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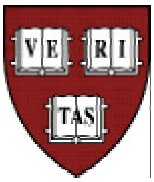

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Abstract

This paper studies the trends of economic development across provinces and cities in China between 1978 and 1993 and proposes regional development policies in consideration with the recent tax reforms in 1994. The significance of this paper is that huge amount of historical data are used, including price indexes at provincial levels. With a solid data base, we use econometric tools to analyze possible reasons of economic convergence across China.

Jian, Sachs, and Warner's research (1996) shows that China's economy converges somewhat between 1952 and 1965; significantly diverges between 1965 and 1978; and significantly converges between 1978 and 1993. However, in the period of economic reform, it is divided into two distinct periods: 1978-90 (convergence) and 1990-93 (divergence). Based on the above results, this paper studies the reasons of such convergence or divergence and proves with data that the growth of township and village enterprises (TVEs) has been the driving force of the Chinese economic development. The surge of TVEs speeds up development in the poor areas, converging to the rich ones. TVEs promote economic development both through increases in production value and increase in efficiency. TVEs in the coastal regions grow faster, but this did not lead to regional disparity until 1990. However, since 1990, the gap has widened significantly and this is evidenced by TVE statistics like: assets, loans, investments, and production efficiency.

The tax reform in 1994 changed marginal corporate income tax rates into flat tax rates, which in effect has a negative impact on balanced regional development. This is caused by the switch from marginal tax rates to flat tax rates which in effect increased corporate tax rates from 21% to 33% for TVEs in the interior. These rates are much higher than the favorable tax rates enjoyed in the special economic zones and all kinds of development zones, most of which are along the coast. Thus, such a change reduces the competitive ability of the interior provinces and may lead to further widening of the gap between the coast and the interior. In order to promote healthy and balanced regional economic development, on the one hand, it is necessary to further open the interior provinces and cities and encourage exploration of natural resources. On the other, it may be a better idea to adopt marginal corporate tax rates so as to encourage development of small scale enterprises, especially the TVE development.

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I. Introduction

In the last two years, trends in regional income inequality have attracted attention from government decision makers as well as economists and have become an important policy issue in China. Government officials and economists in China and abroad have undergone heated discussions. Did regional income inequality widen or narrow since the reforms? If it widened, when did it begin, and for what reasons? What policy measures should the government take to mitigate or stop it? Correctly understanding and analyzing the issue of China's regional economic development and developing appropriate policy measures is the key to healthy economic development.

The Chinese government document "Proposals by the Central Committee of the Chinese Communist Party on the 'Ninth Five Year' Plan of National Economic and Social Development and Foreward Target for Year 2010" passed on September 28, 1995, states the regional economic development issue in the following way:

> "Since the adoption of reforms and open door policies, we have encouraged some regions to develop faster and get rich, and we have advocated that the richer should be models for and help the latecomers. Since then there has been significant economic development in all regions and people's standard of living has increased. But for many reasons, regional economic inequalities have widened."

In the past years, many economists did studies on China's regional economic development convergence. (Convergence means the gap between per capita income in the poor region and the rich region narrows down in the relative sense. That is, during the same period of time, per capita GDP in the poor regions grows at a higher rate than that in the rich region, thus income in the poor regions converges to that in the rich. The economy diverges if the opposite is true.) Most scholars believe that regional disparity has widened in the past years, though no consensus has been reached as to the exact time when the trend began. Studies by Chen and Fleisher (1996) and Jian, Sachs, and Warner (1996) show that Chinese economy converged across provinces between

1978 and 1993, but since 1990 the economy has been on the divergence trend. A World Bank scholar (1996), however, said the divergence trend commenced in 1985. Hu and Wang in their book (1996) claim that China began the divergence trend as early as the reform started as the result of decentralization of decision making power. As for comparison, Jian, Sachs, and Warner's study covers the longest time period (1952-1993), analyzes objectively the trend of China's regional economic development with solid theoretical foundation and data support. They divided 1952 and 1993 into three sub-periods, and found per capita real income (per capita GDP deflated by provincial price indexes, same throughout the paper) tended to converge during the first period 1952-1965, the initial period of central planning economy; however, it diverges during the Cultural Revolution (1965-1978); introduction of market economy and the adoption of reforms and open door policies speeded up the economic development, thus the reform period (1978-1993) demonstrated the fastest growth and significant reduction in regional disparities. However, since 1990, the gap between the coast and the interior has widened significantly, though convergence continued among the provinces in the coast and among provinces in the interior[1].

What has lead the Chinese economy onto the diverging path? This is, perhaps, one of the most important issues that decision makers are concerned about. Finding the sources of such divergence will help us in search of the solutions. This is indeed the purpose of this paper: to explain why Chinese economy began on a divergent path in the past few years, and try to provide policy measures that mitigate or change such a trend. To achieve such a goal, we want to first analyze the reasons for economic convergence or divergence since the reforms began, and to study if the factors that pushed towards convergence between 1978 and 1990 have continued to work such that the regional gap between the coast and the interior has widened since 1990? Or if other new factors have acted to widen such a gap? Second, we want to see what are the factors that made growth rates differ across regions, especially between the coast and the interior? Did such differentiation in growth rates change before and after 1990? If so, what are the driving forces? Thirdly, what impact did tax reforms in 1994 have on regional economic development?

[1] We define the coastal regions as follows: three provinces with special economic zones, and eight provinces which have one of the fourteen coastal cities. The coastal region so defined includes eleven provinces: Tianjin, Hebei, Liaoning, Shanghai, Jiangshu, Zhejiang, Fujian, Shandong, Guangdong, Guangxi, and Hainan while the nineteen rest provinces are interior provinces. Our sample includes ten coastal provinces and eighteen interior provinces. Hainan and Tibet are excluded from our sample because data are not available until 1986.

In order to answer the above questions scientifically, we use significant amount of data in the analysis with an aim to find the real fact. These data come from various kinds of statistical yearbooks published by the Chinese government, including yearbooks published by provincial and various national governments. All economic variables used in the paper are based on real prices which are generated by using nominal values divided by relevant provincial price indexes. It is worthwhile to mention the significance of using provincial price indexes. At any given time inflation rates differ across provinces; therefore, using national inflation rates would not account for such differences across regions. Among the studies on Chinese regional economic growth, apart from research by Jian, Sachs, and Warner (1996), it seems that few of economists have ever made use of provincial inflation indexes. This may well be due to the fact that collecting such data is time consuming. Based on Jian, Sachs, and Warner's research, this paper adds significant amount of new data and tries to further understand the process of changes in the regional economic development and focuses on the period between 1978 and 1993.

Jian, Sachs, and Warner's paper points out that China's high growth since the reforms has been highly and positively associated with provincial shares of agriculture production against their corresponding GDPs. As the authors stated, this result shows rural reforms along with other reforms provided the driving force for the economic growth. The two major sources for rural economic growth are: the surge of the TVEs and, to a lesser extent, growth in agricultural production. This paper is divided into four sections. In the second section, we adopt econometric methods to analyze and check if economic growth since the reforms is correlated with high growth of the TVEs. Section three looks into all aspects that affect TVE developments in the coast and interior, such as per capita assets, quotas for floating capital, credit and loans, and production efficiency, etc. Section four summarizes the paper and proposes policy measures for balanced regional economic growth in conjunction with 1994's tax reforms.

II. Economic Growth and TVE Development

There is no doubt that the high economic growth in China since reforms is closely linked with the TVE development. Many TVEs are generated in the process of switching from agricultural sector to industrial and service sectors. The outburst of TVEs absorbed huge number of surplus labor in the rural areas. In the economic development process, such a production sector switch has always been associated with huge improvement in productivity. However, what is the impact on regional economic development as a result of the TVE surge? How has the TVE development been associated with China's GDP growth? Through TVE expansion, switch in production sector or improvement in production efficiency or a combination of both? Correctly analyzing these issues will help us understand the reasons for economic convergence or divergence since the reforms.

Jian, Sachs, and Warner (1996) utilize two most commonly used measures in assessing convergence and conclude the following: during the period between 1978 and 1993, provincial real GDP per capita converged significantly. If we divide this fifteen-year period into two, then it converged between 1978 and 1990 but diverged since 1990. Based on their analysis, we also divide the period into two to further analyze the reasons for convergence and divergence.

During the period between 1978 and 1993, two reforms that had the greatest impact on regional economies were rural reforms and open door policies. Rural reforms, initiated in the late 1970s, dismantled the collective production of the people's commune and introduced production responsibility system. Rural reforms changed the production policy from that where "grain production is the key to agriculture" to multiple disciplines in production and encouraged production development in agriculture, industry and service sectors according to geographical advantages. Such a change has greatly increased productivity. The rapid increase in peasants' income provided material basis for further expansion of production and the quick rise of TVEs. Later on, TVE development was encouraged by favorable tax policies and government policies to establish small townships. Most of the TVEs are labor intensive, engaged in light industry, construction, transportation, food and beverage industries, characterized by small scale, low investment, but quick returns, which fit well in the current economic development in China. By employing vast amount of rural cheap labor, TVEs reduce their costs and keep themselves very

competitive. For more than a decade and a half, annual growth rate of TVE production has remained well above 20% and employed more than 100 million new workers, providing the driving force for China's economic development.

Since 1979, the year when open door policies were adopted, China has established five special economic zones, and between 1984 and 1985, opened 14 coastal cities. Soon after, many kinds of high-tech zones, economic zones, and development zones (development zones for short later on) were set up to provide favorable investment and tax policies. Such policies promoted foreign trade and attracted large amount of foreign funds. The wide margin increase in foreign trade volume and quick rise in the number of foreign invested enterprises have not only contributed towards additional social income, but also facilitated the transfer of science and technology, trained a large number of managers who understand market economy, and laid a foundation for further development of the economy.

Taking into account of possible effects of rural reforms and open door policies on regional economic development, the author puts two additional policy variables into the simple convergence regression model. They are agriculture production share in GDP (gdp1sh) and coastal province or city dummy variable (dummy=1 if coastal). Table 1 regression statistics show that per capita GDP converges significantly across 28 provinces between 1978 and 1993. We notice also that when variables of agriculture share in GDP and coastal dummy are added to the regression, although coefficient of log of initial per capita GDP still shows negative, it is no longer statistically significant. In addition, coefficients of two added variables are positive and statistically significant, which means that both explain China's growth, as expected. However, when we study the growth behavior in two sub-periods, we find that the effect of the above two variables on growth are different before and after 1990. In the regression for the period between 1978 and 1990, coefficient for agriculture share in GDP is 0.07, and coefficient for the coastal dummy is 0.008 and is not statistically significant. But between 1990 and 1993, the coefficients increase to 0.20 and 0.07, respectively, and are highly significant. This difference, on the one hand, shows that rural economy speeded up between 1990 and 1993. On the other, it shows that coastal regions grew 7% faster in the latter period.

Now let us look further at the effects of rural growth and coastal factor on GDP growth. In Table 2, we add four additional variables to the regression in table 1, so as to decompose the

effects of rural and coastal factors. We use tvese for TVE staff as per cent of total social labor force; tvepdt for annual growth rate of TVE productivity; gtve for annual growth rate of total gross output; intac for the interaction dummy between coastal provinces and agriculture share in GDP. Here we notice that gtve is surely not a good economic variable because TVE gross product is not calculated with value added method and is deficient for its double accounting problem. In addition, it is not on per capita basis and, therefore, not completely comparable with the dependent variable growth rate of per capita GDP. For the lack of better variables, we use gtve and tvese to approximate the extent of TVE growth. Obviously, we expect coefficients of gtve, tvese and tvepdt to be positive, because increase in productivity or production scope of the TVEs will directly contribute towards GDP. What sign intac coefficient will take depends on whether the coastal rural areas grow faster than the interior rural areas.

Four conclusions can be drawn from table 2: (1) Regressions show that coastal regions do not manifest faster growth between 1978 and 1990; (2) As we have expected, between 1978 and 1990, GDP growth rates are positively associated with TVE productivity growth rate and TVE gross output growth rate, and the latter is statistically significant; (3) Column F in Table 2 shows that the coast rural areas have higher growth; (4) Having a larger TVE staff share in social labor force did not have significant effect on regional economic development in this period.

Table 3 is almost the same as Table 2, with same variables. The exception is that table 3 covers years 1990 and 1993. Here the results are different due to different time span covered. (1) Coefficient of initial GDP becomes positive instead of negative as in Table 2. This evidences that Chinese economy switches from convergence between 1978 and 1990 towards divergence between 1990 and 1993; (2) Coefficient of coastal dummy is bigger than in Table 2 in magnitude and switches from negative to positive. This again shows that the coastal region grew faster than the interior between 1990 and 1993; (3) We notice that coefficient of TVE gross output growth rate is negative, just the opposite as we have expected. Obviously, this is due to linear dependence of independent variables. (4) Although each regression has a pretty good fit for China's regional economic development, the effect of each variable in the regression is not very strong.

In Table 4, we observe that between 1990 and 1993, TVE gross output growth rate is highly correlated with the coastal dummy (0.58), and it is also significantly correlated with another dummy (interaction between coastal dummy and agriculture share in GDP, 0.71). In

addition, TVE labor productivity growth rate is also highly correlated with these two variables, 0.62 and 0.76, respectively. Interestingly enough, correlation of these two variables with the two dummies are much lower in years between 1978 and 1990. This stands to explain the difference between Table 2 and Table 3, and shows that the fact that the coastal region grows faster between 1990 and 1993 is mainly due to faster TVE development in the coast. Even more interesting is that the correlations of TVE gross output growth rate and TVE productivity growth rate with two dummies, TVE staff share in social labor force, and TVE gross output share in social gross output increase overtime.

III. TVE Development in the Coast and Interior

Because of the significant role of TVE development in China's high economic growth, the pace of TVE development in each province has direct impact on status of regional disparity. The disparity between the coast and the interior attracts people's attention the most. To fully understand the difference of TVE development between the coast and interior may help us understand the reasons of convergence or divergence since the reforms. In this section, we study and compare TVE developments in different regions from the following six aspects: growth rates, tax policies, credit policies, amount of assets, productivity and efficiency, and social effect.

In Table 5, we first calculate the means of various variables in real terms for ten coastal provinces and eighteen interior provinces, respectively, then we calculate a time series of mean ratios for each variable, with the interior means over the coastal means. Such time series of mean ratios depicts very clearly the relative development speed of TVEs in the coast and the interior, and the underlying reasons.

Two indicators are used to characterize TVE growth: annual growth rate of TVE gross output and growth rate of TVE labor productivity. Between 1980 and 1985, the interior has higher TVE gross output growth rates than the coast, with the mean ratio of 1.07, which drops to 0.89 between 1985 and 1990, and falls further to only 0.59 between 1991 and 1992. In other words, since 1985, TVE development in the coast has already surpassed the interior, and has grown at an accelerating rate ever since. Between 1991 and 1992, growth rate of TVE in the

coast was 69% faster than the interior (1/0.59 - 1). As early as 1978, labor productivity in the coastal areas was already higher than the interior, and the gap has widened ever since.

Apart from geographic and human capital advantages, and flood of foreign capital, special tax policy and credit policy have surely contributed towards faster TVE development in the coastal regions. As everyone knows, favorable tax rates in the coast are far below tax rates applied in the interior. In order to measure the gap in tax difference between the coast and the interior, we compare the following four indicators: TVE tax per hundred Yuan product value, amount of tax and profits per hundred Yuan TVE product value, taxes paid per TVE employee, and the amount of tax and profit each TVE employee generates. In 1978, tax paid per hundred Yuan value TVE product in the interior was only 63% of that paid in the coastal areas. It went down slightly in 1980, but increased to 102% in 1992. In addition, in 1978, the ratio of amounts of tax and profits per hundred Yuan value product (the interior over the coast) was 0.87, 0.24 higher than the corresponding ratio of tax per hundred Yuan value product (=0.87-0.63); however, by 1992, the former ratio was only 0.11 higher than the latter one. By comparing the above two indicators, it is not difficult to come to the following two conclusions: (1) between 1978 and 1992, tax rates decreased in the coast relative to the interior; (2) profitability in the coast increased relative to the interior. We may also arrive at the same conclusions by looking at two other indicators: tax paid per TVE employee and amount of tax and profit each TVE employee generates. What differs between the two scenarios is that the ratio of tax paid per employee decreased after 1978. This is because the growth rate of TVE employment in the interior has been higher than growth rates of taxes and gross output value.

There has also been a significant increases in the flow of funds towards more efficient and productive coastal regions as a result of market forces unleashed by the economic reforms as well as favorable policies applied to the coastal regions. Here we use three statistical indexes to measure whether the coastal regions obtain greater portion of bank credits and funds. In 1978, average quota floating capital per employee in the interior was 82% of that in the coast, dropping to 80% in 1980 and further falling to only 40% in 1992! Although quota floating capital per TVE employee in the interior has increased by four times (at 1952's constant price), from Yuan 319 in 1978 to Yuan 1591 in 1992, the coastal figure went up by 9.5 times, from Yuan 368 to Yuan 3861. Similarly, the year-end balance of loans from banks and credit associations in the interior

also drastically decreased relative to the coast, with the ratio dropping from 0.52 to 0.24. Between 1979 and 1992, the amount of year-end loan balance increased by 10.2 times, while that in the coast increased by 23.8 times. Also the ratio of year-end balance per hundred Yuan product of the interior to the coast went down from 1.52 in 1978 to 1.12 in 1992. All three indicators show that a greater proportion of funds have flown to the coast since the reforms.

Needless to say favorable tax and credit policies have significantly contributed to the faster TVE development in the coast versus the interior. However, few people know that the amount of fixed assets (original value) per TVE employee in the interior was 25% higher than that in the coast in 1978, but dropped to only 61% of the coastal areas in 1992. Even though during this period the value of fixed assets per TVE employee has increased by 2.3 times, from Yuan 1049 to Yuan 3473, it increased by 5.8 times in the coastal areas, from Yuan 839 to Yuan 5702. Additionally, per employee total assets ratio decreased from 109% to 53%. Higher growth rates in capital and assets in the coast are accompanied by higher growth in productivity. Historically, the coast had higher labor productivity, and labor productivity has grown faster in the coast than in the interior. Both hundred Yuan product wage and product value per employee statistics confirm this. In 1978, product value per TVE employee was Yuan 1468 in the interior, and Yuan 1815 in the coast. In 1992, it increased by 1.67 times to Yuan 3859 in the interior, as compared to 3.64 times increase to Yuan 8422 in the coast. For every hundred Yuan product, wage cost in the interior was 13% higher in 1978 than in the coastal areas, and by 1992, it was 66% higher.

Now let us compare the social effects of TVE development in the coast and interior from the following three perspectives. In terms of total social gross output, the TVE share in the interior rose from 5% in 1978 to 21.2% in 1992, and the TVE share in the coast rose from 8.7% to 33.8%. In terms of TVE staff as a percent of social labor force, the share in the interior rose from 4.9% in 1978 to 13.8 in 1992, while it rose from 9.3% to 21.6% in the coast. In terms of TVE staff as a percent of rural labor force, the share in the interior rose from 7.4% to 21.5%, while in the coastal areas it rose from 14.7% to 36.8%. The above three statistics present us with the same results: (1) Since the reforms till 1992 the latest year for which data are available, TVEs in the coastal areas have played a larger social role than in the interior; however, (2) TVEs in the interior have been increasing at a faster pace. These two points can be best understood by looking at the mean ratios in the social effect sector in Table 5. First, all three mean ratios are

smaller than 1, which answers to point (1) above. Second, as time went by the ratios approach to 1, which explains point (2).

The fact that TVEs in the interior grow faster than in the coast in the social aspects seems in contradiction with the previous results that TVEs grow faster in the coast in terms of assets, productivity and gross output. That is not true. Firstly, in the interior, TVE share of social gross output increased by a wide margin. Relative to the coast, TVEs grow even faster than other sectors. Secondly, although, in terms of TVE staff share of social labor force, the interior has a higher growth rate, due to low production efficiency, their growth rates of output values and assets are both lower than the coast.

To sum up, in this section we observe that many aspects have contributed towards faster development of TVEs in the coastal areas. Three main ones are: (1) Since TVE productivity in the coast had been higher than the interior even before 1978, along with the introduction of market economy, funds and human capital would naturally float to the coastal areas where higher returns are generated. (2) Favorable economic policies in the coast speeded up the market adjustment. (3) Open door policies make the coast as the most attractive frontier for funds, human capital and advanced technology; large numbers of foreign invested enterprises (San1zi1 qi3ye4) poured in the coastal region providing the areas with human capital and funds, training a large number of entrepreneurs who understand the market economy and hundred thousands of skilled labor. The entry of these enterprises effectively changed the structure of the economy and the rules of the markets, pushing the economy to pursue high value-added sectors. These factors, among many others, have contributed towards a faster TVE development in the coast, thereby promoting faster overall economic development in the coastal areas.

Tables 1-4, show that China's regional development was on the convergence trend between 1978 and 1990 but diverged between 1990 and 1993. However, statistics in Table 5 clearly show that ever since 1978 the coast has experienced faster TVE development than the interior. What is the connection between these two results? They seem to be contradictory, but they are not. Jian, Sachs, and Warner (1996) point out that between 1978 and 1990 Chinese economy converged in two ways: first, per capita GDP across all provinces converged; second, convergence occurred among the coastal provinces and also among the interior provinces. Although the second type of convergence has continued, the first type, since 1990, became

divergent instead: divergence occurred between the coast and the interior. That is to say, between 1978 and 1993, especially prior to 1990, high growth in the coastal areas has mainly come from the poor provinces rather than the rich provinces like Shanghai, Tianjin, and Liaoning. Thus, even though TVEs developed faster in the coast even between 1978 and 1990, gap between the coast and interior did not widen. However, since 1990, on the one hand, per capita GDP of the past poor provinces in the coast, like Fujian, has surpassed the national average and grown at a higher than average rate. On the other, the rich provinces in the coast, like Shanghai (especially since the opening up of the Pudong new areas), experienced higher than national average growth rates all the years since 1990. Additionally, huge amount of foreign capital poured in since 1990. These factors have contributed to faster growth in the coast. In effect, between 1990 and 1993, per capita GDP grew at 13.8% in the coast, well above the 7.5% in the interior, while the growth was slightly below the interior between 1978 and 1990.

IV. Regional Economic Growth and Tax Reforms

The simple fact of continuous high economic growth for more than a decade and half is more than enough to prove the success of China's economic reform. No one would argue with that. The question we are facing now is how to ensure that China's economy will grow in a steady and healthy fashion with long term prospects. Recent significant divergence between the coast and the interior has raised major concerns among economists and policy makers.

China's high economic growth in the past seventeen years is synchronous with the TVE development. Changes in regional income equality thus have also been associated with regional TVE development. Rapid TVE development has taken place for a number of factors. In addition to efforts of economic reform to introduce markets into the economic system and to improve the environment for competition, and the low cost of rural labor input used by the TVES, favorable policies adopted by various levels of governments, like three-year exempt and thereafter two-year half tax for TVE corporate taxes, have also fostered the success of TVEs.

Prior to the tax reform in 1994, China adopted progressive marginal corporate tax rates, ranging from 10% to 55%. Due to the fact that most of the TVEs are small enterprises, such marginal tax rates are good for their development. In 1992, effective average tax rate for TVEs

was only 21%, well below 29% for the state owned enterprises[2]. Such a tax rate for TVEs, both in the coast and in the interior, are competitive, even if compared with favorable tax rates of 24% applied in the coastal development areas or 15% in the special economic zones.

In general, the 1994 tax reform has been very successful. Tax reform has made the first step towards uniform tax rate. Within the same area, 33% corporate tax rate applies to all kinds of firms, there is no differentiation of ownership among private, collective or state-owned. No differentiation of nationality, domestic or foreign. Even within the special economic zones or development zones, unified (favorable) tax rate applies to all firms. Obviously, unified tax rate promotes competition. Even though the switch from progressive marginal tax rates to flat level tax rate reduces the amount of work for tax reporting and tax collection, such a change increases the cost for small enterprises, especially for TVEs which are the driving force of the economy. Thus, such a change may have reduced the vitality of the growing economy. The adoption of the flat tax rate also increases the tax burden for the interior, reducing the competitive ability for the region. The tax reform increases the tax rate for the interior TVEs from 21% to 33%, well above favorable tax rates of 15% in the special economic zones and 24% in the development zones (most of which are in the coastal areas).

Now the question is how to narrow the gap between the coast and the interior. The author believes that such a gap has been formulated gradually over many years. This has been the result of several factors: coastal advantages in geography, human capital, economic policies and market economic forces. Since the gap has been formulated over a long period of time, it is impossible and inappropriate to deal with it in with drastic measures. To mitigate the trend of unequal regional economic development, I propose the following four policy recommendations:

(1) It is the author's belief that among all possible reforms that would promote economic growth and keep balanced regional growth, the easiest and most efficient way is to change the current flat tax rate into progressive marginal tax rate. In this way, small enterprises, especially the TVEs, will be promoted and the economy vitalized.

(2) Under the current situation, it would not be advisable to abolish the special economic zones and the development zones. Instead, it would be more beneficial to further open up the

[2] Shi, Banruo, "1994: China's Tax Reform," p 263.

interior, develop their resources, build up infrastructures, and promote the flow of funds, technology and human capital towards the interior.

(3) Favorable tax and credit policies and, in some cases, central government fiscal transfer, should be directed according to the need and priority of resource development in the region and towards sectors that may push the local economy.

(4) Road building is extremely important for China's economy both in the short and the long term. At the present, road coverage in China is only one half as much as that in India, insufficient for current economic development. Road building is the most effective way to deal with rural labor surplus, which amounts to hundreds of millions, by providing them with employment opportunities, exposure to the outside world and a source of income. More roads will facilitate economic transactions across provinces, and thus funds, technology, and human capital will naturally flow into the interior provinces.

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Appendix

1. List of Tables

2. Data Source and Explanation

See references, and also data appendix in Jian, Sachs, and Warner (1996).

3. Notes on Variables

gdpp:	log of real GDP per capita
gdp1sh:	agriculture share in GDP
dum:	coastal region dummy (dum=1 if coastal)
tvepdt:	annual growth rate of TVE labor productivity
tvese:	TVE staff share in social labor force
intac:	interaction dummy between coastal dummy and agriculture share in GDP
gtve:	annual growth rate of TVE gross product value
tveso:	share of TVE gross product value in total social gross product

Table 1: Convergence Regressions for 1978-1993

Dependent variable: annual growth rate of real GDP per capita
Number of observations: 28
Note: numbers in brackets are t ratios.

	Log of initial GDP per capita	Initial agriculture share of GDP	Coast dummy (coast=1)	Adj. R-squared
A. 1978-1993				
	-0.017	----	----	0.27
	(-3.32)			
	-0.001	0.097	----	0.33
	(-0.09)	(1.83)		
	-0.009	0.080	0.0213	0.58
	(-1.11)	(1.88)	(3.93)	
B. 1978-1990				
	-0.020	----	----	0.43
	(-4.62)			
	-0.007	0.077	----	0.47
	(-0.80)	(1.78)		
	-0.010	0.071	0.008	0.05
	(-1.18)	(1.64)	(1.52)	
C. 1990-1993				
	0.005	----	----	-0.03
	(0.33)			
	0.040	0.190	----	-0.003
	(1.32)	(1.34)		
	0.012	0.206	0.074	0.68
	(0.71)	(2.58)	(7.42)	

Source: see appendix.

Table 2: GDP Convergence and TVE Growth: 1978-1990

Dependent variable: annual growth rate of real GDP per capita
Number of observations: 28
notes: 1. Numbers in brackets are t ratios; 2. (F) uses agriculture gdp share in 1985.

	(A) Log initial real gdp per capita	(B) Initial agriculture gdp share	(C) Labor prod. Ann growth rate	(D) Coastal dummy (coast=1)	(E) TVE workers/ labor force 1978	(F) Interact =(B)X(D)	(G) Output Annual growth rate	(H) Adjusted R-squared
1	-0.012	0.060	0.024	0.006	----	----	0.001	0.55
	(-1.33)	(1.28)	(0.19)	(1.03)			(1.68)	
2	-0.008	0.053	0.065	-0.014	----	0.064	0.001	0.56
	(-0.76)	(1.14)	(0.51)	(-0.88)		(1.38)	(1.58)	
3	-0.010	0.060	0.019	----	----	0.026	0.001	0.57
	(-1.12)	(1.32)	(0.16)			(1.50)	(1.75)	
4	-0.010	0.063	----	----	----	0.027	0.001	0.59
	(-1.23)	(1.60)				(1.76)	(2.22)	
5	-0.008	0.068	----	----	-0.0005	0.033	0.001	0.57
	(-0.88)	(1.63)			(-0.44)	(1.64)	(2.19)	
6	-0.010	0.050	0.136	----	-0.001	0.035	0.001	0.56
	(-1.08)	(1.09)	(0.76)		(-0.85)	(1.70)	(0.98)	
7	-0.11	0.040	0.268	----	-0.002	0.038	----	0.56
	(-1.19)	(0.90)	(2.06)		-1.65)	(1.91)		

Source: see appendix.

Table 3: GDP Divergence and TVE Growth: 1990-1993

Dependent variable: annual growth rate of real GDP per capita
Number of observations: 28
notes: 1. Numbers in brackets are t ratios; 2. (F) uses agriculture gdp share in 1990.

	(A) Log initial real gdp per capita	(B) Initial agriculture gdp share	(C) Labor prod. Annual growth rate	(D) dummy (coast=1)	(E) labor force 1990	(F) =(B)X(D)	(G) Output Annual growth rate	(H) Adjusted R-squared
1	0.015	0.147	0.360	0.039	----	0.083	-0.001	0.737
	(0.88)	(1.90)	(2.43)	(1.46)		(0.94)	(-2.04)	
2	0.022	0.172	0.208	----	0.0027	0.169	-0.001	0.780
	(1.52)	(2.42)	(1.40)		(2.58)	(3.84)	(-1.21)	
3	0.013	0.214	0.253	0.052	0.0024	----	-0.001	0.779
	(0.86)	(3.01)	(1.73)	(3.80)	(2.23)		(-1.40)	
4	0.021	0.207	0.055	0.022	0.003	0.099	----	0.773
	(1.35)	(2.82)	(0.62)	(0.89)	(2.85)	(1.20)		
5	0.016	0.192	0.219	0.027	0.002	0.094	-0.001	0.782
	(1.07)	(2.62)	(1.48)	(1.10)	(2.32)	(1.17)	(-1.37)	
6	----	0.142	0.231	0.036	0.002	0.078	-0.001	0.781
		(2.51)	(1.56)	(1.54)	(2.26)	(0.98)	(-1.61)	
7	0.025	0.189	0.062	----	0.003	0.160	----	0.776
	(1.72)	(2.69)	(.713)		(3.06)	(3.65)		

Source: see appendix.

Table 4: Correlations of TVE Variables

Number of observations: 28.

	Output Annual growth rate 1978-90	Output Annual growth rate 1980-85	Output Annual growth rate 1985-90	Output Annual growth rate 1991-92	Labor prod. Annual growth rate 1978-90	Labor prod. Annual growth rate 1990-92
Coast dummy	0.145	-0.183	0.263	0.581	0.524	0.622
Coast-agriculture gdp share interaction (initial share)	0.144	-0.133	0.216	0.714	0.417	0.762
TVE workers/labor force	0.110	-0.156	-----	0.303	0.747	0.423
TVE grs output/total grs output	0.098	-----	0.227	0.335	0.432	0.503

Source: see appendix.

Table 5: TVE Growth Difference: Mean Ratio Values (Interior over Coast)

1. Growth rates

Annual growth rate of gross output

1980-1985	1.07
1985-1990	0.89
1991-1992	0.59

Annual growth of labor productivity

1978-1990	0.66
1990-1992	0.57

2. Tax policy effect

Tax per hundred Yuan product value

1978	0.63
1980	0.61
1990	0.97
1991	0.99
1992	1.02

Pretax profit per hundred Yuan product

1978	0.87
1980	0.92
1990	1.15
1991	1.17
1992	1.13

Tax per employee

1978	0.53
1980	0.44
1990	0.49
1991	0.48
1992	0.44

Pretax profit per employee

1978	0.72
1980	0.66
1990	0.62
1991	0.61
1992	0.53

3. Bank lending policy effect

Circulating capital quota per employee

1978	0.82
1980	0.70
1990	0.43
1991	0.43
1992	0.40

Bank loan end-of-year balance

1978	0.52
1980	0.36
1990	0.26
1991	0.28
1992	0.24

Bank loan end-of-year balance per hundred Yuan product

1978	1.52
1980	1.16
1990	1.03
1991	1.03
1992	1.12

4. Assets

Fixed assets (original value) per employee

1978	1.25
1980	1.25
1990	0.68
1991	0.65
1992	0.61

Total assets per employee

1978	1.09
1980	1.10
1990	0.70
1991	0.67
1992	0.51

5. Efficiency effect

Product value per employee

1978	0.81
1990	0.53
1991	0.50
1992	0.46

Wage per hundred Yuan product

1978	1.13
1980	1.34
1990	1.49
1991	1.54
1992	1.66

6. Social effect

Share in social gross output

1978	0.54
1980	0.61
1990	0.61
1991	0.61
1992	0.60

Employment share in labor force in society

1978	0.53
1980	0.51
1990	0.66
1991	0.66
1992	0.64

Employment share in rural labor force

1978	0.50
1980	0.52
1990	0.63
1991	0.57

Source: see appendix