China Regional Disparities

The Causes and Impact of Regional Inequalities in Income and Well-Being

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Summary

Comparison of China's major regions, detailed below, shows that in official GDP per capita terms and for rural income and consumption, disparities appear large. Furthermore, both over 20 years and over the 2000-05 five-year period, Chinese rural income and consumption disparities have increased, as measured by the ratios of per-capita rural household statistics representative for major regions. In other words, regional rural household income and consumption levels in China are diverging (at least through 2005) and have been, whether measured since 1985 or 2000.

Although disparities are growing, the extraordinarily rapid improvement in rural household income and consumption levels in all regions over both longer-term (1985-2005) and more recent (2000-2005) periods is notable. Average annual real growth in rural household income was at least 6.0 percent for all seven regions over the period 1985-2005, and for consumption the corresponding average growth rate was at least 6.5 percent over all regions. Appreciation of this sustained speed of improvement in well-being in all regions and provinces must heavily influence evaluation of both the causes and consequences of observed levels and trends in inter-regional inequality.

Poverty comparisons between a coastal and an interior province show that measuring poverty differences as part of the analysis requires careful selection of a relevant poverty line.


Finally, the analysis presented below concludes that the levels and trends in regional inequality are healthy parts of China's successful economic reform program. They furthermore provide essential incentives for voluntary labor migration from low-productivity areas to high-productivity and higher income work opportunities in other regions. The inequality trends also indicate that China's high internal migration period is not over and that equilibrating convergence must be a long time away. In the meantime, China should continue to provide the essential complementary investments and reforms needed to facilitate migration set in motion in part by the very inequalities themselves.

Regional Inequalities

Meaningful analysis of China's regional disparities requires a degree of aggregation over provincial-level entities. China has 31 provincial-level administrative units (hereafter "provinces"), four of which are "municipalities." Three of these municipalities (Beijing, Tianjin, and Shanghai) have limited rural economies, making meaningful comparison with other entities especially difficult. Conversely, a province like Hebei, out of which both Beijing and Tianjin have been carved, has no real major urban area comparable to those of other provinces, undermining meaningful relevant comparisons. Consequently, for this paper, provinces are aggregated – first into "greater" provinces for Hebei, Jiangsu, Sichuan and Guangdong (see note to Table 10 in the appendix) and then for seven regions (see Map 1).

Map 1. China's Seven Economic Regions and their Constituent Entities
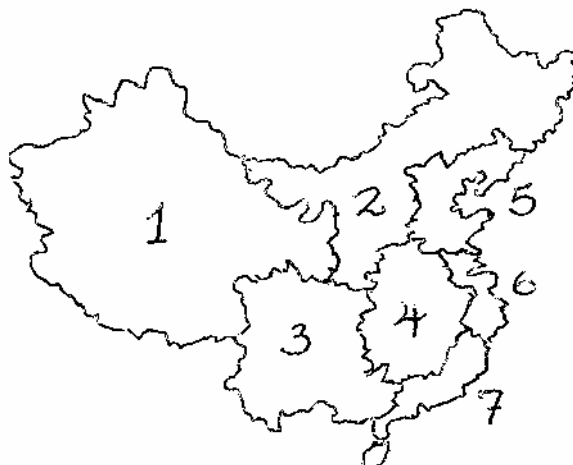
1	2	3	4	5	6	7
Far West	North Hinterland	South Hinterland	Central Core	North Coast	East Coast	South Coast
Xinjiang	Heilongjiang	Sichuan	Henan	Liaoning	Jiangsu	Fujian
Tibet	Jilin	Chongqing	Anhui	Hebei	Shanghai	Guangdong
Qinghai	Inner Mongolia	Guizhou	Jiangxi	Beijing	Zhejiang	Hainan
Gansu	Shanxi	Yunnan	Hubei	Tianjin		
Ningxia	Shaanxi	Guangxi	Hunan	Shandong		

An overview of disparities in GDP per-capita (see Table 1) shows significant inequality between the seven regions as well as between the 26 individual "greater" provinces (see Table 9 in the appendix). The overriding gap is between coastal and interior regions. On the large seven-region level, with all but one region larger than 140 million persons, the highest-to-lowest GDP per capita ratio is over 3½. At the "greater" provincial level, i.e., provinces combined with their constituent provincial-level municipalities, it is more than 5½ (between Greater Jiangsu and Guizhou).

But at least two factors qualify the usefulness of per-capita GDP comparisons for the purposes of this paper. First, GDP includes investment, which in China is such a high share of GDP and varies so much over time that its usefulness for gauging inequalities in income and well-being is limited. Second, the accuracy of inter-regional comparisons based on GDP per capita statistics is suspect. The denominator, population, used for calculating per-capita statistics,

Table 1. Regional Population and GDP Comparisons, 2005

	Population (million)	Total GDP (Bil.US$*)	GDP Per Capita (US$*)	GDP Sector Shares (%)		
				Primary	Secondary	Tertiary
China Total	**1,308**	**2,246**	**1,717**	**12.5**	**47.3**	**40.2**
Far West	60	72	1,204	16.9	44.0	39.1
N. Hinterland	160	255	1,594	12.4	50.4	37.2
S. Hinterland	239	244	1,023	19.5	40.5	40.0
Central Core	318	403	1,267	18.0	45.6	36.4
North Coast	229	576	2,516	9.7	50.6	39.7
East Coast	142	499	3,528	6.0	53.8	40.3
South Coast	236	648	2,749	4.8	27.8	23.5

* US$ figures at 2005 average commercial exchange rate of 8.1917 Yuan/$.
  Source: China National Bureau of Statistics (NBS) 2006 Statistical Yearbook, with calculations

has questionable accuracy due to the reported scale and documented direction of actual migration flows that might not be fully included in official regional population data.

The scale of inter-provincial migration in China is the subject of numerous surveys at all levels, but discussions with specialists in Beijing confirm that there is still considerable disagreement about the overall scale – whether it is 100 million persons working away from home or 150 million or even 200 million.

The definition of what one means by "migrant" is also important. Given the absolute decline in China's rural population over more than twenty years, amidst a resurgence in the natural rural population increase rate, all of what would have been increases in the rural population must now be living in urban areas. One calculation shows that more than half of China's current urban residents must originally be in families whose members migrated from rural areas at some point since China's economic reforms began in 1978—either recently or in the persons of parents or grandparents (Keidel 2007b). In other words, by this calculation, most of today's urban residents in China are rural in origin. This requires an adjustment in thinking about the urban-rural distinction.

If the scale and meaning of migration in China are open to discussion, the direction is not. Chinese have been moving from interior to coastal provinces in significant numbers. Official

census-frame-based survey results to this effect were clear as early as 1990 (Keidel 1996). The

one-percent sample survey from the census frame for 2005 shows similar results (see Table 2). It

is highly unlikely that the respondents to this survey represent all the "migrants" living in

China's various provinces, because Table 2 shows this figure to amount to only 35 million

persons. But the movement is unquestionably from interior to coastal regions. There is

movement of migrants in all directions, but on a *net* basis as found in this survey, coastal regions

had roughly 24 million persons who had moved from interior regions during the five years

through 2005. Consideration of the scale and direction of migration in China must also figure

heavily in evaluation of the causes and consequences of China's regional inequality.

One way of avoiding measurement complications due to migration is to make

comparisons based on household survey data. Furthermore, because regional inequalities in

China across regions are significantly less for urban areas than for rural areas, the clearest

regional disparities are those for rural households. Analysis below, therefore, concentrates on

inter-regional disparities for rural households.

In income terms, rural households in China's coastal regions—especially the East Coast

region centered on Shanghai—are far and away better remunerated than those in the interior. By

Table 2. Net Permanent Inter-provincial Movement* of Persons, 2000-2005 (millions)

Region of Destination	Region of Origin							Net all by Des-tination
	Far West	N. Hin-terland	S. Hin-terland	Central Core	N. Coast	E. Coast	S. Coast	
Far West	0.2	0.0	0.1	0.2	-0.1	-0.1	-0.1	0.0
N. Hinterland	0.0	0.4	0.0	0.1	-1.4	-0.3	-0.4	-2.0
S. Hinterland	-0.1	0.0	0.8	0.1	-0.3	-2.6	-4.8	-7.7
Central Core	-0.2	-0.1	-0.1	0.5	-1.1	-5.7	-6.8	-14.1
N. Coast	0.1	1.4	0.3	1.1	1.5	-0.2	-0.2	2.5
E. Coast	0.1	0.3	2.6	5.7	0.2	1.2	0.2	9.1
S. Coast	0.1	0.4	4.8	6.8	0.2	-0.2	0.5	12.1
Net all by Origin	0.0	2.0	7.7	14.1	-2.5	-9.1	-12.1	**35.0

* The actual statistics record the survey respondent's current residence and usual residence five years earlier. ** This figure is the sum of all inter-provincial movement. Note: Figures in the diagonal are inter-provincial movements within each region and are arbitrarily presented as positive. Source: NBS, 2005 National 1% Population Sample Survey, with calculations.

2005, rural households in the relatively small East Coast region, with total population of 142 million people, had at least double the rural income level of any in interior regions (see Table 3).

Undoubtedly, differences in 2005 regional prices would reduce this difference in real terms. A recent study

Table 3. Regional Real Per Capita Rural Income*
(Constant 2000 Yuan)

	1985	1990	1995	2000	2005
China Total	**943**	**1,306**	**1,700**	**2,253**	**3,556**
Far West	748	1,027	1,058	1,514	2,410
N. Hinterland	846	1,228	1,405	1,867	3,062
S. Hinterland	743	1,052	1,271	1,733	2,662
Central Core	879	1,141	1,476	2,083	3,218
North Coast	1,004	1,336	1,895	2,613	4,196
East Coast	1,258	2,007	2,940	3,879	6,404
South Coast	1,113	1,764	2,628	3,411	4,901

* Income is "Net" income, or *chun shouru* (纯收入)
Source: NBS household survey data, published in *2006 China Yearbook of Rural Household Survey* (in Chinese), China Statistics Press, 2006

by China's rural household survey team made a different but related point, showing that while pay for migrants from the interior is higher on the coast than elsewhere, when living costs are factored in, migrants from the interior make less net income there (NBS 2005).

However, regional price and cost differences can only command limited significance. Price statistics frequently have difficulty accounting for quality differences in services like housing, where valuation of location in relation to amenities is a challenge. Indeed, perceived nominal income disparities can have economic significance in their own right, especially for attracting migrants considering permanent movement. Finally, price differences in China between regions are highly unlikely to come anything close to the reported differences in household income. The only conclusion to draw is that rural household income disparities between China's regions are large, especially in the coastal-interior dimension.

Not only are income disparities large, they have been growing larger over time. On average for both 1985-to-2005 and for 2000-to-2005, the regions that were already leading in terms of per-capita rural income at the outset of the period also grew faster in real terms during that period. The rankings for both levels and growth rates are the same, implying divergence (see

Tables 3 and 4). What is more, the
differences in growth rates are
substantial. All of the interior regions
sustained average growth between 6.0
and 6.7 percent over the twenty years
after 1985 (see Table 4). During this
same period, coastal regions averaged

Table 4. Regional Rural Income Growth* 1980-2005

Ave. annual %	1985	1990	1995	2000	2005	1985-2005
China Total	**14.1**	**6.7**	**5.4**	**5.8**	**9.6**	**6.9**
Far West	n/a	6.5	0.6	7.4	9.7	6.0
N. Hinterland	13.0	7.7	2.7	5.9	10.4	6.6
S. Hinterland	10.7	7.2	3.8	6.4	9.0	6.6
Central Core	13.6	5.3	5.3	7.1	9.1	6.7
North Coast	14.4	5.9	7.2	6.6	9.9	7.4
East Coast	16.7	9.8	7.9	5.7	10.5	8.5
South Coast	12.4	9.6	8.3	5.4	7.5	7.7

* Annual averages - except for 1985-2005, data show averages of real growth over five years, e.g., 1985 is for 1980-85. Source: See Table 3.

rural household real income growth rates between 7.4 and 8.5 percent, a growth gap that is especially large when compounded over twenty years.

Both China's regional rural income disparities and the pace of their increase appear more clearly in log-normal plots of their twenty-year trends (see Figures 1 and 2), for which the slopes of the lines represent growth rates. Figure 1 shows clearly that the highest-income regions in 1985 also grew the fastest on average to 2005.

Figure 2 shows, however, that this diverging path was not at all uniform during the four 5-year sub-periods. Indeed, there were periods of convergence between 1995 and 2000. This short-lived convergence path is also clear from the growth rates in Table 4, which show that for the five years ending in 2000, the two highest-income regions grew more slowly than all the other regions. Regional rural income levels in the subsequent five-year period, ending in 2005, are also not uniformly divergent, with growth rates for the South Coast in particular failing to recover the way they did in the North and East Coast regions.

These varying patterns afford some clues for later analysis of the causes of China's regional disparities and their trends because of the apparent impact of macroeconomic fluctuations on rural income and consumption (Keidel 2007b). For now, however, it is important

to note that the 1990s were more complicated than the overall trends indicate, with relatively poor performances in particular during 1990-1995 for the lower-income regions of the Far West and North Hinterland.

Switching from income to consumption inequality patterns and trends for rural household provides evidence of weaker divergence and of difficulties in the latter 1990s not apparent in income statistics. Overall, regional rural household consumption disparities are in many ways similar to the income patterns already described, except that the disparities and rates of divergence are somewhat lower, the North Coast region's levels are more like those in interior regions, and the 5-year growth patterns show substantially more difficulties for all regions in the latter half of the 1990s.

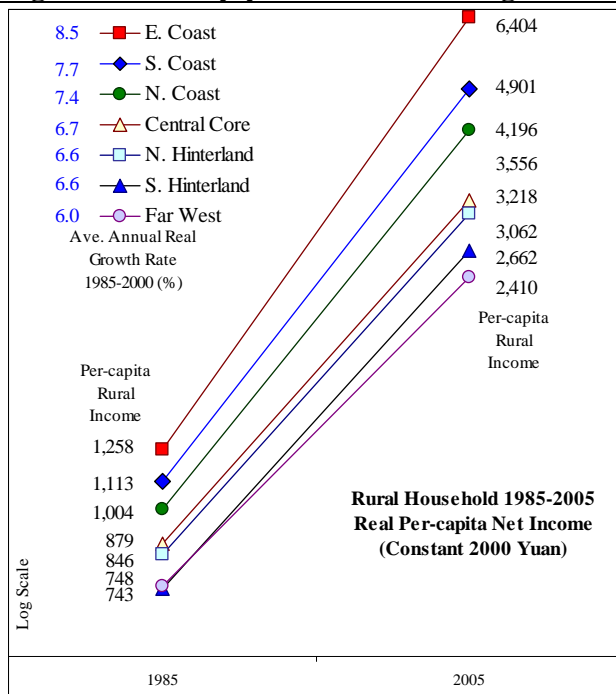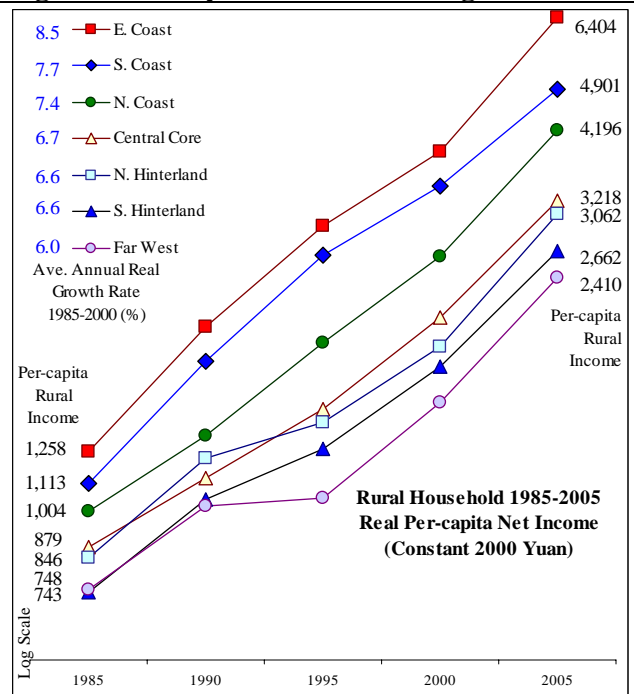## Figure 1. Twenty-year Income Divergence

Figure 2. Five-year Income Divergence Paths

* Both income levels and growth are in real terms. Sources: for both figures, see Tables 3 and 4.

Despite the less dramatic disparities and speeds of divergence, the rankings of the regions are, not surprisingly, the same as those for income. The East Coast and South Coast have

Table 5. Regional Real Per Capita Rural Consumption*
(Constant 2000 Yuan)

	1985	1990	1995	2000	2005
China Total	**753**	**1,112**	**1,412**	**1,670**	**2,792**
Far West	n/a	800	1,007	1,174	2,059
N. Hinterland	675	1,003	1,238	1,384	2,369
S. Hinterland	641	942	1,154	1,374	2,248
Central Core	717	1,016	1,230	1,524	2,495
North Coast	787	1,059	1,407	1,658	2,840
East Coast	1,084	1,734	2,337	2,697	4,749
South Coast	897	1,576	2,211	2,485	3,763

Source: See Table 3.

average levels of rural household consumption too much higher than those in other regions to be accounted for by regional price differences (see Table 5). Furthermore, even though the North Coast's household consumption levels are much closer to levels in the interior, they are still higher, so that as a general conclusion the data show that all coastal regions enjoy rural household consumption levels higher than those in the interior.

The striking pattern in regional rural household consumption, however, is for growth rates (see Table 6). In particular, while on average over 20 years real consumption growth rates are highest on the coast, confirming some degree of long-term divergence, the 1990s exhibit dramatic slowing in the interior during the first half of the decade and in all regions during the second half. Secondly, while all regions recovered rapid growth of rural consumption during 2000-2005, recovery in the South Coast region was weaker, while growth in the interior basically matched rates in the North Coast and East Coast regions.

The levels, trends and variations in growth rates for household consumption by regions are clearest in Figures 3 and 4.

Table 6. Rural Consumption Growth* 1980-2005

Ave. annual %	1985	1990	1995	2000	2005	1985-2005
China Total	**n/a**	**8.1**	**4.9**	**3.4**	**10.8**	**6.8**
Far West	n/a	6.6	4.7	3.1	11.9	6.5
N. Hinterland	10.8	8.2	4.3	2.3	11.4	6.5
S. Hinterland	11.0	8.0	4.1	3.6	10.3	6.5
Central Core	12.1	7.2	3.9	4.4	10.4	6.4
North Coast	14.0	6.1	5.9	3.3	11.4	6.6
East Coast	16.2	9.8	6.1	2.9	12.0	7.7
South Coast	11.7	11.9	7.0	2.4	8.7	7.4

* Annual averages - except for 1985-2005, data show averages of real growth over five years, e.g., 1985 is for 1980-85. Source: See Table 3.
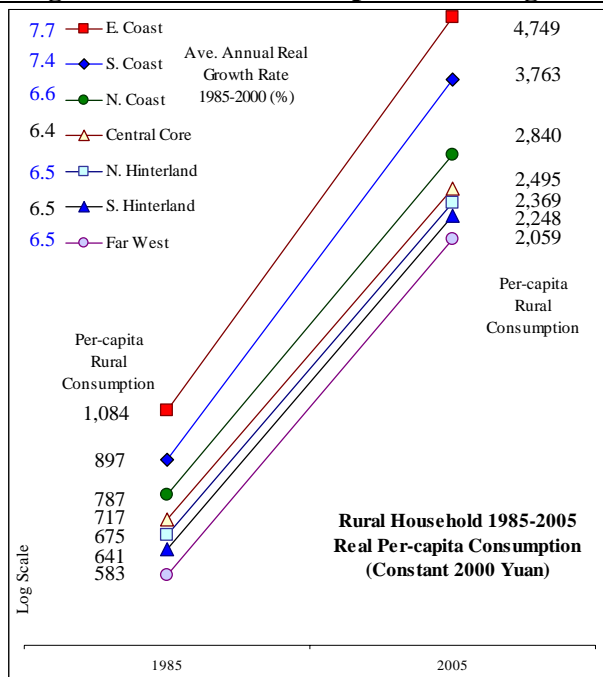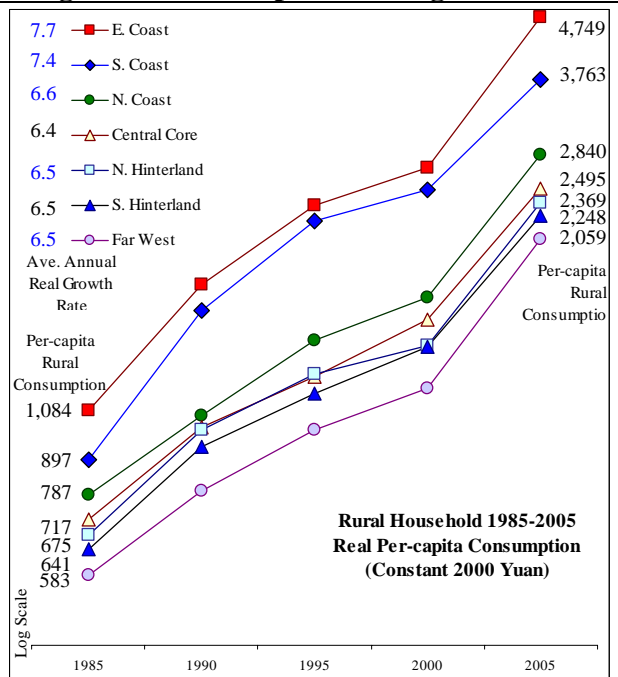
Figure 3. Rural Consumption* Divergence

Figure 4. Consumption Divergence Paths

* Both consumption levels and growth are in real terms. Sources: for both figures, see Tables 3 and 4.

Long-term divergence is less than for income, and in the period 2000-2005, except for the South Coast, there is essentially neither divergence nor convergence.

Considering both income and consumption, however, real growth rates are so high, both over twenty years and for the most recent five-year period, that issues of convergence or divergence are less important than they otherwise would be. All of rural China appears to have improved dramatically its well being, as measured by consumption, since economic reforms in the early 1980s broke up Maoist-era communes in favor of family farming.

These data for rural household income and consumption disparities raise questions about the usefulness of basing inequality and poverty analysis on consumption in countries where there are rapid changes over time in household savings rates. Indeed, these data show just such changes and interregional differences for all of China's regions since the 1980s. Table 7 shows the decline in savings rates from the early 1980s to the early 1990s (from the period ending in 1985 to that ending in 1995). Nationwide, the population-weighted average of provincial savings

rates (Total #2 in Table 7) dropped from an average of roughly 17 percent in 1980-85 to under 13 percent in 1990-95. But the decline was especially sharp in the deep interior—the Hinterland and Far West regions—while savings rates actually increased in coastal provinces during 1990-95.

Table 7. Regional Rural Household Savings Rates , 1980-2005

	1980	1985	1990	1995	2000	2005
China Total #1	**n/a**	**20.2**	**14.8**	**16.9**	**25.9**	**21.5**
China Total #2*	**n/a**	**16.5**	**13.6**	**12.7**	**22.6**	**17.1**
Far West	n/a	22.2	22.1	4.8	22.5	14.5
N. Hinterland	11.9	20.2	18.4	11.9	25.9	22.6
S. Hinterland	14.8	13.7	10.5	9.2	20.7	15.5
Central Core	12.9	18.5	11.0	16.7	26.8	22.4
North Coast	20.5	21.7	20.7	25.7	36.5	32.3
East Coast	12.1	13.8	13.6	20.5	30.5	25.8
South Coast	16.7	19.4	10.7	15.9	27.1	23.2

* Two different national savings rate calculations give substantially different answers. Total #1 is the ratio of national total rural household savings to national total rural household income; it gives greater weight to regional savings rates in the highest-income regions; Total #2 is a population-weighted average of individual provincial savings rates and hence is a better average of nationwide household savings *behavior* patterns. Sources: See Table 3.

Under such circumstances, how useful is it to compare household well-being based in consumption—when consumption levels may be maintained under income stress? Conversely, when savings rates soar, as they did for China's rural households in the latter 1990s (1995-2000), are resulting lower-than-otherwise consumption levels an accurate measure of the change in relative well-being? This may be the case, if higher savings rates resulted from a sudden increase in uncertainty over costs of education, healthcare and other necessities and such anxieties are considered important. In general, though, when savings rates differ so much over time and between regions for the same period, such patterns introduce serious doubts about interpretations of interregional gaps in household consumption and their trends over time.

A final consideration regarding regional inequality is the incidence of poverty in different regions, and in particular differences in the incidence of poverty in coastal and interior areas. Comparisons between regions are beyond the scope of this current draft, but comparisons for two

representative provinces illustrate both the level of differences and issues of selection of a relevant policy line useful for measuring inequality and assisting policy making.

Table 8. Hunan-Jiangsu Income Poverty Comparison, 2005

Name of Poverty line	Yuan Value	% Poverty Incidence	
		Hunan	Jiangsu
Chinese Domestic	683	1.1	0.6
World Bank China $/day	788	2.3	0.9
Revised* China $/day	1,495	11.7	3.9

* Note: for discussion of the "Revised" (i.e., potentially revised) China PPP $/day poverty line, see note for Figure 9. Sources: Hunan and Jiangsu 2006 Statistical Yearbooks and Dikhanov 1999, with calculations.

Hunan and Jiangsu Provinces are quintessential interior and coastal provinces, respectively. Hunan is a large (63 million person in 2005) interior province in the heart of China's grain producing area south of the Yangtze River. Jiangsu is a somewhat larger (73 million person) coastal province surrounding Shanghai, with wealthy areas south of the

Figure 5. Hunan-Jiangsu Rural Income Poverty Incidence Comparison, 2005
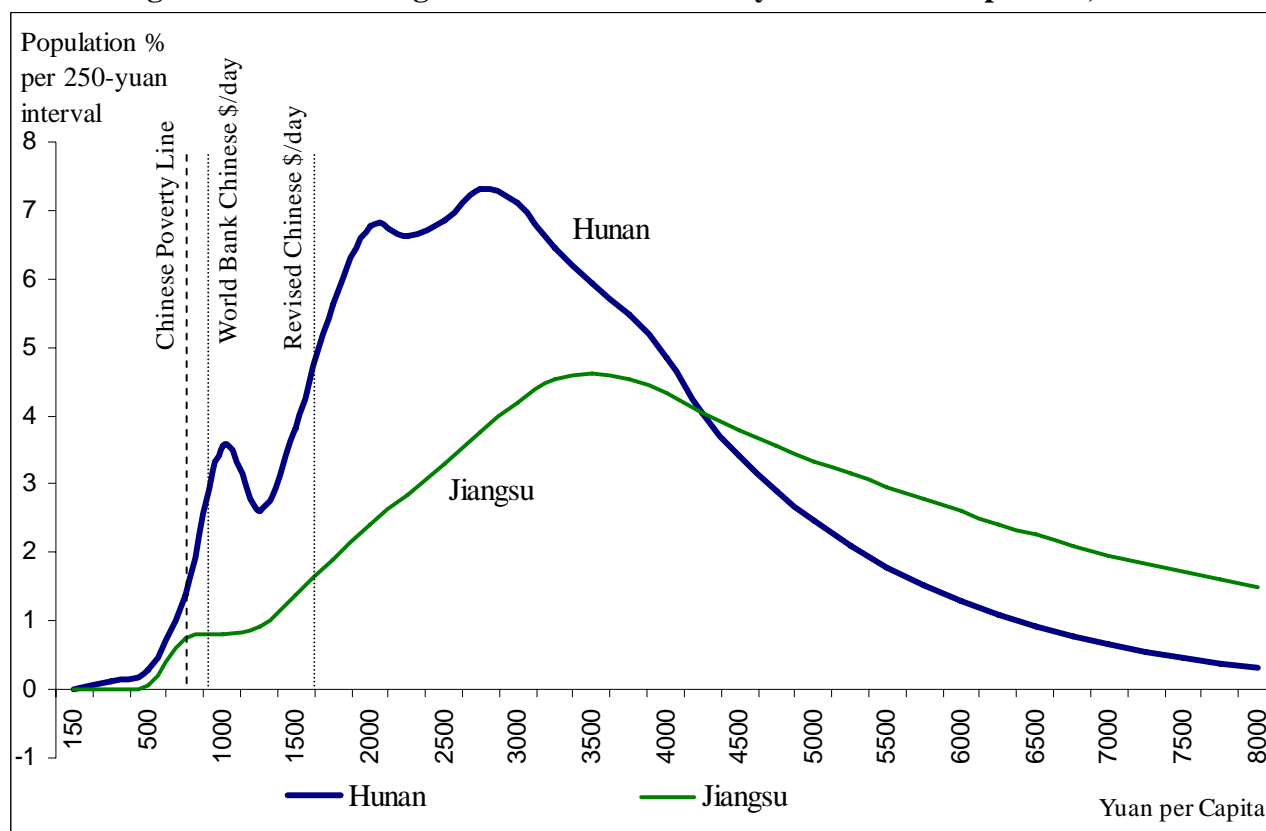
Note: for discussion of the "Revised" (i.e., potentially revised) China PPP $/day poverty line, see note for Figure 9. Sources: see Table 8.

Yangtze and relatively poorer areas north of the Yangtze River.

Table 8 compares 2005 poverty levels for Jiangsu and Hunan according to three different poverty lines, as illustrated in Figure 5. The first of the three poverty lines is China's official domestic rural poverty line. In both provinces, the incidence of poverty by this measure is low—1.1 percent of the rural population for Hunan and 0.6 percent for Jiangsu. Hence, by this indicator, disparities in well-being, as measured by the prevalence of poverty, are small if not negligible.

The second poverty standard is the World Bank dollar-per-day poverty line as measured using PPP (purchasing power parity) conversion rather than the commercial exchange rate. Interestingly, the results are not much different than with the Chinese poverty line—with 2.3 percent of Hunan's rural population poor compared to 0.9 percent of Jiangsu's. The disparity has grown, but poverty levels in both provinces are extremely low.

In this author's view, however, the World Bank PPP conversion factor for China, first generated in the early 1990s using data of limited scope from the latter 1980s, is out of date and too high. The PPP estimate was probably already too high when it was first produced (Keidel 1994), and it has been maintained for roughly 15 years without significant adjustment. Since that time, China's domestic economy has gone through dramatic price reforms, especially in housing, health care, and education, but also for many other services. Higher domestic Chinese prices for such services, compared to prices for manufactures, imply a lower ratio of dollar-per-Yuan PPP conversion factor to commercial exchange rate and hence a higher Yuan-per-dollar conversion factor.

For 2005, the ratio of the World Bank's dollar-per-Yuan PPP conversion factor to a three-year average commercial exchange rate was 3.8, but for this paper's analysis and results,

such as that reported in Table 8, a ratio of 2.0 is preferred. This ratio implies a higher Yuan-per-dollar PPP conversion factor and hence a higher Yuan-denominated dollar-per-day poverty line. It does not matter whether this statistic is the most accurate or not. Its revision is clearly in the right direction and is useful for illustrating the major policy-related point—to better measure regional disparities in poverty, a higher poverty line is needed.

By this more realistic PPP conversion factor and its related higher Yuan poverty line, the disparity between Hunan and Jiangsu poverty levels is substantial—12 percent for Hunan versus 4 percent for Jiangsu. This is an additional meaningful measure of regional inequality favoring the coast, but it is important to note that this disparity is not apparent when one uses poverty lines too low to reveal significant poverty in any location. More research is required to gauge the inter-regional and coastal-interior disparities revealed by other inter-provincial comparisons of poverty levels.

This concludes the brief introduction to regional inequality in rural China. To summarize, disparities are large, with rural household income and consumption on average much higher in coastal provinces than in the interior. What is more, the gap is widening—especially for incomes. These gaps in income and well being, however, lose significance for well-being comparisons because of the sustained high rates of improvement in all regions over twenty years. The more serious disparity is arguably in the incidence of absolute poverty, especially when measured with a policy line appropriate for China in the first decade of the new century.

Causes and Impact of Regional Inequality

The causes and impact of regional inequality in China are interrelated. These assessments both depend on fundamental perspectives and overall findings. Are the degrees and trends of regional inequality natural and healthy consequences of successful rapid development? Or are

they a measure of inadequate government policies? Has Beijing, through errors of commission or omission, unfairly treated one set of regions, the interior, as a backwater while concentrating on supporting coastal regions to "get rich first?" Or was the initial priority given to coastal development justified by its natural advantages for global transport and communication?

More fundamentally, the choice of preferred policies and ultimate appraisal must oscillate between considering inequalities as measures of relative poverty or as indicators of useful incentives for voluntary labor force movement to more productive locations and vocations. The critical factor is whether other matching and facilitating policies and achievements are in place to support inequality's role for enhancing labor-force mobility to higher productivity pursuits. If an economy has failed to create large numbers of better-paying jobs in emerging centers of modern employment, and if it lacks the transport, educational, and infrastructural supports for such labor-

Figure 6. Rural Income – Farm and Non-farm Components

Rural Household Real Net Income Per Capita (1985 prices)
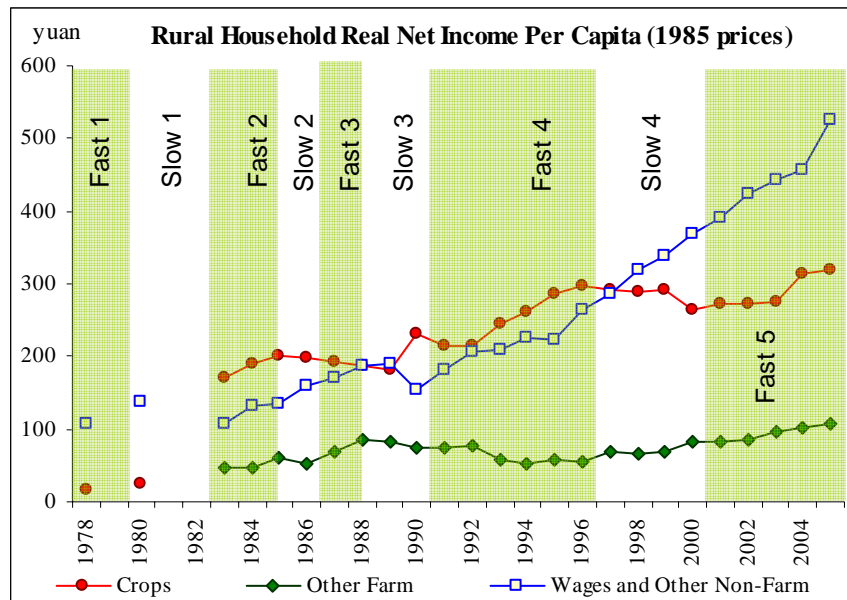
* Note: "Fast" and "Slow" panels identify periods of fast and slow GDP growth. Before 1983, rural China was organized in communes, where farm and non-farm labor were mostly paid as wages. Hence, statistics for these years are not comparable with survey data from the family farming era beginning in 1983. Also, crop output income was unusually high in 1990 because of excellent weather, followed by drought in 1991.
    Source: Keidel (2007), with data originally from National Bureau of Statistics and Ministry of Agriculture, rural household survey reports, various years.

force transformations, then regional inequalities appear as debilitating shortcomings. Migration resulting from regional inequalities in such failed settings might be seen as dysfunctional and used as justification for purely poverty alleviating transfers to poorer regions.

If however, an economy has found a successful formula for sustained rapid growth generating well-paid employment expansion in modern centers located at transport and communication hubs, then regional inequalities between traditional farming areas and such hubs play an essential role in raising labor productivity by encouraging voluntary movement of qualified labor. An important corollary is that such an economy must at the same time have successfully financed and accomplished a range of public investments complementing the inequality-born incentive to migrate.

This latter scenario, of significant regional inequality matched by rapid job creation and speedy expansion of complementary public investments, describes China's situation in recent decades. GDP growth has averaged nearly 10 percent in real terms since 1985. As shown in Table 1, this output is disproportionately concentrated in coastal regions, where industrial value added is also a significantly larger share of output. Similarly, the rapid growth in both rural incomes and consumption levels in all regions of China supports the hypothesis that sustained growth in rural well-being has been transmitted nationwide. Household statistics on the rapidly increasing share of rural income from non-farm sources, including remittances from migrant family members, also supports this conclusion (see Figure 6).

One of the most vital complementary factors enhancing a positive interpretation of China's regional inequalities is the Chinese success in sustained financing for infrastructure and other critical public investments. The expansion of limited access highways, ports, airports, mass transit systems, urban water and sewer, and other physical public investments has been

extraordinarily rapid since the 1980s, made possible by China's well-functioning financial system—which is particularly well suited to the financial requirements of an economic transition such as China's. China has a successfully operating dual-track financial sector that introduces reforms in its severely immature market-based financial institutions while simultaneously improving its large scale directed-credit system allocating major portions of bank and postal savings to public investments such as infrastructure (see Keidel 2007a).

Other public investments similarly support productivity-enhancing labor-force restructuring—most importantly, education. Compulsory 9-grades of education for all children, rural and urban, boy and girl, has been implemented nationwide since the latter 1990s. In another dimension, household registration reforms are dismantling the residency barriers facing rural persons moving to towns. In many cities these reforms have allowed rural residents with an urban job not only to shift their administrative registration but also to bring their families to cities with them. Previously, urban schooling was not available for children of rural migrants.

The fact that incomes and consumption are increasing rapidly in all regions implies that some equilibrating forces are at work eroding disparities as they appear. These take the form of investment flows within and to poor regions as well as movements of labor out of poor regions to new jobs in better-off locations. At the same time, to the degree that divergence continues, as the data show it does, growth and job creation in coastal regions are still increasing at rates too fast for migration and countervailing investments to eliminate differences. If anything, this state of affairs indicates that regional inequalities may not be high enough to meet the needs of labor-force restructuring.

Indeed, this issue of how attractive coastal jobs are to interior workers touches on the controversy about whether China's surplus rural labor supply will be "drying up" sometime soon

(see Cai 2007). Reports of shortages of migrant labor in southern China have appeared in western mass media (see, *inter alia*, Barboza 2006). The implication is that the impact of regional inequality patterns and trends is that wages will have to rise in coastal regions. Hence, it is not that diverging regional disparities are continuing to underpin low-cost Chinese manufacturing. Instead, the rapid pace of improvements in rural household circumstances in interior regions, despite a mild degree of continuing divergence, is forcing wage and cost increases on the coast.

This combination of mild rural income regional divergence and labor market tightening does not mean that migration has equilibrated regional market differences. On the contrary, continued divergence means that better income-earning opportunities continue to strengthen on the coast, so that as incomes and well-being improve nationwide, the movement to the coast will continue. Will this push up China's cost of labor and make its exports less competitive, for example? Probably not, because so many labor-saving techniques are still available for Chinese manufacturers to implement. What is more, to the degree that higher wages are accompanied by improved skill levels and discipline, China will be able to move up the product sophistication scale to make more components currently imported and more products currently produced by higher per-capita-GDP competitors.

In considering the causes of China's regional inequalities, it is important to note the impact of specific economic policies in the 1990s that in fact made disparities larger than they otherwise would have been and sped up divergence in these years more than was necessary. These policies help explain the obvious difficulties for interior regions apparent in Figures 2 and 4.

In a nutshell, to fight inflation that had become quite serious by the middle 1990s, Beijing in 1996 implemented a special "responsibility system" to encourage farmers to plant grain and help bring down food rice inflation. The policy was too successful, however, and farm

Figure 7. Rural-Urban Price Fluctuations & Terms of Trade
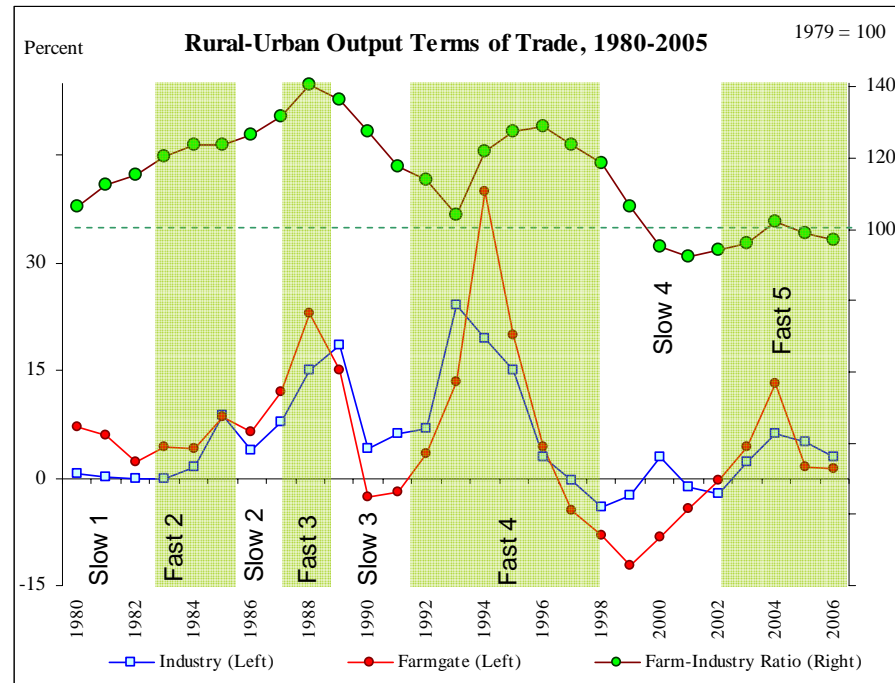
* Note: "Slow" and "Fast" refer to periods of relatively slow and fast GDP growth. Industry and farm-gate price indices are deflators implicit in the respective GDP sector real and nominal growth rates. Source: Keidel 2007b, data from National Bureau of Statistics GDP production series.

prices suffered for many years, causing rural household consumption to decline absolutely for three years, 1997, 1998 and 1999. This is just one instance of the strong fluctuations in rural pricing during periods of high and low inflation matching China's cyclical macroeconomic experience since reforms began in 1978 (see Figure 7).

The impact of price movements on real rural income and consumption worked in two ways in the 1990s. First, in the inflationary early years, farm-gate prices rose faster than industrial prices, while in deflationary periods they slowed more sharply than industrial prices. Hence, terms of trade fluctuations for rural areas were severe. Both halves of the 1990s experienced several difficult years for farmers. Regionally, these factors were felt most in areas that relied more on agriculture—that is, the interior regions.

Figure 8. Hunan Province Income Poverty Incidence with Standard Poverty Lines, 1990-2005
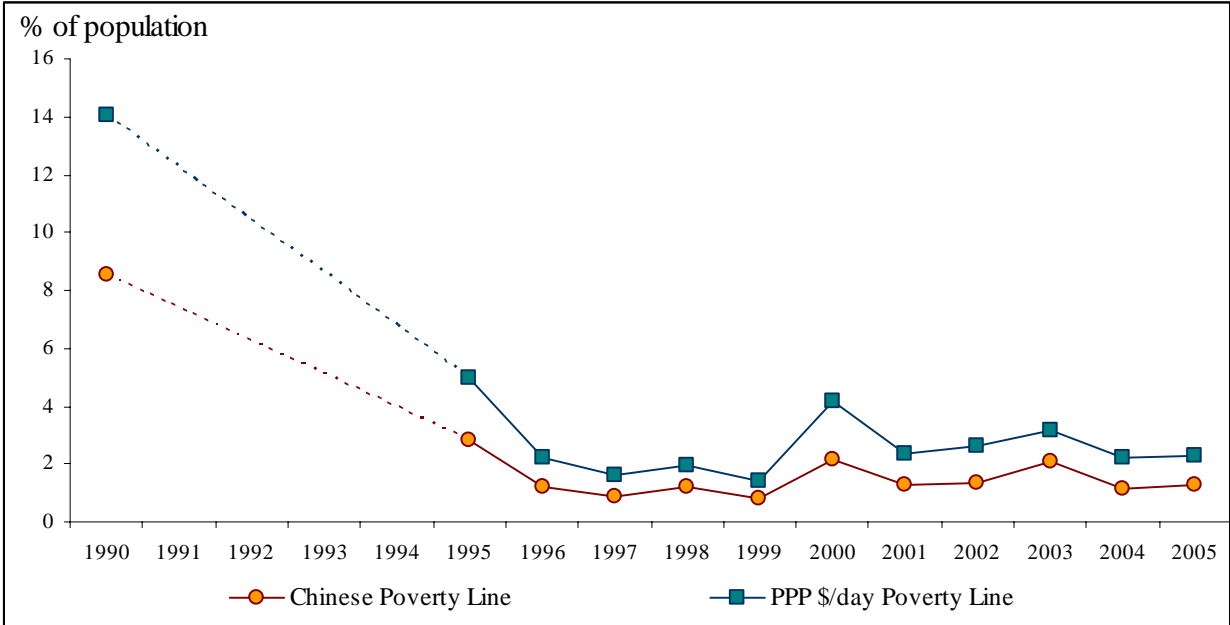
Sources: NBS, Hunan Statistical Yearbook, various issues and Dikhanov 1999, with calculations.

In most general terms, the way that Beijing has managed its macroeconomic fluctuations since the early 1980s, with delays in suppressing inflationary outbreaks and then harsh anti-inflation measures targeting farmers, repeatedly undermined incomes and well-being in rural areas (Keidel 2007b). The regional income and consumption patterns presented in Tables 3 through 6, and especially the fluctuations in the 1990s, do not match perfectly the cyclical variations shown in Figure 7, but the correspondence is close enough to indicate government policy as one important cause of the increases in divergence observed in the early 1990s as well as the slowing in consumption gains and the rising savings rates in the latter 1990s.

These same government policies in the latter 1990s, pushing up grain supplies and pushing down prices, also arguably affected the pace of rural poverty reduction in interior regions where grain output is important. This paper draft can only offer one illustration to test this hypothesis—income distribution in Hunan Province. Figure 8 shows that by standard poverty line measures—that is China's official poverty line and the World Bank dollar-per-day

Figure 9. Hunan Income Poverty Incidence with Revised* PPP $/day Poverty Line, 1990-2005
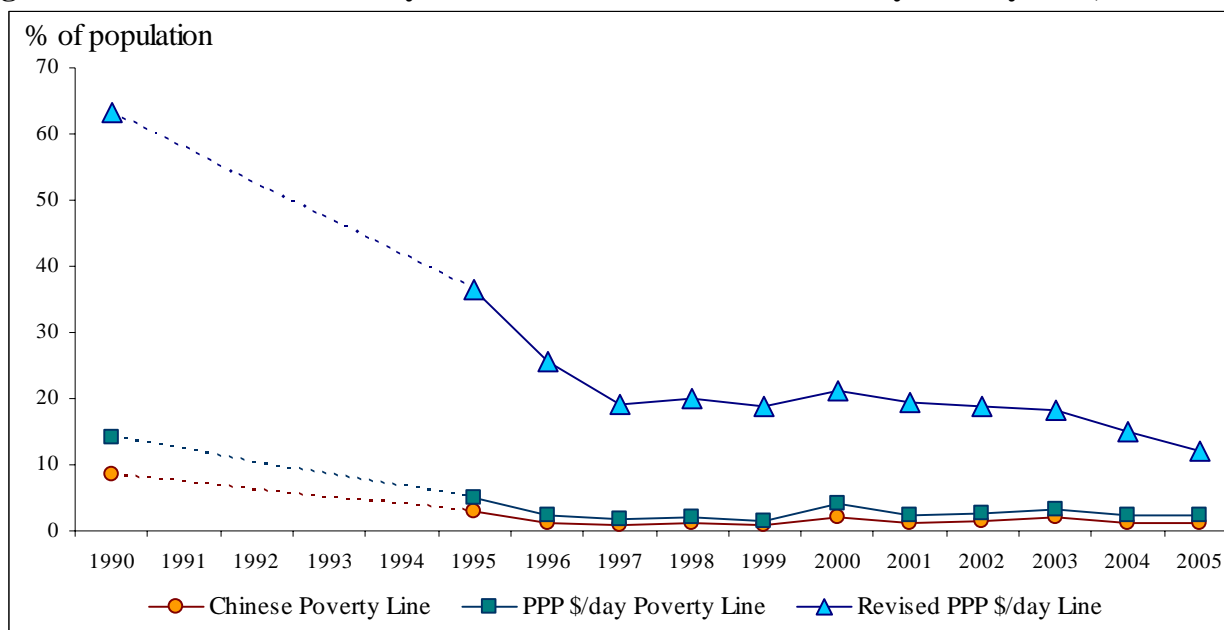
* The World Bank's 2005 ratio of China's PPP conversion factor and its Atlas Method commercial exchange rate is 3.8, but calculations illustrated in this figure use 2.0 as a revised ratio, better reflecting shifts in China's domestic relative prices since the 1990s and late 1980s. The resulting $/day poverty line for 2005 has been deflated with Hunan Province rural CPI. Sources: NBS, Hunan Statistical Yearbook, various issues, World Bank, World Development Indicators 2007, and Dikhanov 1999.

line—applied to income, progress in poverty reduction stopped beginning in 1997 and actually worsened beginning in 2000. The small percentage of the population below these two poverty lines, however, makes it difficult to see if poverty reduction success ever resumed.

Using the revised dollar-per-day line introduced earlier in Table 8 and described in the note to Figure 5, it is clear that poverty reduction in Hunan resumed again in 2003, when grain prices finally completed their recovery (see Figure 9 to view this recovery). But by this measure also, poverty levels remained stable from1997 to 2001, declining only slightly to 2003. These results, summarized in Figure 9, emphasize that assessing inter-regional inequality as differences in the incidence of poverty depends critically on the choice of poverty line. China's traditional poverty line, originally prepared for identifying poor counties in the 1980s, appears to have lost its relevance for poverty-reduction policy making that reflects interregional poverty differences.

Finally, it is also important to note that timely government policy intervention appears to have reversed what looked like serious divergence between the Far West region and the rest of the economy in the early 1990s. Table 4's data on regional income growth shows that income levels on average for the whole Far West region essentially stagnated, averaging 0.6 percent, during 1990-1995. These years provide the single clearest example of income divergence.

Beijing's policy response to this obvious hardship in the Far West was to implement a major "Go West" campaign of public investments for the Far West. The success of the "Go West" program in creating construction jobs and stimulating economic activity is reflected in the recovery of Far West regional income growth in the 1995-2000 subsequent period.

This completes the paper's discussion of the causes and impact of regional inequality in China. Inequality levels and trends over time are arguably signs of a successful economic development strategy. At the same time regional inequalities, like other inequalities, make an important contribution to development success by stimulating voluntary migration to higher productivity and better-paying employment.

Statistical Appendix

Table 9 – Regional Population and GDP Comparisons, 2005

	Population (million)	Total GDP (Bil.US$*)	Per capita GDP ($)	Sector Shares (%)		
				Primary	Secondary	Tertiary
China Total	**1,308**	**2,246**	**1,717**	**12.5**	**47.3**	**40.2**
Far West	**60**	**72**	**1,204**	**16.9**	**44.0**	**39.1**
Xinjiang	20	32	1,582	19.6	44.7	35.7
Tibet	3	3	1,107	19.1	25.3	55.6
Qinghai	5	7	1,221	12.0	48.7	39.3
Gansu	26	24	910	15.9	43.4	40.7
Ningxia	6	7	1,241	11.9	46.4	41.7
N. Hinterland	**160**	**255**	**1,594**	**12.4**	**50.4**	**37.2**
Heilongjiang	38	67	1,761	12.4	53.9	33.7
Jilin	27	44	1,627	17.3	43.6	39.1
Inner Mongolia	24	48	1,993	15.1	45.5	39.4
Shanxi	34	51	1,521	6.3	56.3	37.4
Shaanxi	37	45	1,206	11.9	50.3	37.8
S. Hinterland	**239**	**244**	**1,023**	**19.5**	**40.5**	**40.0**
Greater Sichuan	110	128	1,159	18.6	41.4	40.0
Guizhou	37	24	648	18.6	41.8	39.6
Yunnan	45	42	953	19.3	41.2	39.5
Guangxi	47	50	1,068	22.4	37.1	40.5
Central Core	**318**	**403**	**1,267**	**18.0**	**45.6**	**36.4**
Henan	94	129	1,378	17.9	52.1	30.0
Anhui	61	66	1,072	18.0	41.3	40.7
Jiangxi	43	50	1,149	17.9	47.3	34.8
Hubei	57	80	1,394	16.6	43.1	40.3
Hunan	63	79	1,257	19.6	39.9	40.5
North Coast	**229**	**576**	**2,516**	**9.7**	**50.6**	**39.7**
Liaoning	42	98	2,316	11.0	49.4	39.6
Greater Hebei	94	252	2,677	8.3	45.0	46.7
Shandong	92	226	2,444	10.6	57.4	32.0
East Coast	**142**	**499**	**3,528**	**6.0**	**53.8**	**40.3**
Greater Jiangsu	93	335	3,623	5.6	53.9	40.4
Zhejiang	49	164	3,349	6.6	53.4	40.0
South Coast	**236**	**648**	**2,749**	**8.6**	**49.5**	**41.9**
Fujian	35	80	2,268	12.8	48.7	38.5
Greater Guangdong	100	284	2,833	7.4	49.7	42.9

* US$ figures at 2005 average commercial exchange rate of 8.1917 Yuan/$.
  Source: China National Bureau of Statistics (NBS) 2006 Statistical Yearbook, with calculations

Table 10. "Greater" Provincial Real Rural Household Per-capita Income Levels, 1980-2005

2000 Constant Yuan	1980	1985	1990	1995	2000	2005
China Total	**488**	**943**	**1,306**	**1,700**	**2,253**	**3,556**
Far West	0	748	1,027	1,058	1,514	2,410
Xinjiang	505	935	1,300	1,224	1,618	2,712
Tibet	0	837	1,236	1,293	1,331	2,270
Qinghai	0	814	1,065	1,110	1,491	2,351
Gansu	391	605	820	948	1,429	2,163
Ningxia	455	762	1,100	1,076	1,724	2,741
N. Hinterland	**459**	**846**	**1,228**	**1,405**	**1,867**	**3,062**
Heilongjiang	524	943	1,446	1,903	2,148	3,519
Jilin	603	981	1,529	1,734	2,023	3,566
Inner Mongolia	463	855	1,155	1,302	2,038	3,265
Shanxi	398	850	1,148	1,302	1,906	3,158
Shaanxi	364	700	1,010	1,037	1,444	2,242
S. Hinterland	**447**	**743**	**1,052**	**1,271**	**1,733**	**2,662**
Greater Sichuan	480	747	1,061	1,248	1,901	3,064
Guizhou	412	683	828	1,171	1,374	2,051
Yunnan	383	802	1,029	1,089	1,479	2,231
Guangxi	443	719	1,217	1,558	1,865	2,725
Central Core	**464**	**879**	**1,141**	**1,476**	**2,083**	**3,218**
Henan	410	781	1,003	1,327	1,986	3,136
Anhui	472	876	1,026	1,404	1,935	2,885
Jiangxi	462	895	1,274	1,656	2,135	3,418
Hubei	434	999	1,276	1,628	2,269	3,386
Hunan	561	938	1,264	1,536	2,197	3,406
North Coast	**513**	**1,004**	**1,336**	**1,895**	**2,613**	**4,196**
Liaoning	697	1,110	1,591	1,892	2,356	4,032
Greater Hebei	487	1,005	1,293	1,952	2,655	4,151
Shandong	496	968	1,294	1,848	2,659	4,294
East Coast	**582**	**1,258**	**2,007**	**2,940**	**3,879**	**6,404**
Greater Jiangsu	595	1,237	1,966	2,779	3,681	5,925
Zhejiang	559	1,301	2,091	3,196	4,254	7,276
South Coast	**621**	**1,113**	**1,764**	**2,628**	**3,411**	**4,901**
Fujian	438	940	1,454	2,207	3,231	4,862
Greater Guangdong	700	1,175	1,928	2,809	3,495	4,919

Note: Greater Sichuan combines Sichuan and Chongqing; Greater Hebei combines Hebei, Beijing and Tianjin; Greater Guangdong combines Guangdong and Hainan.

Table 11. "Greater" Provincial Real Rural Household Per-capita Consumption Levels, 1980-2005

2000 Constant Yuan	1980	1985	1990	1995	2000	2005
China Total		**753**	**1,112**	**1,412**	**1,670**	**2,792**
Far West		583	800	1,007	1,174	2,059
Xinjiang	384	689	964	1,014	1,236	2,102
Tibet		639	934	966	1,117	1,883
Qinghai		652	903	985	1,218	2,159
Gansu	323	485	646	986	1,084	1,988
Ningxia	346	629	920	1,146	1,417	2,288
N. Hinterland	**405**	**675**	**1,003**	**1,238**	**1,384**	**2,369**
Heilongjiang	419	727	1,114	1,594	1,540	2,780
Jilin	552	865	1,204	1,610	1,553	2,519
Inner Mongolia	400	691	936	1,272	1,615	2,673
Shanxi	343	647	928	1,000	1,149	2,051
Shaanxi	357	554	908	984	1,251	2,072
S. Hinterland	**381**	**641**	**942**	**1,154**	**1,374**	**2,248**
Greater Sichuan	407	655	969	1,178	1,462	2,453
Guizhou	357	604	767	1,003	1,097	1,696
Yunnan	318	633	924	1,057	1,271	1,955
Guangxi	386	636	1,022	1,296	1,488	2,567
Central Core	**404**	**717**	**1,016**	**1,230**	**1,524**	**2,495**
Henan	346	616	833	1,001	1,316	2,067
Anhui	416	709	980	1,153	1,322	2,399
Jiangxi	398	719	1,098	1,353	1,643	2,713
Hubei	390	794	1,156	1,341	1,556	2,655
Hunan	492	827	1,158	1,473	1,943	3,011
North Coast	**408**	**787**	**1,059**	**1,407**	**1,658**	**2,840**
Liaoning	582	953	1,292	1,586	1,754	3,065
Greater Hebei	394	760	997	1,302	1,512	2,599
Shandong	372	764	1,041	1,442	1,771	2,989
East Coast	**512**	**1,084**	**1,734**	**2,337**	**2,697**	**4,749**
Greater Jiangsu	525	1,065	1,702	2,195	2,415	4,098
Zhejiang	490	1,124	1,800	2,563	3,231	5,936
South Coast	**517**	**897**	**1,576**	**2,211**	**2,485**	**3,763**
Fujian	402	832	1,347	1,933	2,410	3,597
Greater Guangdong	567	920	1,697	2,331	2,520	3,839

Note: Greater Sichuan combines Sichuan and Chongqing; Greater Hebei combines Hebei, Beijing and Tianjin; Greater Guangdong combines Guangdong and Hainan.

Table 12 – "Greater" Provincial Rural Household Savings Rates, 1980-2005

2000 Constant Yuan	1980	1985	1990	1995	2000	2005
China Total		**20.2**	**14.8**	**16.9**	**25.9**	**21.5**
Far West		22.2	22.1	4.8	22.5	14.5
Xinjiang	23.9	26.4	25.9	17.1	23.6	22.5
Tibet		23.6	24.5	25.3	16.1	17.0
Qinghai		19.9	15.2	11.3	18.3	8.2
Gansu	17.4	19.8	21.3	-4.0	24.1	8.1
Ningxia	23.9	17.4	16.3	-6.4	17.8	16.5
N. Hinterland	**11.9**	**20.2**	**18.4**	**11.9**	**25.9**	**22.6**
Heilongjiang	20.1	22.9	22.9	16.2	28.3	21.0
Jilin	8.5	11.9	21.2	7.1	23.2	29.4
Inner Mongolia	13.6	19.2	19.0	2.3	20.8	18.2
Shanxi	13.7	23.9	19.2	23.2	39.7	35.0
Shaanxi	1.9	21.0	10.1	5.1	13.3	7.6
S. Hinterland	**14.8**	**13.7**	**10.5**	**9.2**	**20.7**	**15.5**
Greater Sichuan	15.2	12.3	8.7	5.6	23.1	19.9
Guizhou	13.4	11.5	7.3	14.4	20.2	17.3
Yunnan	17.0	21.1	10.2	3.0	14.1	12.4
Guangxi	13.0	11.5	16.0	16.8	20.2	5.8
Central Core	**12.9**	**18.5**	**11.0**	**16.7**	**26.8**	**22.4**
Henan	15.7	21.2	16.9	24.6	33.7	34.1
Anhui	11.9	19.1	4.5	17.8	31.7	16.8
Jiangxi	13.8	19.7	13.8	18.3	23.1	20.6
Hubei	10.1	20.6	9.4	17.6	31.4	21.6
Hunan	12.2	11.8	8.4	4.1	11.6	11.6
North Coast	**20.5**	**21.7**	**20.7**	**25.7**	**36.5**	**32.3**
Liaoning	16.4	14.2	18.8	16.2	25.6	24.0
Greater Hebei	19.1	24.4	22.9	33.3	43.1	37.4
Shandong	24.9	21.1	19.6	22.0	33.4	30.4
East Coast	**12.1**	**13.8**	**13.6**	**20.5**	**30.5**	**25.8**
Greater Jiangsu	11.9	13.9	13.4	21.0	34.4	30.8
Zhejiang	12.5	13.6	13.9	19.8	24.0	18.4
South Coast	**16.7**	**19.4**	**10.7**	**15.9**	**27.1**	**23.2**
Fujian	8.2	11.6	7.4	12.4	25.4	26.0
Greater Guangdong	19.0	21.7	12.0	17.0	27.9	22.0

Note: Greater Sichuan combines Sichuan and Chongqing; Greater Hebei combines Hebei, Beijing and Tianjin; Greater Guangdong combines Guangdong and Hainan.

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