastal provinces from 1984 to 1989. When the Gini coefficient was decomposed he discovered that the development industrialization in rural areas was the main reason for this. Ying (1999) decomposed the Theil coefficient with the figures for per capita GDP. The result was a 'U-shaped' pattern in regional disparities from 1978 to 1994: before 1990 the disparities between the coastal and interior provinces declined; after 1990 they began to expand. When decomposing the Gini coefficient and the Theil coefficient, Kanbur & Zhang (1999) found that from 1983 to 1995 the disparities between rural and urban areas were greater than those between the coastal and interior provinces. Kim & Knaap (2001) studied regional disparities in agriculture, industry, construction industry and transportation using the Theil coefficient. The results indicated that from 1952 to 1985 disparity of coastal provinces in agriculture, industry, construction industry and transportation contributed more than that of interior region in the same sectors to the overall disparity. Furthermore, they argued this mode was obvious in the late 1970s, but that it had not been promoted by any strategy for economic development. Fujita & Hu (2001) decomposed the Theil coefficient with GDP and gross industrial output value, and concluded that disparities between coastal and interior provinces had been growing. Although development disparity of coastal provinces was reducing, industrial development in coastal regions still developed fast. Moreover, they discussed the reasons behind the evolution of regional disparities from the perspective of policies in regional development, economic globalization and liberalization. Lyons (1998) focused his study on a smaller area. He analysed the evolution of regional disparities among counties Fujian Province from 1978 to 1995. He discovered that the interior disparity of Fujian Province was expanding in terms of both absolute disparity and comparative disparity.

Later, Long & Ng (2001) also studied disparities in economic, social and cultural development among the counties of Jiangsu Province. They found that the disparities had grown since 1978. They also analysed the political, economic and social factors behind this growth in disparities. By using Solow's growth model, Chen & Fleisher (1996) found that there was a conditional convergence in the growth of per capita GDP among the various provinces of China in the period 1978-1993. They argued that regional disparities in China have diminished since implementation of the policy of reform and opening up.

In the 1990s many Chinese scholars began studying disparities in regional development in China. Yang (1992) calculated the Gini coefficient with per capita GNP, and analysed the evolution of income disparities between the coastal, middle and western regions of China in the 1980s. He concluded that China's biased strategy of giving priority in development to the coastal regions had led neither to the expansion of income disparities all over China, nor to the expansion of income disparities between the coastal areas and the middle and western regions of the country. On the contrary, there was an overall decline in income disparities in China. Yang (1994) worked out the coefficient of weighed variation by per capita GDP among provinces. He concluded that the evolution of economic disparities among provinces in China was in the approximate shape of an inverted U-curve, with an inflexion in the year 1978. Prior to 1978, the disparities had grown; after 1978 they began to decline. Wei (1992,1996,1998) analysed the evolution of disparities among the three supra-provincial regions of coastal, middle and western China in the period 1978-1992. The results indicated that the economies of all of the three supra-provincial regions had grown. The middle and western region, however, obviously lagged behind in terms of pace of development. The disparities between the coastal region and the middle and western regions were still growing; Wei & Liu (1994) also forecasted trends in the economic development of the three supra-provincial regions. They felt that from 1993 to 2010, economic growth would remain unbalanced. Absolute disparities between the coastal and middle-western regions would not diminish, and comparative disparities might grow in the near future. Lu & Xue et al. (1998) and Hu & Zou (1999) argued that overall disparities in regional development in China had expanded before 1978 and then began to diminish until the 1990s, when they again began to increase. Yuan (1996) believed a remarkable trend in regional development in China since the beginning of the reforms was the growing economic differences among the three supra-provincial regions. Lin (1998) and Cai et al. (2000, 2001) studied the evolution of regional disparities during the period of

economic transition (1978-1995) using per capita GDP and per capita income as measures. They found that the disparities among the three supra-provincial regions were greater than those within the regions. By studying regional disparities based on income, Song (1998) found national regional disparity was in the shape of an inverted ' U '. Prior to 1990, regional disparities had diminished, but after that year they gradually expanded. Cai & Du (2000) examined interregional disparities and intra-regional disparities and found that in the period 1978-1999 intra-regional disparities in the coastal region contributed greatly to overall disparity but in a declining trend. Intra-regional disparities in the middle region contributed a little to the overall disparity, and in a declining trend as well. Disparities within the western region contributed very little to overall disparity, and what contribution there was also showed a trend of decline. Meanwhile, the disparities between the three supra-provincial regions contributed substantially to overall disparity in the nation, and in a marked trend of increase. They argued that there was a conditional similarity in economic growth in different regions in China. Li & Qiao (2001) analysed, for the first time at the county level, the spatial evolution of regional economic disparity in China in the 1990s. Their results demonstrated that economic disparities between counties had declined, but that the disparities between coastal and inland regions had widened; The counties with faster economic growth than the national average were chiefly distributed in three growth belts; namely, the coastal belt, the Beijing-Guangzhou railway belt and the Yangtze River belt (from Chongqing to Shanghai). The less-developed counties were mainly located in the western part of China. Liu (2001) argued convergence in regional economic growth in China appeared at different times and in different regions, and that disparities in output between regions was positively correlated to overall economic instability in China.

From the above analysis, it is clear that while domestic and foreign scholars have both conducted a great deal of research on regional disparities and their evolution in China, their conclusions differ greatly. We think that the reason for this lies large in the use of different analytical approaches, perspectives, spatial units, statistical indicators and in the different periods examined in the studies. On the basis of previous analyses and findings, we have conducted further quantitative computations and empirical studies and here reveal our findings on inter-provincial and regional disparities in economic development and trends in their evolution from 1952-2000.

## 2 METHODOLOGY AND DATA

### 2.1 *The divisions of the spatial unit*

There is usually a spatial criterion for studies of regional disparities. The spatial criterion chosen depends on the specific objectives of the study. The purpose of this paper is to reveal disparities among provinces and regions in economic development from 1952—2000, and the evolution of these disparities. A provincial administrative unit is a political and economic region with an integrated function, and each comes with a complete system of statistical data, which is readily available. Thus, we chose the province (which includes provinces, provincial-level municipalities and autonomous regions) as the basic spatial unit for our analysis, and also chose the three supra-provincial regions: coastal, middle and western as the overall spatial units. The coastal provinces are Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Guangxi and Hainan. The middle provinces consist of Shanxi, Inner Mongolia, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei and Hunan. The western provinces are Yunnan, Guizhou, Sichuan, Chongqing, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang (figure 1).

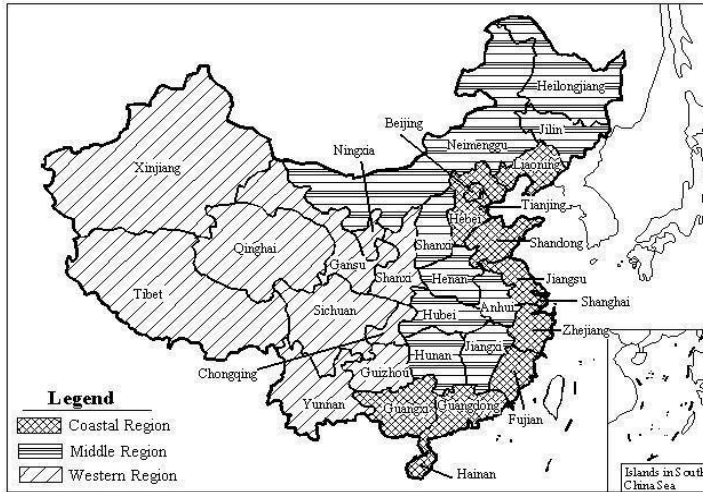


Figure 1. The divisions of the spatial unit in China

## 2.2 Selection of statistical indicators and sample data

As for the study of the dynamic evolution of regional disparities in China, the use of the per capita GDP of each province may be appropriate. Since per capita GDP is the best approximation and can well reflect the overall level of development and well-being, it is widely used. Moreover, the time series data for per capita GDP in each province is complete, and can be used for temporal and spatial comparisons. Therefore, we chose 31 provinces (municipalities, autonomous region) in China as spatial samples, and the period 1952-2000 as the temporal sample.

The primary data from the National Bureau of Statistics of China, are mainly taken from the following published sources: (1) Comprehensive Statistical Data and Materials on 50 Years of New China. Beijing: China Statistics Press, 1999. (2) China Statistical Yearbook 2001. Beijing: China Statistics Press, 2001. (3) Urban Statistical Yearbook of China 2001. Beijing: China Statistics Press, 2001. (4) Historical Data for China Gross Domestic Product (1952-1995). Dalian: Northeast China University of Finance and Economics Press, 1997. In a general way, the data are reliable and authoritative. However, several years of data such as those during the period of the ‘Great Leap Forward’ are distorted due to non-economic factors, which is proven by the Theil coefficient in section 3.1 of this paper. Consequently, these data are not as credible as those from the other years, and the results calculated by using them are not as precise. However, as we study regional economic disparity in China in as long period, the primary data can only from National Bureau of Statistics of China.

## 2.3 Data processing method for eliminating the influence of prices

If the price of products and services does not change at all, we can ignore the influence of changes in price. China, however, is a large country with a big spatial difference. During the past 50 years of economic development, China has undergone several different stages during which there were constant changes in the comprehensive price index and inflation rate at different periods and in different places. Therefore, if we discuss disparities in regional development using present-day prices, we may come to erroneous conclusions. In order to accurately reflect the disparities and their evolution, we must consider the influence of price. Thus, we have converted the GDP data for each region into present-day values by using price index (1) as follows (Hu & Zou 1999):

$$X_i(t) = X_i(t_0) \times b_i(t) \quad (1)$$

where  $X_i(t)$  is the real GDP data of the  $i$ th region at the  $t$ th year,  $X_i(t_0)$  is the real GDP data of the  $i$  region at the base year (the  $t_0$ th year),  $b_i(t)$  is the GDP growth exponent of the  $i$  region from the base year to the  $t$ th year.

In this article, 1978 is the base year, and the GDP data of each year is the real data converted in terms of comparable prices.

## 2.4 Quantitative exponents

Many quantitative exponents are used to describe regional disparities (Borts et al, 1964; Friedman, J. 1963; Dunford, 1993; Dowrick & Nguyen, 1989), such as extreme deviation, standard deviation, coefficient of variation, Engel coefficient, location entropy, and so on. After comparing all of these indicators, we chose the Theil coefficient as the quantitative indicator for our analysis of regional disparities in economic development in China. Not only can the Theil coefficient show regional disparities, it also can be decomposed into inter-regional disparities and intra-regional disparities.

The Theil coefficient, also called Theil entropy, was proposed by Theil (Theil & Henri, 1967) in 1967. The Theil coefficient is defined in the following way:

$$T = \sum_{i=1}^N Y_i \log \frac{Y_i}{P_i} \quad (2)$$

where  $N$  is the number of areas,  $Y_i$  is the share of the  $i$ th region of the total national GDP,  $P_i$  is the share of the  $i$ th region of the total national population.

If the Theil coefficient is bigger, the disparities in economic development between various areas will be greater. Otherwise, the disparities will be smaller.

Another characteristic of the Theil coefficient is that it may be decomposed into two parts: inter-group disparity and intra-group disparity, which makes clearer the evolution in both inter-group and intra-group disparities and their respective importance in overall disparity. In China, for instance, the Theil coefficient can be decomposed into inter-regional disparities and intra-regional disparities (Zhou, 1999) as follows:

$$T = T_{\text{inter}} + T_{\text{intra}} = \sum_{i=1}^3 Y_i \log \frac{Y_i}{P_i} + \sum_{i=1}^3 Y_i \left[ \sum_j Y_{ij} \log \frac{Y_{ij}}{P_{ij}} \right] \quad (3)$$

where  $i$  ( $i=1,2,3$ ) is one of three supra-provincial regions (the coastal, middle or western region) when  $i=1$ ,  $j=1,2,\dots,12$ , which, for instance, respectively corresponds to the 12 provinces of coastal region.  $Y_i$  is the share of the supra-provincial region  $i$  in national GDP,  $P_i$  is the share of the supra-provincial region  $i$  in national population;  $Y_{ij}$  is the share of province  $j$  in the overall GDP of the supra-provincial region,  $P_{ij}$  is the share of the province  $j$  in the total population of the supra-provincial region  $i$ .

## 3 RESULTS AND DISCUSSION

### 3.1 The inter-provincial disparities shown by the Theil coefficient

As 1978 is the base year, and the GDP data for each year was the real data converted in terms of comparable prices, the Theil coefficients calculated in the period 1952-2000 reveal a dynamic trend in comparative disparities in economic development between provinces in China (Figure 2).

With reference to Figure 2, we can see that the Theil coefficient revealed the trend in the evolution of comparative inter-provincial disparities. From 1952 to 1978, except for several unusual years of data during the period of the 'Great Leap Forward', the disparities display a general upward trend. From 1979 to 1990 the disparities show a slow downward trend. But from 1991 to 2000 the disparities again reveal a slow upward trend. In other words, while the strategy to balance regional development before the period of reform and opening up did not succeed in reducing comparative disparities in regional economic development in China, the lopsided strategy of development after 1978 has also not enlarged disparities. In other words, the strategy of balanced regional development prior to the period of reforms did not lead to a reduction in comparative disparities in economic development among regions, nor did the lopsided development strategy implemented since then lead to an expansion in comparative disparities in economic development among regions in China. This conclusion is interesting and exciting, and it seems to give rise to another complicated problem of explaining the reasons for this finding. This problem will be studied and explained in another paper.

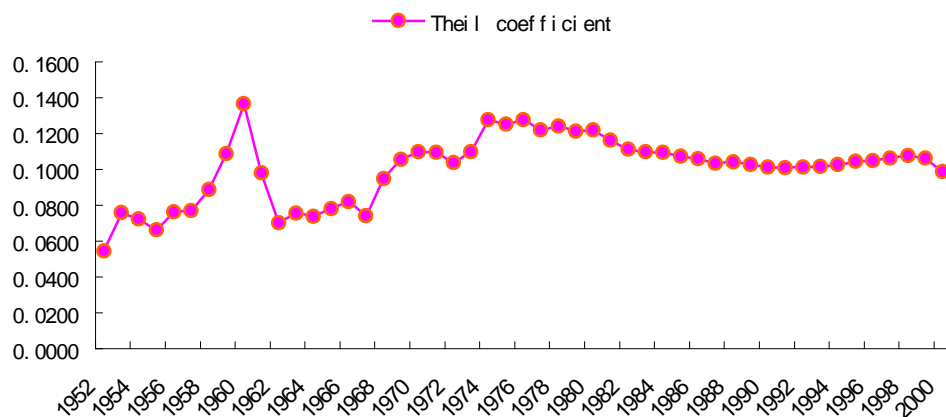


Figure 2. The Theil coefficient based on comparative prices from 1952 to 2000

### 3.2 Decomposition of the Theil coefficient: inter-regional disparities and intra-regional disparities

Decomposing the Theil coefficient can further reveal reasons for the evolution of disparities from a regional perspective, and evolution of intra-regional disparities. Figure 3 reveals the evolution of regional disparities and the evolution of intra-regional disparities. The dynamic trend in comparative inter-provincial disparities in the coastal region is consistent with the dynamic trend in national comparative disparities. The comparative disparity between the provinces in the middle region and the provinces in the western region remains small, and the evolution was rather slow. Disparities in development between the three supra-provincial regions have been continuously on the increase and have grown even greater since the 1990s.

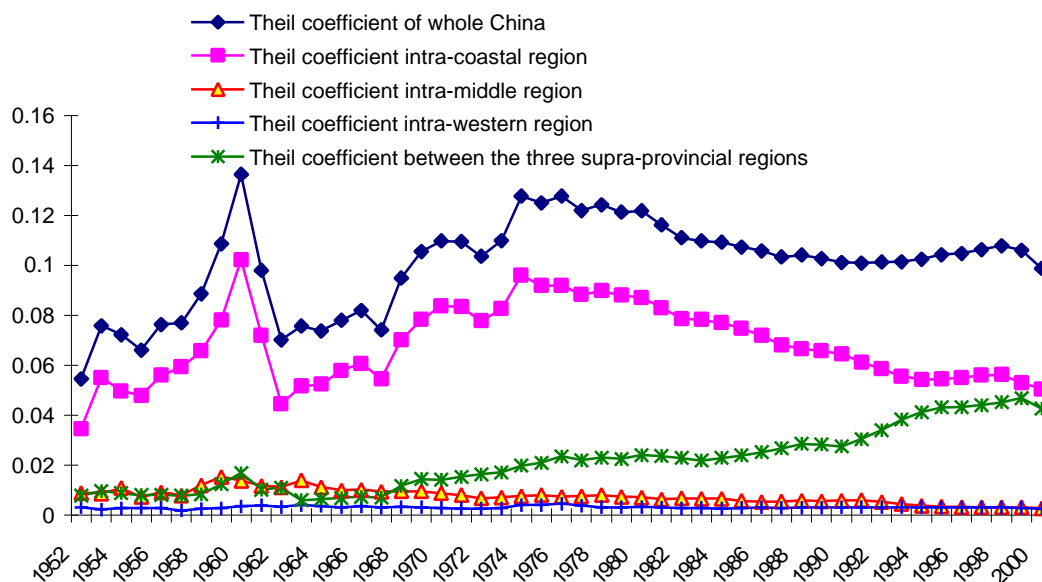


Figure 3. Decomposition of the Theil coefficient from 1952 to 2000

It is evident from Table 1 that intra-regional disparities among the three supra-provincial regions are increasingly contributing to overall disparity in China. From Table 1 we can see that over half of the disparity results from inter-provincial disparity in the coastal region. The contribution of the coastal region diminished from 63.42% (1952) to 51.15% (2000) and the contribution of the middle and western regions, respectively, diminished from 16.32% and 2.83% (1952) to 5.95%

and 2.74% (2000). The contribution of the disparities among the three supra-provincial regions, however, increased from 14.31% (1952) to 27.25% (1990), and to 43.27% (2000). In another words, inter-provincial disparities in the whole of China mainly stemmed from inter-provincial disparities in the coastal region and from the disparities among the three supra-provincial regions (the coastal, middle and western regions).

Table 1. Decomposition of the Theil coefficients: contribution of inter-regional and intra-regional disparities to national disparities from 1952-2000.

Years	Whole China	Intra-coastal region	Intra-middle region	Intra-western region	Three supra-provincial regions	Coastal region (%)	Middle region (%)	Western region (%)	Among three supra-provincial regions (%)
1952	0.05458	0.03462	0.00891	0.00325	0.00781	63.42%	16.32%	5.95%	14.31%
1953	0.07588	0.05511	0.00867	0.00231	0.00979	72.63%	11.42%	3.05%	12.90%
1954	0.07228	0.04975	0.01084	0.00285	0.00884	68.84%	14.99%	3.94%	12.23%
1955	0.06614	0.04791	0.00731	0.00291	0.00801	72.44%	11.05%	4.40%	12.11%
1956	0.07641	0.05600	0.00924	0.00295	0.00823	73.28%	12.10%	3.86%	10.77%
1957	0.07702	0.05929	0.00795	0.00194	0.00785	76.97%	10.32%	2.52%	10.19%
1958	0.08870	0.06570	0.01203	0.00255	0.00842	74.07%	13.57%	2.87%	9.49%
1959	0.10867	0.07815	0.01535	0.00278	0.01239	71.91%	14.13%	2.56%	11.40%
1960	0.13646	0.10221	0.01385	0.00354	0.01687	74.90%	10.15%	2.59%	12.36%
1961	0.09798	0.07195	0.01177	0.00400	0.01025	73.44%	12.02%	4.08%	10.47%
1962	0.07026	0.04461	0.01128	0.00334	0.01103	63.50%	16.05%	4.76%	15.70%
1963	0.07570	0.05164	0.01397	0.00407	0.00601	68.23%	18.45%	5.38%	7.94%
1964	0.07381	0.05234	0.01124	0.00371	0.00653	70.90%	15.22%	5.02%	8.85%
1965	0.07807	0.05794	0.01002	0.00323	0.00688	74.21%	12.84%	4.14%	8.81%
1966	0.08203	0.06076	0.01026	0.00362	0.00739	74.07%	12.50%	4.42%	9.01%
1967	0.07411	0.05452	0.00949	0.00305	0.00706	73.56%	12.80%	4.11%	9.52%
1968	0.09492	0.07015	0.00960	0.00339	0.01178	73.90%	10.12%	3.57%	12.41%
1969	0.10557	0.07828	0.00959	0.00322	0.01448	74.15%	9.09%	3.05%	13.71%
1970	0.10978	0.08373	0.00886	0.00292	0.01426	76.27%	8.07%	2.66%	12.99%
1971	0.10954	0.08334	0.00805	0.00272	0.01543	76.08%	7.35%	2.48%	14.09%
1972	0.10369	0.07776	0.00673	0.00274	0.01646	75.00%	6.49%	2.64%	15.87%
1973	0.10989	0.08265	0.00720	0.00285	0.01719	75.21%	6.56%	2.59%	15.64%
1974	0.12766	0.09605	0.00771	0.00404	0.01985	75.24%	6.04%	3.17%	15.55%
1975	0.12501	0.09184	0.00809	0.00410	0.02098	73.47%	6.47%	3.28%	16.78%
1976	0.12767	0.09204	0.00742	0.00465	0.02356	72.09%	5.81%	3.64%	18.45%
1977	0.12189	0.08832	0.00767	0.00384	0.02206	72.46%	6.29%	3.15%	18.10%
1978	0.12420	0.08976	0.00811	0.00322	0.02311	72.27%	6.53%	2.59%	18.61%
1979	0.12125	0.08804	0.00742	0.00321	0.02258	72.61%	6.12%	2.64%	18.62%
1980	0.12181	0.08712	0.00721	0.00335	0.02414	71.52%	5.92%	2.75%	19.82%
1981	0.11620	0.08303	0.00638	0.00303	0.02376	71.45%	5.49%	2.61%	20.45%
1982	0.11110	0.07862	0.00674	0.00280	0.02294	70.77%	6.06%	2.52%	20.65%
1983	0.10976	0.07825	0.00663	0.00292	0.02195	71.30%	6.04%	2.66%	20.00%
1984	0.10928	0.07699	0.00662	0.00268	0.02299	70.45%	6.06%	2.45%	21.04%
1985	0.10740	0.07477	0.00572	0.00296	0.02394	69.62%	5.32%	2.76%	22.29%
1986	0.10575	0.07189	0.00539	0.00317	0.02530	67.98%	5.10%	2.99%	23.93%
1987	0.10339	0.06809	0.00551	0.00299	0.02679	65.86%	5.33%	2.89%	25.91%
1988	0.10417	0.06666	0.00586	0.00305	0.02859	63.99%	5.63%	2.93%	27.45%
1989	0.10274	0.06573	0.00561	0.00311	0.02829	63.97%	5.46%	3.03%	27.54%
1990	0.10122	0.06452	0.00594	0.00318	0.02759	63.74%	5.87%	3.14%	27.25%
1991	0.10095	0.06117	0.00608	0.00321	0.03049	60.59%	6.02%	3.18%	30.20%
1992	0.10136	0.05859	0.00539	0.00325	0.03413	57.81%	5.32%	3.21%	33.67%
1993	0.10149	0.05555	0.00450	0.00320	0.03824	54.73%	4.44%	3.15%	37.68%
1994	0.10254	0.05427	0.00390	0.00314	0.04123	52.93%	3.81%	3.06%	40.20%
1995	0.10430	0.05448	0.00349	0.00311	0.04321	52.24%	3.35%	2.98%	41.43%
1996	0.10482	0.05505	0.00336	0.00306	0.04335	52.52%	3.20%	2.92%	41.36%
1997	0.10637	0.05598	0.00321	0.00308	0.04410	52.62%	3.02%	2.90%	41.46%
1998	0.10782	0.05622	0.00326	0.00309	0.04525	52.15%	3.02%	2.87%	41.97%
1999	0.10605	0.05305	0.00316	0.00295	0.04689	50.03%	2.98%	2.78%	44.22%
2000	0.09871	0.05049	0.00279	0.00271	0.04271	51.15%	2.83%	2.74%	43.27%

Figure 3 and Table 1 also imply that the evolutionary process of inter-provincial disparities for the whole of China was mainly controlled by inter-provincial disparities in the coastal region and among the three supra-provincial regions (the coastal, middle and western regions).

### 3.3 A comparison between Shanghai and Guizhou: the disparity between the richest and poorest provincial-level units

The Theil coefficient and its decomposition have reflected comparative inter-provincial disparities and comparative inter-regional and intra-regional disparities for three supra-provincial regions, but they have covered up the absolute disparities among provinces. Therefore, it is necessary to choose two provinces for comparison to reveal the evolution of absolute inter-provincial disparities. We have chosen to compare Shanghai, the provincial-level unit with the highest level of economic development, and Guizhou, the province with the lowest level of economic development.

The changes in the ratios of per capita GDP in Shanghai and Guizhou not only reflect the disparities between the two places, but also reveals, to some extent, absolute interregional disparities. It is clear in Figure 4 that there have been three stages in the evolution of absolute disparities between Shanghai and Guizhou. The disparities in economic development between the two provinces grew until 1978, and diminished in the period of reform and opening up from 1978 to 1989. In 1990 the disparities again began to grow, with a slight drop in 1998. Before 1978, the disparities between Shanghai and Guizhou grew at a comparatively greater rate, with an increase in the ratio of disparities from 12.355 (1952) to 28.076 (1978). After 1978, the disparities between two provinces diminished, with a ratio of 24.026 in 1990. In 1990, the disparities began to grow again, before diminishing in 1998.

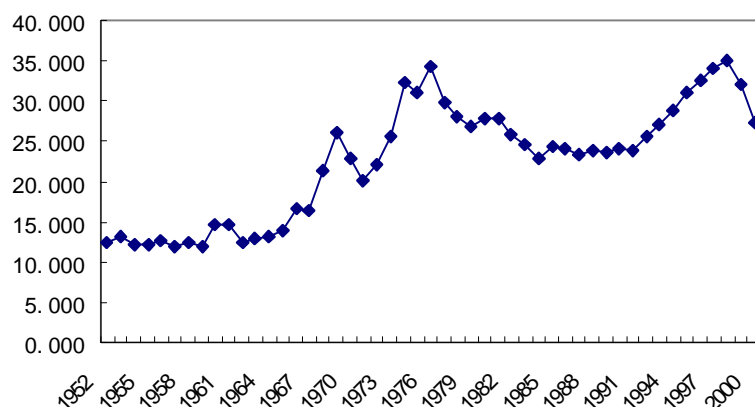


Figure 4. The ratios of per capita GDP based on comparable prices in Shanghai to that in Guizhou

Compared with the national average per capita GDP in the period 1952-2000, the ratio of Shanghai to China as a whole was above 4 for every year, while the ratio of Guizhou to the whole China was less than 1, and even under 1/2. The comparison in the development between Shanghai and China as a whole is approximately consistent with the comparison between Shanghai and Guizhou in the following way: the disparities had increased prior to 1978 and diminished slightly from 1978 to 1990. After 1990, they increased again until 1998, when there was a slight reduction. Before 1976, the disparities between Guizhou and China as a whole increased; and from 1978 to 1990 they diminished slightly. Since 1990 the disparities have grown again.

## 4 SUMMARY AND CONCLUSIONS

From above analysis, we elicit the following conclusions.

(1) Regional disparities in economic development in China, including inter-provincial disparities, inter-regional disparities and intra-regional disparities, have existed for years.

(2) The Theil coefficients have revealed a dynamic trend in comparative disparities in economic development between provinces in China. From 1952 to 1978, with the exception of the period of the 'Great Leap Forward', comparative disparities essentially assume an upward trend, and from 1979 to 1990 they assume a slow downward trend. Afterwards, from 1991 to 2000, the disparities again show a slow upward trend. This evolutionary process implies that the strategy of



regional balanced development before the period of reform and opening up did not lead to a reduction in comparative disparities in regional economic development, nor did the lopsided development strategy implemented since then bring lead to an increase in comparative disparities in regional economic development in China. This conclusion is interesting and exciting, and will be explained in another paper.

(3) The decomposition of the Theil coefficient indicates that the dynamic trend in comparative inter-provincial disparities in the coastal region is in line with the dynamic trend in inter-provincial disparities for the whole China. In other words, inter-provincial disparities gradually grew from 1952 to 1978, and then began to diminish until 1990. The inter-provincial disparities in the middle and western regions diminished during the whole period of 1952-2000, but at a slow pace. Meanwhile, the disparities in economic development among the three supra-provincial regions grew continuous, especially in the 1990s, when the growth was particularly rapid. Inter-provincial disparities for the whole of China and their process of evolution mainly stem from inter-provincial disparities in the coastal region and among the three supra-provincial regions (the coastal, middle and western regions).

(4) A comparison between Shanghai and Guizhou shows that absolute inter-provincial disparities have been quite large for many years. The disparities in economic development between the two provinces grew until 1978 and diminished for approximately a decade after the period of reform and opening up. Since 1990, however, the disparities have again grown, with a slight drop in 1998.

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