CHINAGRO PROJECT

WP1.3: Regional Development Pace and Structure

Title: **National and Regional Economic Development Scenarios for China's Food Economy Projections in the Early 21st Century**

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I. Introduction

Remarkable progress has been achieved in the economic performance after China started its reform in the late 1970s. Although there is a cyclical pattern in China's growth rates, China's economy outperformed almost all other countries in Asia. Indeed, China has had one of the fastest growing countries in the world since 1980 (World Bank, 2002). Annual average growth rates of gross domestic product (GDP) reached about 10 percent in the past 2 decades (NSBC, 2002).

The rapid growth has been accompanied by structural changes in the economy among sectors and income disparity among regions, between urban and rural, and among households within the same location. Agricultural share in economy has been declining significantly, while the share of service has risen over time. Regional disparity has been enlarging with the overall economic growth. Eastern China grew faster than Central and Western China. The rural reforms increased rural incomes at a faster pace than urban incomes during the early 1980s, but after the one time impact of the institutional reforms was exhausted, urban income growth has been consistently higher than that of the rural sector. The rising income disparity is indicated by rising Gini coefficients, which increased from 0.24 in 1980 to 0.35 in 2000 and to 0.32 in 2001.

With the transition to a market economy mostly complete, China's main challenge has shifted to one of sustainable development. The main measure of success will be the extent to which the rural economy and Western as well as Central China can become an integral part of the nation's push towards modernization. To successfully modernize, the national and regional economies will have to experience a fundamental transformation—from rural to urban and from agriculture to industry and services. Success, to a large extent, will depend on how domestic policy reforms take place, and to some extent, will also depend on China's external environment in the coming decades.

While economic development has been becoming primary goal of China's future policies, China also concerns its national food security as income remains important determinant of China's food consumption and the balance of agricultural supply and demand. Different assumptions on the income growth could lead China changing from its position from a large food deficit (OECF, 1995) to moderate (World Bank, 1997; IFRPI, 2001) and even only small deficit one (LEI-CCAP, 2003) in the coming decades (Table 1). A reasonable assumption on the domestic economic growth is essential in the projection of China's food economy in the future.

However, projection of economic growth for a long time period is problematical as the uncertainty rises with the time horizon. Without a good understanding of the past and future's economic, social, political, and technological changes, any projection or assumption on GDP growth in the next 10-30 years should be interpreted with cautions.

China is a country with the largest population in the world. Its population was nearly 1.3 billion in 2001 (NSBC, 2002). The nation's territory is vast with diversified climates, landscapes, and stage of development. Income level, employment structure, and the roles in the national economy varied among regions (Table 2). A meaningful projection of China's food economy should capture regional dimensions of food supply, demand and trade.

The overall goal of this paper is to generate a set of plausible assumptions on total and sectoral GDP growths for China and for each region. The income growth scenarios examined in this paper will provide inputs to other components of CHINAPRO project.

Given the difficulty of this kind of exercises, instead of using a model based approach, we formulate national and regional income growth based largely on the past growth trends, previous studies, and our understanding on the current and future development policies and their likely impacts on the national and regional economies. While we try our best to formulate plausible and reasonable economic growth scenarios, the results presented in this paper should also be interpreted with cautions. As the uncertainty increases with the coverage of time, three alternative assumptions of GDP growth will be made, which enable CHINAGRO model to conduct sensitive analyses so that the readers could make their own justifications among alternative scenarios.

The paper is organized as the follows. In the next section, the national GDP growth and the structural changes in the economy in the past 2-3 decades are reviewed. The previous growths of GDP and structural changes at provincial level are presented in Section 3. Major sources of economic growth are also briefly discussed. Section 4 presents economic growth scenarios that take into the considerations of potential driving forces of growth and policies in the coming years. A concluding remark is provided in the final section.

II. National Economic Performance in the Past 3 Decades

2.1 National GDP Growth

In the early reform period, annual growth rates of GDP increased dramatically from 4.9 percent in 1970-78 to 8.8 percent in 1979-84 (Table 3). During this same time period, as economic growth and family planning effectively lowered the nation's population growth rates, the annual growth rate of GDP per capita more than doubled between the pre-reform period (1970-78--3.1 percent) and 1979-84 (7.1 percent). During the early reform period, the growth in the agricultural economy also was remarkable (7.1 percent annually, Table 3), which provided the foundation for the successful transformation of China's reform economy (McMillan and Naughton, 1992; Perkins, 1992).

After reaching its peak growth in 1984 (15 percent), the pattern of rapid economic growth continued into the later reform period in the late 1980s (Figure 1). In fact, growth may have been too fast. In the late 1980s, in response to an overheated economy and unprecedented inflation rates China's leaders were forced to adopt a set of stringent contractionary macro-economic policies (Naughton, 1995). As a consequence, after China experienced two years of high inflation, the economic growth slowed sharply in 1989-1990. The annual growth rate of GDP in 1989-1990 was about 4 percent only, the lowest rate in the entire reform period. After the brief slowdown period, the government responded promptly and implemented a series of policy measures to re-stimulate the economy through the use of fiscal and financial expansions, the devaluation of the exchange rate and the expansion of special economic zones and higher of agricultural prices (World Bank, 1997). The economy quickly rebounded and the annual growth rate of GDP accelerated to 14 percent in 1992 and it maintained the rates of 10 to 13 percent during the years of the mid 1990s (1993-96--Figure 1). When the economy was growing at its top speed during the mid-1990s, inflation rates rose again.

Although the economy was growing fast, inflation was high in the mid 1990s. In order to avoid a repeat of the economic slowdown that occurred in the late 1980s, China's leaders implemented a range of measures aimed at achieving a soft landing (Zhu and Brandt, 2001). As before, financial and credit policies were tightened. Administrative controls over new investments also were implemented. To keep the economy from flagging too much, leaders increased urban wages and invested heavily in agriculture in an attempt to counterbalance the contractionary measures. The growth decelerated gradually, but unlike in the late 1980s, it only slowed marginally. During the late 1990s, economic growth remained high, about 8 percent annually (Table 3 and Figure 1).

It is worth noting that despite the Asian financial crisis, an average annual growth rate of 8.2 percent during the years, 1996-2000, was still remarkable (Table 3). China was able to keep the crisis from spreading into it borders, in part as a consequence of the more insulated nature of its financial sector. In addition, since the size of its domestic capital market was so large, China was better able to weather the international financial crisis. During this time also, the growth rates were among the highest in the world (NSBC, 2002).

Throughout the reform era, foreign trade has been expanding even more rapidly than the GDP. Annual growth rates of foreign trade reached nearly 15 percent in both the 1980s and the early 1990s (Table 3). China's foreign trade growth rate still grew at nearly 10 percent annually between 1996 and 2000 when the Asian and world economies were hit by Asian economic crisis. During 2000 and 2001, the average annual growth rate of foreign trade reached 19 percent. Although the growth rate of agricultural exports declined, so did those of all other Asian countries, the growth was still significant. Most observers believe that the slower growth rates occurred because of depressed world commodity markets and the general slowdown of the world economy (ADB, 2002).

With the rapid growth of China's external sector, foreign trade has been playing increasing role in the national economy since the beginning of the reforms in the late 1970s. China's trade to GDP ratio increased from less than 13 percent in 1980 to 45

percent in 2001 (NSBC, 2002). During the same period, the total value of China's primary goods trade (mainly agriculture) increased from US$16.1 billion to US$72.1 billion, an annual growth rate of 7.4 percent (NSBC, 2002). With China's entry into the WTO in late 2001, the growth of foreign trade is likely to remain high and even accelerate in the coming years.

2.2 The Changes in the Structure of Economy

The rapid growth has been accompanied by sharp structural changes in the economy. Whereas agriculture accounted for more than 30 percent of gross domestic product (GDP) prior to the economic reforms in 1979, by 2000 the share of agriculture had fallen to 16% (Table 4). After a rise of industrial share in the national GDP from 46% in 1970 to nearly 50% in the late 1970s, it started to decline after the early 1980s but regained to about 50% in the late 1990s. In contrast to agriculture, service sector expanded rapidly. The share of service sector in the national GDP increased from 13% in 1970 to 21% in 1980 and 33% in 2000 (Table 4). This trend is expected to continue in the coming years as China will continue to promote its structural adjustment policies and economic reforms in the coming years.

The growth of agricultural production in China since the 1950s, particular since the early 1980s, has been one of the main accomplishments of the country's development, which has provided fundamental base for China's successful transformation of the economy (Nyberg and Rozelle, 1999). Except during the famine years of the late 1950s and early 1960s, the country has enjoyed rates of production growth that have outpaced the rise in population, which resulted in a significant improvement in food availability. Economic reform and technological changes have been key driving forces of China's agricultural growth (Lin, 1991; Huang and Rozelle, 1996).

Structural changes in economy have also been substantial in employment patterns. While the share of employment accounted for by the industrial sector has remained at about 20 to 23 percent over reform period, employment in the service sector had risen rapidly from 13 percent in 1980 to 26 percent in 2000. Employment in the agricultural sector (including part time agricultural labor) fell from 81% in 1970 to 69% in 1980 (Table 4). Employment in agriculture has continued to fall through the reform era and its share in total employment was about 50 percent in 2000. In the late 1990s, more than 40 percent of the rural labor force was employed in the non-agricultural sector (deBrauw et al., 2002). Expanding non-agricultural employment has contributed substantially to the growth of farmer income (Rozelle, 1996). Non-agricultural income exceeded agricultural income in 2000 for the first time and the share rose to 51 percent in 2001 (NSBC, 2002).

In sum, China's economy growth has been substantial. The impressive growth of China's economy in the past has largely come from domestic economic reforms, technological changes and expansion of external economy. Domestic economic reforms and policies (i.e., institutional reforms, public fiscal and financial polices, and polices stimulate the structure changes, investment and technology) have been major sources of growth. Trade liberalization and foreign investment also has played important roles in shaping China's economy in the entire period of reforms. More importance, the strengths of most of these internal and external driving sources of the growth remain and some of them seem accelerated overtime.

III. Regional Economic Performance in the Past 2 Decades

While the national aggregated performance has been extremely successful, regional variations are also substantial. Given the size of a country like China, it is very important to take regional difference into consideration in discussions and analysis of the nation's economy.

3.1 Data Issues

In this section, data used in the analyses come from various sources. The most important data source is the National Statistical Bureau of China (NSBC). Before we proceed to discuss the regional economic performance, it is worth to note that several issues were raised on the data consistency between provincial (sum of provincial data) and national GDP and between total GDP and GDP by sector in real terms within province.

Aggregation from provincial to national data

Our analysis shows that the sum of provincial total GDP data was normally lower than the national GDP before 1995 and a reverse case occurred thereafter (Table 5). On the average, the gap between the above 2 data sets was about 3% in 1980-2000, ranging from –5.4% in 1985 to 11.3% in 2001 (Table 5). The difference has been enlarged since 1998.

So far, as we know, there is no any study in the literature that explains the difference between national and provincial GDPs. Informal discussions with the statistical officials from national statistical bureaus seem hard to reach a consensus result. One possible explanation is the increasingly emphasizing economic growth indicators to evaluate the performance of local officials when previous government taken over their positions in 1998. They set the target of overall economic (GDP) growth for each province. The difference of national and sum of provincial GDP increased from less than 3% in 1997 to 4.3% in 1998 and reached 11.3% in 2001 (Table 5). Over reporting GDP by local government has risen since the late 1990s. Therefore, the estimated growth rates of GDP based on the provincial data should be interpreted with cautions, which is likely overestimate local GDP and should be taken into account when project for future GDP growth by province or region. A few others who we interviewed also claim that China's national GDP might be underreported, but no convincible arguments were provided.

The lower values of GDP summed up from the provincial data (note: both national and provincial GDPs are published in the same volume of yearbooks: China's Statistical Yearbook) than the national figures before 1995 is surprising to us. However, the differences were not large, averaged about -2% only in 1980-1995. Because nearly all are negatives and are within a small range, this disparity should not generate much bias in computing GDP growth rates before 1995.

Careful examination of the differences between national and sum of provincial GDPs shows that the largest disparity occurred in service sector. Table 5 (the last column) shows that the GDP of service sector reported by provinces was 7% less than national

total figures (ranged from –2.4% in 1983 to –11.7% in 1980) in 1980-1984, enlarged to -14% in 1985-1989, and then lowered to about –3% only in 1990-1994. In any case, these differences are substantial and accounted for the major disparities of provincial and national GDPs. After 1995, the service sector's GDP reported by the local governments were far larger than the national figures and the differences have been expanded overtime. By 2001, the sum of service sector's GDP over provinces was more than 28% higher than the national one (last column, Table 5). If one assumes the national GDP figures would be more appropriate, which is likely to be the case, the over reported provincial GDP growth rates for total, agriculture, industry, and service sectors would be 2.1%, 1.2%, 0.8%, and 4.2%, respectively, in 1995-2001.

Aggregation over sectors in real terms

While the sum of GDP by sector is consistent with total GDP in nominal terms in each year for each province, the sum of real GDP by sector (generated from the real GDP growth rate published by both national and provincial statistical bureaus) is not consistent with the real total GDP in many years. On average, the sum of real GDP by sector is generally larger than the real total GDP by about 2% in 1980-2000 (major exceptions are Beijing, Tianjing, Shanghai), ranging from 0% in 1995-2000 to 2-3% in 1980-1994.

Over the entire period of 1980-2000, the largest gaps were found in Anhui (7%), Guangdong (6%), Zhejiang (6%), Jiangsu (4%), Guangxi (4), Fujiang (4%), Hebei (4%), Beijing (–3%) and Shanghai (-3%). Within the province, the biggest gap between the sum of real GDP over sector and total real GDP is found in the early 1980s, the gaps reached as high as 16% in Zhejiang, 12% in Guangdong and 11% in Zhejiang.

Our analyses show that the adding up problem of GDP over sectors in real terms is mainly due to the sector deflators used to generate the real GDP. Both national and provincial statistical bureaus publish only total and sectoral GDPs in nominal terms and the growth rates of total and sectoral GDPs in real terms. Weighted average of sector deflators (not published but can be generated from the difference between nominal and real GDP growths) differ from the aggregate GDP deflator. The nature of these publications (without publishing real GDP and/or real deflators) by CNSB provides a gray area that generates the inconsistency.

In analyzing the historical data, initially we spent great efforts to rectify the above inconsistency. Soon later, we recognized that this is not feasible given the large set of provincial and time series data, lack of knowledge on how data are generated by the provincial and national statistical bureau, and our time constraint. Because we are formulating future growth scenarios, historical data is to provide us the understanding and references for future growth only. Therefore, the efforts to correct for adding up problems were made only for the projection base period (2000 for sectoral GDP shares and 1996-2000 for annual growth rates). The methodologies used to rectify and make a consistent database for projection will be discussed in the later part of this report.

3.2 Regional GDP Growth

Based on regional categories used in CHINAGRO project, we divide our provinces into eight regions. For the convenience of readers, they are listed bellow:

North	:	Beijing, Tianjin, Hebei, Henan, Shandong, and Shanxi;
Northeast	:	Liaoning, Jilin, and Heilongjiang;
East	:	Shanghai, Jiangsu, Zhejiang, and Anhui;
Central	:	Jiangxi, Hubei, and Hunan;
South	:	Fujian, Guangdong, Guangxi, and Hainan;
Southwest	:	Sichuan, Guizhou, and Yunnan;
Northwest	:	Nei Mongol, Shaanxi, Gansu, Ningxia, and Xinjiang;
Qingzang plateau:		Qinhai and Tibet

The discussions here onwards are along the line of the above categorization. Information provided in this section will be used as major background to formulate future economic growth, the later takes into the consideration of the data issues discussed above and future development policies to be discussed in section 4.

Regional GDP Growth

There has been an overall rapid growth in all regions and the patterns of GDP growths are surprisingly similar among the regions (Table 6). On the average, annual growth was about 10 percent in the past 20 years, which relatively higher growth in the first half of both 1980s and 1990s than the second half of 1980s and 1990s in every region.

The fastest growth was recorded in the early 1980s when China started its economic reform. All regions grew at about 11-12 percent annually except for Northeast (9.3 percent, 3rd row, Table 6). A lower growth rate in the second half of 1980s in all regions was mainly due to the low growth in 1988-89 when China's economy was in high inflation (World Bank, 1997). Average annual growth rates ranged from 6.9 percent in Central China to 11.0 percent in South China in 1986-1990. But even the lowest growth in this period was about 7 percent, which is still substantial.

The growths in 1990s in each region repeated the same pattern as they were in 1980s, but the growths in the early 1990s were even higher than those in the early 1980s for nearly every region. In 1991-1995, the highest growth was recorded in South (19.4 percent) and East (17.1 percent, 5th row, Table 6). East region joined South region as the most rapid growth area is explained by the fact that these regions have always been leading the economic reforms in China since the 1980s, particular after 1991. In the late 1990s, week growth in the domestic demand and slowing growth in the global economy affected China's economic performance in each region though annual GDP growth rates were still high, ranging from nearly 9 percent in Southwest and Northeast China to about 11 percent in East China (last row, Table 6).

Sectoral GDP Growth by Region

The pattern of regional sectoral GDP growths followed a similar trend (i.e., cycling patterns) as the total GDP growths in the past 20 years. In every region, each sector recorded higher growths in the first half of 1980s and 1990s than those in the second half of 1980s and 1990s (Table 7).

Variation of regional growths presented in the early reform period (1980-85, Table 7). This variation had increased until the middle 1990s, which caused regional income disparity. However, there seems a tendency of regional growth convergence occurred in every sector since the middle 1990s.

For agricultural sector, the regional growth convergence even started from the middle 1980s. By the second half of 1990s, agricultural GDP in average region grew at a similar rate of about 4-5 percent annually (4th row, Table 7). This may partially be explained by agricultural price and market reforms that China has been implementing since the early 1980s (Sicular, 1997; Huang, 2001), which improved efficiency of resource allocation across regions and facilitate the regional specialization. We expect that the regional convergence of agricultural growth will continue as China further liberalizes its domestic and external markets. Among 8 regions, Central and western region (i.e., Southwest and Northwest) had lower growth rates than South and East regions. China's Western Great Development Plan that was initiated recently is expected to further narrow the gap of growths between South/East and West/North/Central.

The regional growth convergence has been experiencing even more rapid in industry and service sectors than agriculture since the early 1990s (Table 7). In the early 1990s, annual industrial GDP growth in South (29.2 percent), a more opened economy with less state-owned enterprises (SOE) and more foreign direct investment (FDI), was nearly 3 times of Northeast (11.5 percent), a region dominated by SOE. However, the growth rate in South was only 28 percent (12/9.4=1.28, 8th row, Table 7) higher than that in Northeast in 1996-2000. Regional factor market development, particular the emerging regional labor market (Zhang et al, 2002), and SOE reforms may contributed to this growth convergence (citation…).

Regional growth in service sector presents a similar trend as the industrial sector. The growth divergence rose in the 1980s, peaked in the early 1990s, and experienced significantly convergence in recent years. In 1996-2000, the service sector in every region grew at about 10-12 percent annually (the last row), which was 11-17 percent in 1991-1995 (Table 7).

3.3 The Changes in the Structure of Regional Economy

The changes in regional economic structures largely reflect the regional growth patterns presented above and also have been closely related to the overall economic development in each region. The faster economic growth, the more rapid the structure changes. The more developed, the less agricultural GDP shares and the more industrial GDP shares. For example, agricultural GDP share was as high as 38 percent in 1980 in South China, one of the fast growth regions in China. It reduced to 15 percent only in 2000, more than 60 percent decline (Table 8). The low growth of economy in Northwest China is associated with less structure changes in the region. The share of agricultural GDP declined by only 9 percent (from 29 to 20 percents) in entire 20 years (Table 8). In East, China's richest region (except for Anhui in the region), agricultural GDP accounted for 13 percent only in 2000. Agricultural GDP shares were as low as 1.6 percent, 8.9 percent and 10.5 percent in Shanghai, Zhejiang

and Jiangsu, respectively, against the national average of 15.4 percent in 2002 (CNSB, 2003).

The industrial sector has been dominating the economy in most time periods for all regions, but its shares in the economy show a more stable than agriculture and service sectors except for Northeast and South regions. In 1980, industry accounted for 62 percent of total GDP (the highest share in China.) in Northeast region, a region with high concentration of heavy-industry and SOEs. Therefore a significant reduction of its industrial share in Northeast is expected as the reform proceeded.

It is also important to note that there is a converging trend among regions in term of the shares of different sectors. Regional variation in the composition of GDP was large in the early 1980s but narrowed towards end of 1990s (Table 8). For example, in 1980, the GDP share of agricultural sector ranged from 22 percent in Northeast region to 42 percent in Southwest region with a difference of 20 percent (1st row, Table 8). The same was true for the industrial sector as the GDP share ranges from 38 percent in Southwest region to 62 percent and left a difference of 24 percent (6th row, Table 8). However, such differences started to narrow done over time. For example, the shares of agricultural GDP ranged from 11 percent to 23 percent with a difference of 11 percent in 2000 (Table 8). The industrial sector shares ranged from 42 percent to 51 percent with a difference of 9 percent only.

3.4 Per Capita GDP Growth

The annual growth rate of per capita GDP has maintained more than 8.5 percent at national level since the early 1980s (Table 9). Among all regions, South region again experienced fastest per capita GDP growth in the past 20 years. Growth patterns in all regions are similar to those we discussed for the total GDP growths. This is simply because the trends of population growth, which have been declining over time, has been similar across regions.

When we breakdown the per capita GDP annual growth rate by different time period, Table 9 shows that the fastest growth appeared in the early 1990s in all regions except Northwest and Qingzang Plateau regions where the fastest growth periods appeared in the early 1980s (Table 9). The lowest per capita GDP annual growth rates was in late 1980s for most of the regions except for South region where the lowest per capita GDP annual growth rate appeared in late 1990s.

As we discussed in the total GDP growth, the growths in per capita GDP vary among regions. But Table 9 shows that per capita GDP growth also has experienced a convergence trends since the middle 1990s. For example, the ratio of highest to lowest annual growth rates was 1.3 in 1996-2000 (10.2/7.7, 4th column, Table 9), while it was as high as 2.4 in 1991-95 (16.1/6.8, 3rd column, Table 9). We believe that the increasing income disparity shown by rising national Gini coefficients is mainly due to the enlargement of income disparity among the households within the same region. Regional income disparity may indeed have been reduced since the middle 1990s.

The sectoral disaggregated per capita GDP growth trend has shown more variations than per capita total GDG growth. Table 9 present per capita GDP by sector and by

region over time. Most of the periodical sector per capita GDP growth trends mirrored the total GDP growth trend.

IV. Method and Assumptions

4.1 Method and Procedure

4.1.1 General Framework

Projection of regional economic growth is intricate as there is no any model that is available to conduct this kind of analysis in China. The difficulty also rises with less information on future regional migration that may response to the economic growth and regional development policies. In this study, we take the following 4 steps to formulate our regional and national GDP growth scenarios.

Step 1: formulation of alternative per capita GDP growth scenarios

As the formulation of per capita GDP growths is highly subjected to the authors' perception on future China's policies, we formulate three alternative scenarios on per capita GDP growth: baseline scenario, low growth and high growth scenarios. Details of these scenarios will be discussed in the next sub-section.

Step 2: projection of the changes in structure of GDP

To project the sectoral shares of GDP in the future, several function forms have been estimated to explain how the sectoral shares of GDP are associated with the per capita GDP. Among various models we tried, none of them can explain well the relationship between industrial GDP shares and per capita GDP. This should not come to surprising as the shares of industrial GDP have been nearly constant or declined/increase only marginal over time for every region (Table 8).

In the previous projection studies, most of them assume either a constant or nearly constant industrial GDP share (i.e., World Bank, 1997; IFPRI, 2000) or a very slight declining (a decline of about 1.5 percent for every 10 years, Li, 2001) in the next 20-30 years. In this study, we follow Li's study and assume that industrial GDP shares will decline by 1.5 percent for every 10 years from 2001-2030.

For agricultural GDP share, the following inverse function performs better than the competing models (i.e., log-inverse-log, quadratic forms, exponential model, etc.):

$$W_{it} = a + b\,(P_{it})^{(-c)} + d_i\,D_i$$

where W_{it} is the share of agricultural GDP in i^{th} province in year t; P is per capita GDP; D is a vector of provincial dummies; a, b, c and d are parameters to be estimated. Because the above model is non-linear, the model hardly converges in any region. Prior information and expert judgments on parameter c are required. These are made through imposing the following restrictions in the regression: c values should be positive, higher R^2 fit values for the historical data (1980-2000), none negative of W in the projection period, W is non-increasing function of P, and the order of agricultural GDP shares among regions will keep similar in each period in 2001-2030

though all they will decline overtime.

The regression is run for each region based on the provincial cross-section and time-series (1980-2000) data. Fewer observations and poor quality data in Qingzhang region exclude us to run a separate regression for this region. Instead, we use the parameters of b and c from Northwest region for Qingzhang region.

Step 3: projection of total GDP growth

Per capita GDP is estimated for each region based on the growth rates formulated in step 1. Multiply the regional per capita GDP by the projected population of the same region, total GDP and its growth rates are estimated. Sectoral GDP growth rates can be generated with total GDP growth and the shares of GDP among sectors. The assumptions on population growth in 2001-2030 are directly from the results of the baseline (or Central) scenario projection reported in WP1.8, which is published as IIASA's Interim Report IR-03-042 (Toth, Cao and Hizsnyik, 2003).

Step 4: feedback from the relevant experts

After a preliminary result of the regional development pace (growth and structure of GDP), a brainstorming seminar was held at CCAP to receive the comments on the results. Most comments are related to the numbers that we use to parameterize the three scenarios, which will be further discussed in the following sections. Comments are also made on c-values selected for the estimation of agricultural GDP shares. Various values of c were analyzed to see how the results are sensitive to a range of c-values. The results of sensitive analyses show that a c-value of 0.5 for all regions satisfies all prior information and expert experience (or judgments) except for East and Central regions. We assigned 0.75 of c-value (a value satisfies better the prior information and expert judgments than 0.5) for East and Central regions.

4.1.2 Data Adjustments

As we discussed in the previous section, the GDP growth rates based on the summation of provincial (or regional) figures, r_{GDP1}, differ from the GDP growth rates based on the national GDP data, r_{GDP2}. The former was larger than the later in the late 1990s. As we assume that the GDP_2 based on the national data is more plausible (see previous section), regional GDP growth rates, r_{GDP1} is adjusted according to the following method: multiple the original regional growth rate, r_{GDP1}, by a ratio of r_{GDP2} to r_{GDP1} in each region in 1996-2000 to "recovery" the more reliable growth rates of GDP in the base period of projection.

We apply the same procedure to adjust the sectoral shares of GDP in the base year (2000) before we project them into 2001-2030. That is, in the base year, the sectoral shares of GDP at the national level equal to their shares that are generated from the provincial and regional data.

4.2 Development of Growth Scenarios

In the Eleventh Five Year Plan (2001-2005) and the strategy for long-term economic development, China set its ambitious goals to move the nation to a "welfare society"

(*Xaiokun Shehui*) in the next 20 years: double GDP in each 10 years; a smooth transformation of the economy from transition to development, from rural to urban, and from agriculture to industry and services; sustainable management of the environment; and other social and political targets (Jiang Zemin, 2002).

In order to achieve the above goals, Jiang's report called for methods to facilitate national industrialization process, to stimulate the development of new technologies, education and urbanization, to make primary progress in controlling deterioration of ecosystem, and to move the nation to a more market oriented and more open economy.

Recent performance of China's economy seems China is on its track toward its long-term goals. For example, GDP grew 8.5 percent in 2002 and is expected to reach 8.7 percent in 2003 (a note from CNSB). Ma forecasted that China's GDP growth will reach 8.4 percent in 2004 (Ma, 2003) and there is no clear sign of slowdown the economic growth in the coming years. All these implies that the average annual growth rates of China's GDP in 2001-2005 will keep about the same rate (8.2 percent) of that in 1996-2000. A careful examination of GDP growth in each province in the past 3 years (2001-2003) shows that nearly all provinces remained the same growth rates as those in 1996-2000 (CNSB). Therefore, in our projection we assume the growth rates in 2001-2005 will be the same as those in 1996-2000 for each region.

High growth is also likely to continue in the coming decade though the growth rates might be reduced gradually over time. After new national leaders, stronger reformists, taken their positions in the government in the early 2003, several initiatives have been undertaken to boost China's economy, particular the policies related to strong implementation of macroeconomic stabilization, deepening market reforms, further liberalizing its economy, and emphasizing the sustainable growth through increasing investment in R&D, education, health, infrastructure, and resource and environmental protections.

The following factors will, we believe, be key driving forces underpinning China's national and regional economic growth in the future:

a). Macroeconomic stabilization will be strengthened as this is one of primary objectives of new national leaders. The leaders consider that macroeconomic stability is one of pre-conditions to generate long-term growth as it will provide favorable environment for both domestic and foreign investment. A stabilized macroeconomic environment will also help the government to better foster development of the infrastructure and institutions necessary to sustainable growth. The stability system has been well tested in 2003 when China was seriously attached by the SARS and the economy is forecasted to grow at 8.7 percent in 2003.

b) High domestic saving rate will remain and China will keep as one of the most attracted countries for foreign direct investment (FDI) in China's post-WTO era. DRC projects that the current rate of investment (more than 30 percent) in the coming 10 years will be remained (DRC, 2002). These high investment rates indeed also had been experienced for a long time period in several Eastern countries or region such as Japan, South Korea and China's Taiwan. High domestic saving rates, stable

macroeconomic environment, and huge markets are fundamental bases for the high investment in China's current as well as future's economy.

c) Abundant and cheaper rural surplus labor will accelerate growth of labor-intensive industry and service sectors. China will continue to provide cheaper industrial products to the consumers in both China and the rest of world. Export of labor-intensive products will be expanded.

d) The development strategy of "Booming China through Science and Education" (*Ke Jiao Xing Guo*) will be further emphasized. The R&D programs has been and will be strengthened as the government investment in R&D programs are planned to rise more than the average growth of government fiscal revenue (the State Council, 2002). The growth in the public investment in the professional educations (i.e., colleges and universities) has been increased substantially since the late 1990s (NSBC, various issues). We expect that the total factor productivity increase contributed by technology changes in the future will grow more than its growth in the past.

e) In additional to *Ke Jiao Xing Guo* development strategy, the national leaders decreed a new development strategy, *Yi Ren Wei Ben* (or people-oriented development) in 2003. The new strategy emphasizes the overall human development (not only professional education). For example, rural primary education will become one of top priorities in public investment, which has been largely ignored in the past two decades (the State Council, 2003). In order to implement this new development strategy, an ambitious program has been proposed to reduce or eventually eliminate primary school education fees in the western China and other less developed regions. Other programs that aimed to improve the primary, secondary and professional educations are under considerations. The improvement in the human capital for all people, particular the new generations, will be the other and maybe the most important engine of China economic growth in the next 10-30 years.

f) Emerging markets and evolving institutions in China's economy show that China is preparing for growth in the first half of the 21st century. As China enters the 21st century, the rural economy is evolving to a point that it is ready to help China make the next step in its modernization push (Zhang et al., 2003). Markets for labor, agricultural commodities, many inputs for farmers and rural industrial managers have flourished in recent years and are increasingly competitive and rational (Rozelle et al., 1999). As the government moves out of the direct provision of goods and services, however, it does not mean that they are not needed. Rather, the government is planning to thoroughly reform its administrative system and shift its role in the economy development. The government has decided to shift its role to be redirected at providing public goods, overcoming market failure, and providing services that the private sector will not, but which will serve to further the transformation of China in the coming years (the State Council, 2003).

g) Urbanization and newly initiated rural small-town development programs will facilitate China's economic structure changes, create the employment for the rural labors, increase farmers' income, and promote the rural demand for the industrial commodities and service.

h) China's gains from economic globalization and trade liberalization will further

boost China's economic growth. Expanding labor-intensive industries, fostered also by new export opportunities, can contribute to China's development strategy that includes labor absorption into industries outside primary agriculture. Merchandise trade in the future will grow much more than those in the past (Ianchovichina et al. 2003). Moreover, the static impacts (i.e., merchandise trade), are probably just only small part of China's gains from trade liberalization, the dynamic effects such as capital accumulation and technology spillovers will be more substantial (van Tongeren et al., 2003).

i) China will remain major recipient of FDI in the coming decades. China attracted substantial FDI in the last decades. In 2002 it became the most important recipient of FDI in the world. In the past 2 decades, FDI has been pouring into the coastal regions. Recently, China's regional development plan and its increasingly investment in infrastructure in the less developed regions has started to have impacts on the direction of FDI in China. Zhang and Post (2003) show that there is increasing FDI towards the western part of China to exploit its rich resources and stimulate domestic demand. Given the size of the market and the perception of strong economic growth in the future, China is very likely to remain one of the most favored investment destinations in the world.

j) In order to pursue overall development of the country, the Central government has initiated several regional development programs, particular the Great Western Development Plan (GWDP) and new National Poverty Alleviation Program, to redirect the resources toward less developed regions (the State Council, 2003). According to the nation's development plan, in the first 10 years of this century, the major investment under GWDP is in infrastructure, ecosystem and environmental conservation, and human resource development (Du, 2003). We expect that implementation of the regional balance development strategy will help the less developed regions to catch up the national growth path and help China reduce income disparity among regions.

k). Many local governments in the less developed regions have also adopted policies to improve macroeconomic stability and foster development of the infrastructure and institutions necessary to generate local economic growth. A number of provinces in western China have shown improved economic prospects that should continue into the future, through the attraction of large inflows of both domestic and foreign investments. The growth convergence presented in the previous section since the middle 1990s is an indicator of the new policies that have and will come to be in effective in the future. If this trend continues, the future regional growth is likely to gradually converge over time.

While we expect that high growth will remain in China for the next 30 years, there are also a number of other factors that may reduce China's economic growth over time. These include:

a). The growth in labor supply will slowdown over time as the growth of population decline and the age structure of population changes (Toth, Cao and Hizsnyik, 2003);

b). The aged population will increase faster, which will lead to a rise in dependence ratio of the whole nation as well as in each region;

c). As the dependence ratio rises, national saving propensity will gradually decline which will have impacts on the growth of domestic investment; and

d). After 10-15 years, China will basically finish major tasks of its economic reforms that were initiated in the late 1970s. The gain from the further economic reform will be week.

Based on the above discussions, we assume that China can achieve its goals set for the next 20-30 years. Economy growth will remain high with a slightly declining trend after 2005. The growth will become more balance among regions and the regional growth rates will gradually converge over time. Depending on the extent of China's ability to manage its economy, three growth scenarios are formulated: baseline scenario, low and high growth scenario.

Baseline scenario. The baseline scenario assumes that China will continue to press ahead with its economic reform, have a moderate and reasonable growth in the investment in education, R&D and infrastructure, pursue regional balanced development strategy, and have a quite favourable external environment. Measured in per capita GDP growth, the baseline scenario assumes that for those regions with less developed or relative slower growth in the past, the average annual per capita GDP growth rates in each 5-years period will be 92.5 percent of those in the previous period (note: a number of 100 percent indicates the same growth in each period). These include Qingzhang, Northeast, Northwest, and Southwest regions. While 90 percent figure is assumed for East, South, Central and North regions.

Low growth scenario. The scenario assumes that while China will continue to press ahead with its economic reform, the reform may encounter certain difficult in some sectors (i.e., SOE and financial reforms). To some extend China might run into financial stress that will limit its productivity enhanced investment and its goal to achieve the regional balanced development, which implies the reduction in the economy growth compared to the baseline in the less developed regions will be more than those in the more developed regions. It is also assumed that China will face less favorable external environment than those assumed under the baseline scenario. Measured in per capita GDP growth, the low growth scenario assumes that for those regions with less developed or relative slower growth in the past (Qingzhang, Northeast, Northwest, and Southwest regions), the average annual per capita GDP growth rates in each 5-years period will be 84 percent (92.5-6.0) of those in the previous period. While a number of 86 percent (90-4) is assumed for East, South, Central and North regions.

High growth scenario. China will have much better domestic and external development environments. A remarkably successful reform will substantially improve China's domestic development environment, which will facilitate the private investment and also advance China's ability to increase its public investment in education, R&D and infrastructure and better pursue its regional balanced development strategy. Meantime, China will have more favorable external environment as those we assume under the baseline. Under this scenario, the factors which we used to slowdown the average 5-year annual per capita growth rates are 98.5 percent for Qingzhang, Northeast, Northwest, and Southwest regions, and 94

percent for East, South, Central and North regions.

V. Projection Results

5.1 Per Capita GDP Growth

Under the assumptions made in the previous section, the results of baseline projection on annual per capita GDP growth rate for each region is presented in Table 10. The baseline projection assumes that the average annual per capita GDP growth rates in 2001-2005 will remain the same as those in 1996-2000 for all regions, and then will decline gradually after 2005. The extent of decline in per capita GDP growth rates differs among regions. This reflects the impacts of China's regional development policies, which will result in more public investment in infrastructure, education and others in the less developed areas such as Southwest, Northwest, and Qingzang regions.

The growth rates presented in Table 10 mirror the above assumptions. In less developed regions (i.e., Southwest, Northwest, and Qingzang), annual growth rates of per capita GDP will decline from about 6.2 percent in 2001-2005 to 5.3 percent in 2011-2015 and about 4.2 percent in 2026-2030. In more developed areas such as South, East and North regions and those regions in between the developed and less developed regions (i.e., Central and Northeast), per capita GDP growth has been high and will remain high in 2001-2005, ranging from 6.4 percent in Northeast, 7.0 percent in South, and 7.5-7.6 percent in Central and North west, to 8.1 percent in East. But their growth rates will decline more than those in the less developed regions over time. For example, the ratio of highest (8.1 percent in East) to lowest growth rate (6.1 percent in Qingzang) in 2001-2005 was about 1.33 (8.1/6.1=1.33, the 3rd column of Table 10). This ratio will be reduced to 1.23 in 2016-2020 and 1.17 in 2026-2030 (computed based on the figures in Table 10). In 2026-2030, per capita GDP in all regions will grow at about 4.1-4.8 percent annually.

At national level annual per capita GDP growth, which is the population weighted average of regional per capita GDP growths, will be 7.2 percent in 2001-2005. The growth rates will remain at 5.5-6.0 percent in 2010s and 4.5-5.5 percent in 2020 under the baseline assumptions (1st row, Table 10). These growth rates imply that China's per capita GDP will rise from 7084 yuan (US$ 864 at official exchange rate, or US$ 4135 at purchasing power parity, PPP) in 2000 to 38,104 yuan (in 2000 price) in 2030, an increase of 538 percent (1st row, Appendix Table 1). If we use current PPP as exchange rate, the per capita GDP will reach US$ 8015, US$ 14,017, and US$ 22,242 in 2010, 2020 and 2030, respectively. This means that China's per capita income (GDP) in 2010 will more than the average per capita income of current the middle-income countries (US$ 5710 of per capita Gross National Income, GNI, at PPP exchange rate in 2000, World Bank, 2003) and nearly reach current the upper group of the middle-income countries (US$ 8730 of per capita GNI). By 2020, China's per capita income will be in between the current incomes of the middle- and high-income countries. And by 2030, China's per capita GDP will approach the average of current high-income countries (US$ 27,680 of per capita GNI, World Bank, 2003).

However, if China would not be able to successfully implement its economic reform

plans and the progress to improve its internal and external development environments would be less than those embodied in the baseline, under low growth scenario China's per capita GDP would grew at about 0.3 percent (2006-2010) to 0.9 percent (2026-2030) less than the growths in the baseline in the same periods (compare the 1st row of Tables 10 and 11). Annual per capita GDP growth rate will decline from 7.2 percent in 2001-2005 to less than 5 percent after the middle 2010s and was only about 3.6 percent in the late 2020s (1st row, Table 11). A similar trend will occur in all regions, but the reduction of growth (compared to the baseline) in the less developed region would be more than the more developed regions.

While the low growth scenario has lower growth rates of per capita GDP, the rise in income in the future is still substantial. Under the low growth scenario, per capita GDP in 2030 will be 32,543 yuan at 2000 price, which is about 15 percent lower than that under baseline scenario in the same year, but its is still about 460 percent higher than that in 2000 (Appendix Table A).

On the other hand, if China would be able to better implement its future economic reform and create even more favourable internal and external development environments than those assumed under the baseline, the high growth rate scenario generates about 0.6-0.8 percent higher annual growth rate than the baseline in 2010s and about 1-1.2 percent higher than the baseline in 2020s for every region (Tables 10 and 11). As embodied in our assumption, a more growth convergent trend will be presented under the high growth scenarios than the baseline. By 2026-2039, nearly all regions will grow at about 5-6 percent annually (last column, Table 11).

Under the high growth scenario, China's per capita GDP in 2030 (45,989 yuan, Appendix Table A; or US$ 26,845 at PPP exchange rate) will be 6.5 times as that in 2000 and about the same level of the average income of the high-income group in 2000.

5.2 Total GDP Growth

To forecast total GDP in the future, we require external information on future population growth. In this study, we adopt a recent population projection conducted by IIASA (Toth et al., 2003). Toth et al forecast several population growth scenarios for China in 2001-2030. One of their scenarios, Central Line scenario, has been adopted in our study.

According to Toth et al study, the population growth rates will continue to decline in all regions over the projection period. But the absolute number of population will start to decline in different time for different regions. For example, the total population growth will approach zero and then start to decline in the middle 2010s in Northeast China, the early 2020s in Central and Southwest regions, and in East in the late 2020s (Table 12). For North, South, Northwest and Qingzang regions, the population will continue to keep grow in the entire projection period. But their growth rates will reduce significantly over time. For China as a whole, annual population growth rate will be as low as 0.14 percent in 2026-2030 (1st row, Table 12). As Toth et al show that major factor underpinning the variation of population growth is the regional migration that has been emerging since the late 1980s (Zhang et al., 2003).

Given the population projection (central line scenario) provided by Toth wt al. (2003) and per capita GDP growth rates estimated in the previous section, total GDP growth rates can be computed. The projected annual total GDP growth rates for each region and the nation as a whole under baseline are presented in Table 13, and the corresponding results for low and high growth scenarios are presented in Table 14.

Under the baseline scenario, China's GDP will grow at 8.1 percent in 2001-2005, the same growth rates in the previous 5 years (Table 13). But the annual growth rates will decline by about 0.7-0.8 percent in 2010s and 0.6-0.7 percent in 2020s. While per capita GDP growth rates will significantly converge by the end of projection period (Table 10), the degree of convergence in the regional total GDP growth is not as much as that in regional per capita GDP growth. This is expected as the growths of population vary significantly among regions due to regional migration.

The baseline projection implies that on the average, China will grow at an average of 6.3 percent annually in the next 30 years, which was about 10 percent in the past 20 years. The growth will decline from more than 8 percent in 2001-2005 to about 6.2 percent in the 2010s and 4.9 percent in 2020s (Table 13). By 2020, China's economy will be 3.87 times as large as that in 2000, which also implies that the nation's goal to double its economy in 2000-2020 will be nearly achieved. By 2030, the national GDP will reach more than 55,800 billion yuan (in 2000 prices). China’s economy will become more than 6 times (6.24 times) “bigger” than it was in 2000 (8,947 billion yuan). China's economy will be likely to rank as the second in the world, just behind the US (DC, 2002; Li, 2001).

The high growth scenario generates more substantial growth. With annual growth rates of 7.3-8.1 percent in 2000s and 5.9-6.6 percent in 2010s (Table 14), China GDP will more than double in the first 20 years. By 2020, total GDP will reach 37,470 billion yuan (in 2000 price), which is about 4.2 times of its GDP in 2000. If the growth will be continue as the rates estimated under high growth scenario in 2020s (1st row, Table 14), the total GDP will reach 67,415 billion yuan in 2030 (or 7.54 times of the GDP in 2000).

However, under low growth scenario, China's goal to double its GDP in the next 20 years will not be met. The annual growth rates will decline from current 8.1 percent to less than 6 percent in 2010s and about 4 percent in 2020s (Table 14). But even under low growth scenario, total GDP in 2020 will still be about 3.6 times higher than that in 2000 and by 2030 China's GDP will expand to more than 5 time (5.36) than the base year, 2000.

Table 15 compares our GDP growth projections with previous studies. The annual growth rates of our baseline projection are very closely to the forecasts by RDC (2002). A slight higher GDP growth rates in our baseline than those of DRC’s projection in the first 10 years are explained by the fact that we incorporated the actual GDP growth rates in the most recent 3 years (8.2 percent in 2001-2003) and forecasted 8.7 percent growth of GDP in 2004, which lead us to assume an average of 8.2 percent GDP growth in 2001-2005. Our baseline projections on GDP growths are slight lower than those forecasted by Li (2001). Li assumes that the strong growth (more than 8 percent annually) will continue in the next 10 years and then the

growth rates start to decline slowly after 2011 (Table 15). On the average, Li's forecasts of annual GDP growth rates in 2001-2030 are about 0.2 percent higher than our baseline projection and 0.2 percent lower than our high growth scenario.

Earlier studies by World Bank (1997) and IFPRI (2001) with 1995 as base year and projected to 2020 seem underestimate China's GDP growth. In both above two studies, they forecast an average of 6 percent GDP annual growth in 1996-2020. Because China already achieved 8.2 percent annual GDP growth in 1996-2000 after they the projection and is very likely to achieve the same growth rates in 2001-2005, if 6 percent of annual GDP growth is assumed for the average growth of the entire period of 1996-2020, this implies China's annual GDP growth will be as low as 4.5 percent in 2005-2020. Given the strong growth in 2001-2005 and the future policies discussed in the previous sections, most observers are not expecting that China's economy would grow at a rate lower than 5-7 percent in the coming 5-10 years. Personal communications with World Bank confirm that the Bank's new forecast for China will take into the consideration of the most recent GDP growths (from 1996-2003) in China.

5.3 Changing the Structure of Economy

Agricultural GDP shares have been estimated with an aid of the econometric model that explains the relationship between agricultural GDP shares and per capita GDP. The results of econometrical estimation are presented in Table 16. In all regions, the fitness (R^2) of the model to the historical data (1980-2000) is high. High t-value shows that the changes in per capita GDP are strong associated with the changes in agricultural GDP shares. Based on the parameters estimated in Table 16 and per capita GDP projected in the previous section, the future agricultural GDP shares are simulated. With the assumptions of industrial GDP shares discussed earlier, all sectoral GDP shares under baseline are estimated and reported in Table 17 and Figures 2 and 3 for the nation as whole and for each region in 2001-2030. To have a better understanding of simulation results, we also present the actual and predicted agricultural GDP shares in the past 15 years (1985-2000) in Figures 2 and 3.

Panel A of Figure 2 and Table 17 (1st row) shows that China's agricultural GDP shares will continue to decline as economy grows. The relationship between agricultural GDP shares and per capita GDP is clearly shown in Panel-B of Figure 2. For the same amount increase in per capita GDP, the reduction of agricultural GDP shares at the lower income stage is much larger than that in the higher income level. Agricultural GDP shares decline sharply before per capita GDP reach 10,000 yuan (in 2000 price). Agricultural GDP shares continue to decline but the change will slowdown significantly after the income level higher than 10,000 (Panel B, Figure 2). China's per capita GDP was 7084 yuan in 2000, therefore we expect that the significant decline in agricultural GDP shares will occur in the early years of our projection period and then stabilize with a small decline in the later years of projection period. These trends are also clearly shown in Figures 2 and 3.

For China as a whole and under the baseline scenario, our estimation shows that agricultural GDP shares will decline from 16 percent in 2000 to 13 percent in 2005 and 11 percent in 2010 (1st row, Table 17). By the early 2010s when China's income reaches the level of current middle-income countries, China's agricultural GDP shares

will also be the similar to the agricultural GDP shares of these middle-income countries (10 percent in 2000, World Bank, 2003). After 2015, the decline of agricultural GDP shares will be gradually decelerated and stabilized at about 6-7 percent in the late 2020s (1st row, Table 7).

The regional declining trends of agricultural GDP shares are similar to the national one, the decelerated rates depend on the regional per capita GDP in the base year. The lower income, the faster decline in agricultural GDP shares over time. We project that agricultural GDP shares will remain 10-12 percent in all current less developed regions (i.e., Southwest, Northwest, Qingzang, and Central regions, Table 17), while in the more developed regions such as East and South their agricultural GDP shares will be about or bellow 5 percent in 2030.

The GDP shares of service sector will rise constantly over time because both agricultural and industrial GDP shares decline with income growth. Declining industrial GDP shares are assumed exogenously and are not simulated by the model. Over the next 30 years, we assume industrial GDP shares will decline by 4.5 percent. Baseline projection shows that the service sectoral GDP shares will surpass that of industry in the middle 2020s. Future driving forces of service sector will come from the emerging demand fro information service, financial insurance, real estate, education, and technologies. By 2030, nearly half of China's GDP sector will come from service sector.

Changes in income growth assumptions will have impacts on the structure of the economy as predicted by the regression results in Table 16. Because the difference of GDP growth rates among low, baseline and high growth scenarios are not substantial, while there are impacts of the income growth on agricultural GDP shares, the impacts are not expected to be large, less than 1 percent between each pair of alternative scenarios (the results are not reported).

VI. Concluding Remarks

Two and half decades of economic reform in China have achieved remarkable economic growth. During the 1980s and 1990s, China has become one of the fastest growing economy in the world. GDP grew at about 10 percent annually in the past 20 years. Over the course of the reform period, both rural and urban incomes in every region have raised noticeably though income disparity rise with the overall economic growth.

The economic reform, stable domestic situation (economic, social and political stability), and favorable external environment all have contributed to China's rapid economy growth in the past 25 years. The rapid growth has been realized through high growth of capital investment, abundant and cheaper labor supply, and technological changes (or total factor productivity increase). High growth of investment has been possible because China has high domestic saving rates and there has been mass inflow of FDI. These are the direct results and consequences of the economic reforms that improve the efficiency of the economy, and stable internal and favorable external environments that provide better perspectives of China's economic growth and market expansion. The successful growth in agricultural sector facilitates the economic transition from agriculture to industry/service, and from rural to urban

economy. The growth in agricultural productivity enables China to release the mass abundant rural labor, provides cheaper labor or low wage for the nation to industrialize its economy. The high growth of economy in the past 25 years is also not possible without the significant changes in the productivity of industrial and service sectors and the structural changes in the economy.

The structural change has been remarkable in the past. Agricultural GDP share has been declining from 30 percent in 1980 to only 15 percent recently. This change occurred in every province and region in a similar pattern (a strong linkage between per capita GDP and the share of GDP) in the same time. This change is expected to continue in the coming decades.

On the other hand, the growth disparity among regions had been presented in the 1980s and enlarged in the early 1990s. This has been largely due to the initial economic development environment, regional resource endowment, and the reform policies that have been in favor of the coastal regions (i.e., the tax exempt policy for FDI in the "economic open zone" which are all located in the coastal provinces).

The rising regional disparity has addressed great attention by the top leaders in the 1990s. Several regional development and poverty alleviation programs have been initiated, which seem having impacts on the regional growth. Our study shows that the regional growth convergence started in the middle 1990s. The gap between the developed and less developed regions reduced significantly from 1991-95 to 1996-2000. The recent 3 years (2001-2003) trends also indicate that the regional growth convergence continued in the first few years of the 21st century. As China is moving from growth to development stage, the regional growth pattern is expected change in favor of the less developed regions.

Review of China's current policies and future development strategies show that there are several favorable conditions for China's economy growth. Among various factors, the social and economic stability, the government commitments to reform its economy, high domestic saving rates, growing and abundant rural labor force, national development strategies to boost its economy primarily through science, technology and education, massive development of rural and urban infrastructure, favorable external environment, rapid growth of trade and continuing inflow of FDI and foreign technology, all these will provide fundamental bases for China to continue to maintain high growth rates throughout the projection period.

While there are also a number of growth related issues that China will face such as declining growth rates of labor force, increasing wage rates, starting aging problem, and the likely declining of the domestic saving rates in the long run, we are still very optimistic in China's future growth. Our baseline scenario shows that average annual growth of China GDP will keep as high as 8.2 percent in the first five years of the 21st century. While the rates of growth will decline over time, China still can maintain more than 6 percent annual GDP growth in 2010s and nearly 5 percent in 2020s. With these growth rates, by 2030 China's per capita income will approach the current average income of the high-income countries (in 2000). Total GDP in 2030 will be more than six times of current one. At lest five more "China" (in terms of the size of economy) will be created in China in the first 3 decades of the 21st century. By that time, China's total GDP will be likely bound to world's third, just behind US and

Japan. The high growth scenario, which it might not be very likely to occur, will bring 1.3 more “China” in additional to five more “China” projected under baseline. Even under low growth scenario, China's GDP can still grow by more than 530 percent in 2030 over 2000. Based on the results of our forecasting and previous studies in projecting future China’s GDP growth, China is very likely to achieve its goal of doubling its GDP in the next 20 years.

The structure changes occurred in the past 3 decades are projected to continue in the future. Under our baseline, the shares of agricultural GDP will decline from 16 percent in 2000 to about 6 percent in the late 2020s, a level very similar to the current industrialized countries. The structure changes will occur more in the earlier years than the later years of the projection period, and be favor of service sector.

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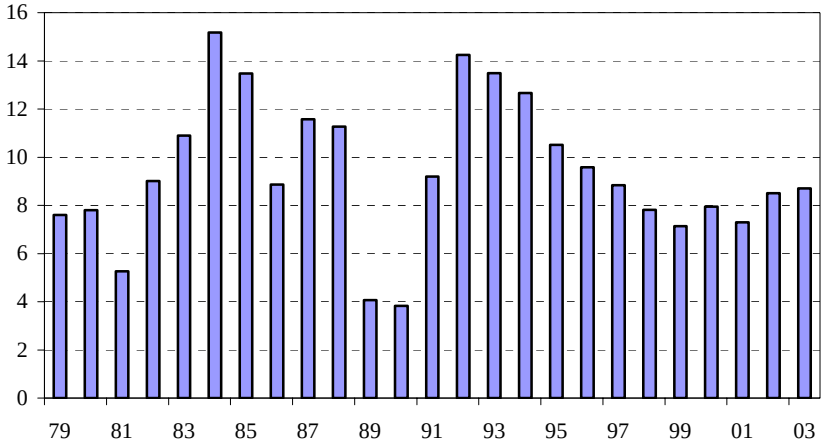
Figure 1. Annual growth rate (%) of GDP, 1979-2003



Sources: NSBC, 2003 and NSBC's preliminary estimate for 2003

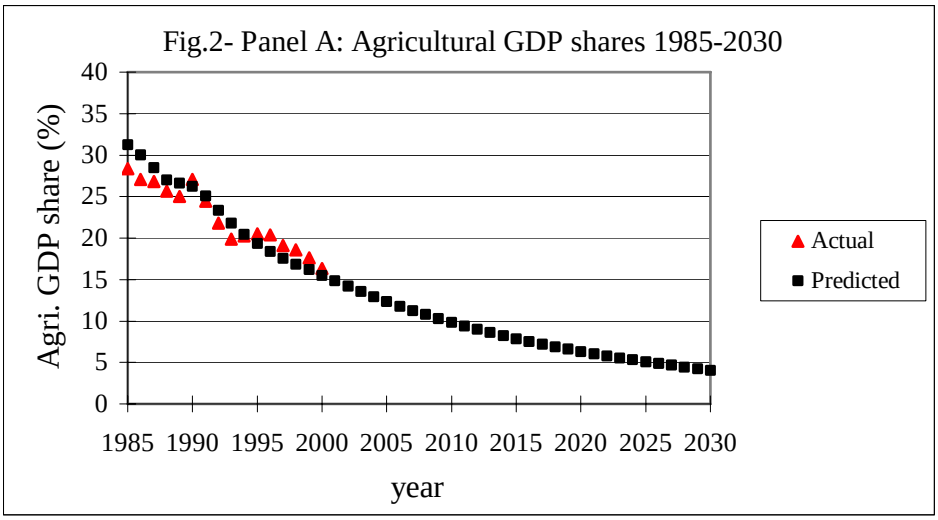
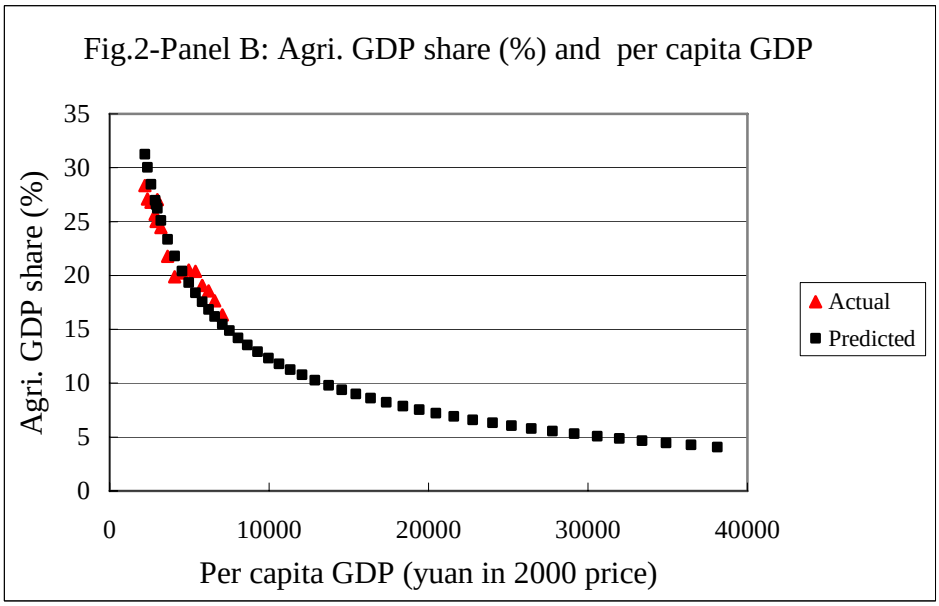


Figure 2 . Actual and predicted GDP share (%) in China, 1985-2030



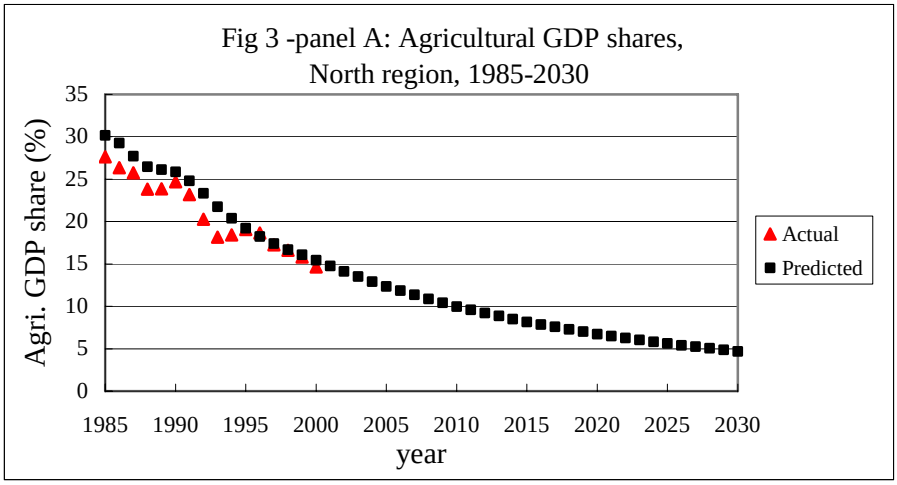


Fig 3 -panel A: Agricultural GDP shares,
North region, 1985-2030
Agri. GDP share (%)
35
30
25
20
15
10
5
0
1985 1990 1995 2000 2005 2010 2015 2020 2025 2030
year
Actual
Predicted

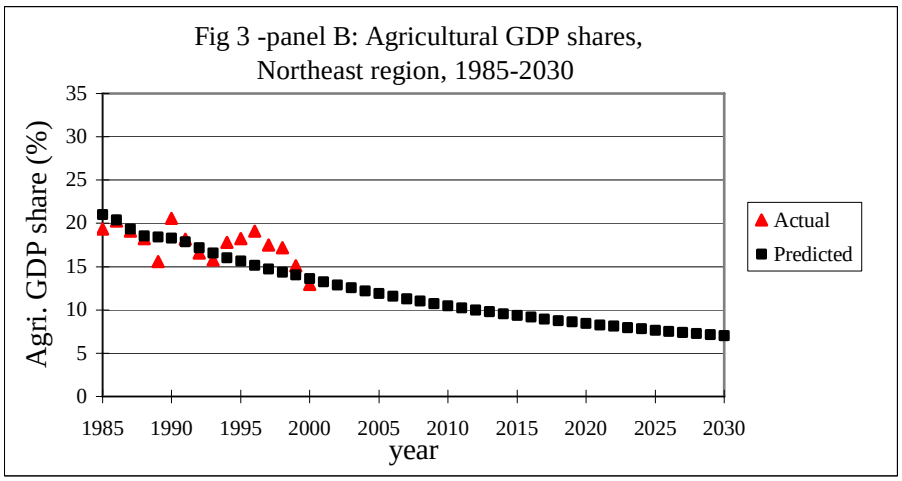


Fig 3 -panel B: Agricultural GDP shares,
Northeast region, 1985-2030
Agri. GDP share (%)
35
30
25
20
15
10
5
0
1985 1990 1995 2000 2005 2010 2015 2020 2025 2030
year
Actual
Predicted

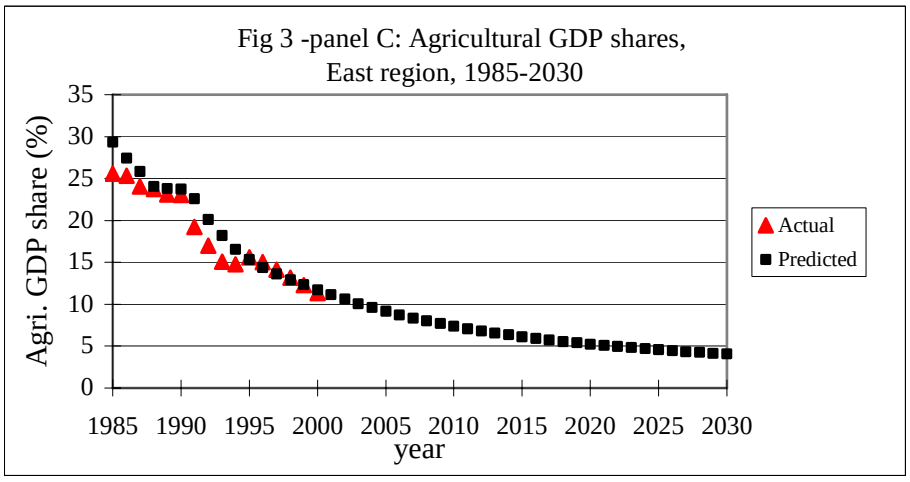


Fig 3 -panel C: Agricultural GDP shares,
East region, 1985-2030
Agri. GDP share (%)
35
30
25
20
15
10
5
0
1985 1990 1995 2000 2005 2010 2015 2020 2025 2030
year
Actual
Predicted

Fig 3 -panel D: Agricultural GDP shares, Central region, 1985-2030

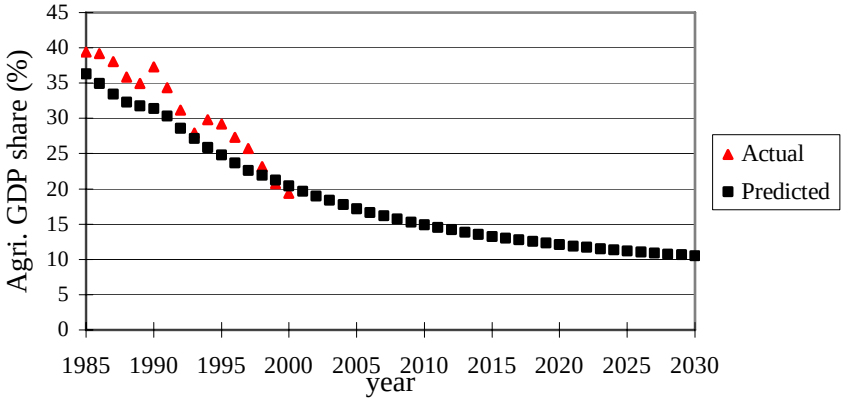


Fig 3 -panel E: Agricultural GDP shares, South region, 1985-2030

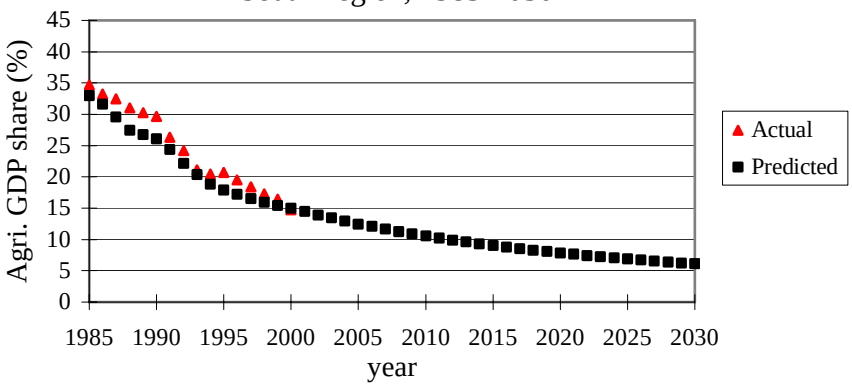
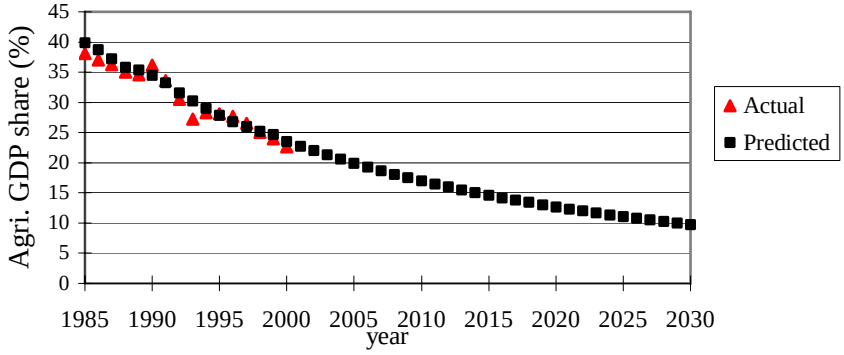
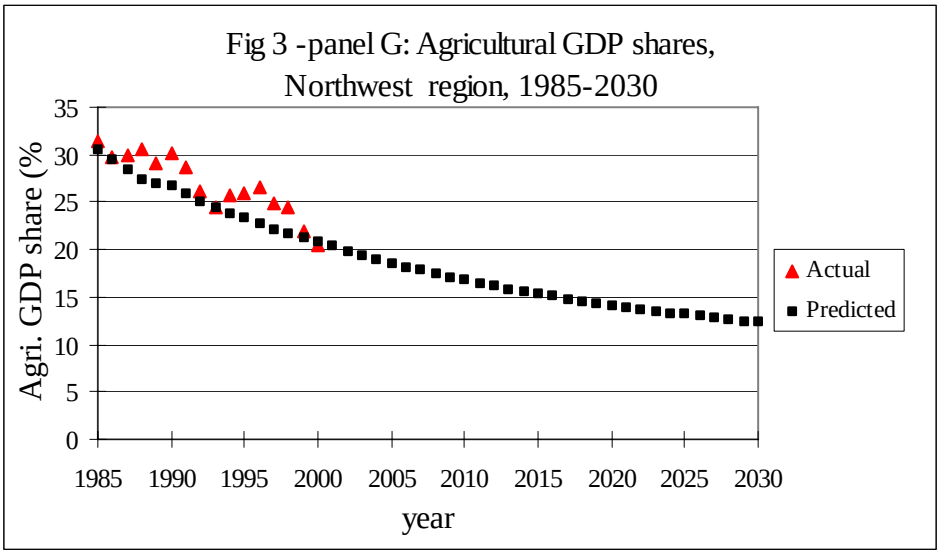


Fig 3 -panel F: Agricultural GDP shares, Southwest region, 1985-2030





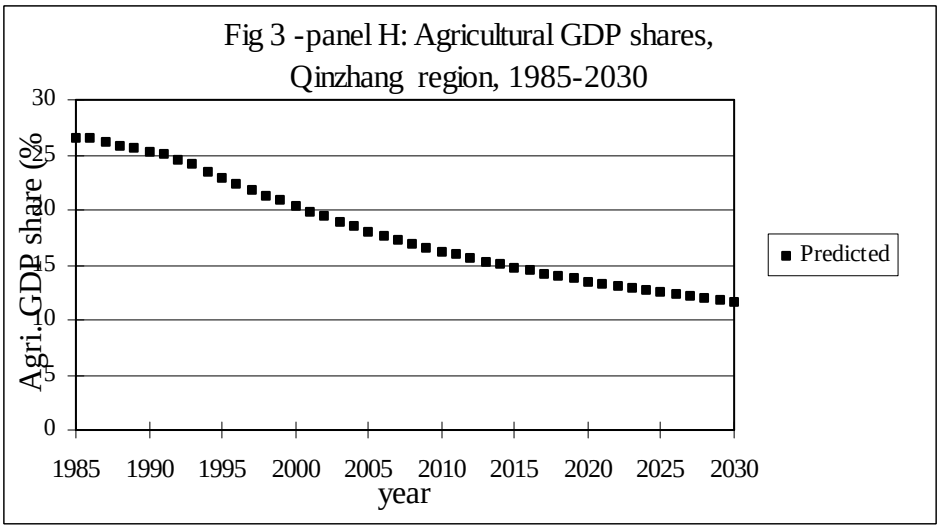


Figure 3. Actual and predicted Agricultural GDP shares (%) by regions in China, 1985-2030

Table 1. Assumptions of annual per capita GDP growth rate and food balance in China in the early 21st century.

Study	Projection period	Assumption of annual per capita GDP growth (%)	Food balance status
OECF (1995)	1995-2010	7.3	Large deficit
World Bank (1997)	1995-2020	6.0	Moderate deficit
IFPRI (2001)	1997-2020	5.3	Small deficit
LEI-CCAP (2003)	2001-2020	5.0	Small deficit

Table 2. Income, employment and agricultural output by region in 2000, China

	Western China	Central China	Eastern China
Regional population share (%)	24	25	41
Rural income per capita (Yuan)	1557	2030	2994
Share of rural labor force in agriculture (%)	75	73	61
Share of national agricultural GDP (%)	17	34	49

Source: NSBC, 2001.

Table 3. The annual growth rates (%) of China's economy, 1970-2000.

	Pre-reform	Reform period		
	1970-78	1979-84	1985-95	1996-00
Gross domestic products	4.9	8.8	9.7	8.2
Agriculture	2.7	7.1	4.0	3.4
Industry	6.8	8.2	12.8	9.6
Service	Na	11.6	9.7	8.2
Foreign Trade	20.5	14.3	15.2	9.8
Import	21.7	12.7	13.4	9.5
Export	19.4	15.9	17.2	10.0
Rural enterprises output	Na	12.3	24.1	14.0
Population	1.80	1.40	1.37	0.90
Per capita GDP	3.1	7.1	8.3	7.1

Note: Figure for GDP in 1970-78 is the growth rate of national income in real term. Growth rates are computed using regression method.

Source: CNSB, Statistical Yearbook of China, various issues.

Table 4. Changes in structure (%) of China's economy, 1970-2000.

	1970	1980	1985	1990	1995	2000
Share in GDP						
Agriculture	40	30	28	27	20	16
Industry	46	49	43	42	49	51
Service	13	21	29	31	31	33
Share in employment						
Agriculture	81	69	62	60	52	50
Industry	10	18	21	21	23	22.5
Service	9	13	17	19	25	27.5
Share of rural population	83	81	76	74	71	64

Source: CNSB, China's Statistical Yearbook, various issues; and China Rural Statistical Yearbook, various issues.

Table 5. Comparisons of National and Provincial GDP in China, 1980-2001

	National GDP (100 million yuan at current prices)				Sum of Provincial GDP (100 million yuan at current prices)				Differences (%)			
year	GDP	Agr.	Industry	Service	GDP	Agr.	Industry	Service	GDP	Agr.	Industry	Service
1980	4518	1359	2192	966	4381	1327	2200	854	-3.0	-2.4	0.4	-11.7
1981	4862	1546	2256	1061	4792	1537	2279	976	-1.4	-0.5	1.0	-8.0
1982	5295	1762	2383	1150	5331	1782	2429	1120	0.7	1.2	1.9	-2.6
1983	5935	1961	2646	1328	5982	1995	2691	1296	0.8	1.8	1.7	-2.4
1984	7171	2296	3106	1770	7126	2302	3227	1596	-0.6	0.3	3.9	-9.8
1985	8964	2542	3867	2556	8621	2556	4010	2054	-3.8	0.6	3.7	-19.6
1986	10202	2764	4493	2946	9649	2791	4403	2454	-5.4	1.0	-2.0	-16.7
1987	11963	3204	5252	3507	11457	3214	5219	3024	-4.2	0.3	-0.6	-13.8
1988	14928	3831	6587	4510	14463	3896	6504	4064	-3.1	1.7	-1.3	-9.9
1989	16909	4228	7278	5403	16334	4276	7285	4773	-3.4	1.1	0.1	-11.7
1990	18548	5017	7717	5814	18360	5054	7702	5604	-1.0	0.7	-0.2	-3.6
1991	21618	5289	9102	7227	21255	5297	8971	6986	-1.7	0.2	-1.4	-3.3
1992	26638	5800	11700	9139	25893	5786	11492	8615	-2.8	-0.2	-1.8	-5.7
1993	34634	6882	16429	11324	34210	6834	16292	11085	-1.2	-0.7	-0.8	-2.1
1994	46759	9457	22372	14930	45384	9270	21537	14577	-2.9	-2.0	-3.7	-2.4
1995	58478	11993	28538	17947	57588	11947	26891	18750	-1.5	-0.4	-5.8	4.5
1996	67885	13844	33613	20428	68505	13881	31840	22784	0.9	0.3	-5.3	11.5
1997	74463	14211	37223	23029	76957	14619	36066	26271	3.3	2.9	-3.1	14.1
1998	78345	14552	38619	25174	82780	14869	38589	29323	5.7	2.2	-0.1	16.5
1999	82067	14472	40558	27038	87671	14622	40757	32292	6.8	1.0	0.5	19.4
2000	89442	14628	44935	29879	97209	14844	45784	36581	8.7	1.5	1.9	22.4
2001	95933	14610	49069	32254	106766	15541	49855	41371	11.3	6.4	1.6	28.3

Source: China National Statistical Bureau of China (CNSB), China Statistical Year Book, various issues.

Table 6. Annual GDP growth rates (%) by region, 1981-2000.

Period	China (National data)	By region (aggregation based on provincial data)								
		North	North-East	East	Central	South	South-West	North-west	Qing-zhang	China
1981-1990	10.3	10.2	9.1	11.0	9.3	11.7	9.3	11.1	7.3	10.2
1991-2000	10.3	12.5	9.4	14.1	11.2	14.5	10.2	9.6	9.3	12.2
1981-1985	11.0	11.7	9.3	12.3	10.5	11.2	11.0	11.9	9.5	11.2
1986-1990	8.2	8.2	7.8	8.0	6.9	11.0	7.3	9.0	4.5	8.2
1991-1995	12.4	14.0	9.9	17.0	11.9	19.3	11.3	10.1	8.4	14.1
1996-2000	8.2	10.4	8.8	10.9	10.0	10.3	8.7	9.0	9.4	10.1

Source: Growth rates are estimated by regression method based on data from China National Statistical Bureau of China (CNSB), China Statistical Yearbook, various issues.

Table 7. Annual growth rates (%) of GDP by sector and by region, 1981-2000

Period	China (National data)	By region (aggregation based on provincial data)								
		North	North-East	East	Central	South	South-West	North-west	Qing-zhang	China
Agriculture										
1981-1985	8.9	11.2	8.5	8.9	8.0	7.0	8.7	11.0	5.5	9.1
1986-1990	3.9	3.1	4.7	1.1	2.9	5.9	3.4	6.0	2.7	3.4
1991-1995	4.3	5.3	4.9	5.1	4.9	7.0	4.1	4.8	2.4	5.2
1996-2000	3.4	5.1	4.9	4.6	3.6	5.6	3.8	4.7	3.1	4.7
Industry										
1981-1985	10.1	10.0	8.2	12.7	11.4	13.0	11.5	9.5	7.5	10.6
1986-1990	9.5	9.4	5.6	9.0	7.8	14.0	9.0	8.3	6.7	8.8
1991-1995	18.1	18.4	11.1	21.2	16.7	29.2	16.1	13.0	10.9	18.6
1996-2000	9.9	11.7	9.4	11.5	12.4	12.0	10.0	10.7	10.9	11.3
Service										
1981-1985	15.4	16.5	14.4	15.8	14.2	13.9	14.7	16.9	17.6	15.3
1986-1990	9.9	10.4	15.3	10.9	11.1	11.2	10.2	12.9	3.9	11.3
1991-1995	10.2	15.1	11.1	17.1	13.8	16.0	13.2	11.1	11.1	14.6
1996-2000	8.2	10.9	9.9	12.5	11.7	10.0	10.7	9.7	12.1	11.0

Source: Growth rates are estimated by regression method based on data from China National Statistical Bureau of China (CNSB), China Statistical Yearbook, various issues.

Table 8. The sectoral shares of GDP by region for selected years, 1980-2000

Period	China (National data)	By region (aggregation based on provincial data)								
		North	North-East	East	Central	South	South-West	North-west	Qing-zhang	China
Agriculture										
1980	30	28	22	25	40	38	42	29	36	30
1985	28	28	19	26	39	35	38	31	34	29
1990	27	25	21	23	37	30	36	30	33	28
1995	21	19	18	16	29	21	28	26	28	21
2000	16	15	13	11	19	15	23	20	20	15
Industry										
1980	49	53	62	56	42	38	38	48	38	50
1985	43	47	59	52	40	37	40	41	32	47
1990	42	44	49	49	35	35	36	36	31	42
1995	49	48	49	52	39	46	42	40	36	47
2000	50	48	51	50	43	46	42	43	37	47
Service										
1980	21	19	16	19	18	24	20	22	26	20
1985	29	25	22	22	21	28	22	28	33	24
1990	31	32	30	28	28	35	28	34	36	31
1995	31	33	32	32	32	33	30	34	36	33
2000	33	37	36	39	38	39	35	37	43	38

Source: Growth rates are estimated by regression method based on data from China National Statistical Bureau of China (CNSB), China Statistical Yearbook, various issues.

Table 9. National and regional per capita annual GDP growth (%), 1981-2000.

	GDP				Agricultural. GDP				Industry GDP				Service GDP			
	81-85	86-90	91-95	96-00	81-85	86-90	91-95	96-00	81-85	86-90	91-95	96-00	81-85	86-90	91-95	96-00
China: national	9.4	6.6	11.1	7.2	7.4	2.3	3.1	2.5	8.5	7.9	16.8	8.7	13.8	8.2	9.0	7.1
China: weighted	9.9	6.6	13.0	9.1	7.8	1.9	4.1	3.8	9.3	7.2	17.4	10.3	13.9	9.7	13.5	10.0
North	10.2	6.1	13.1	9.5	9.7	1.1	4.4	4.2	8.5	7.3	17.4	10.8	14.9	8.3	14.2	10.0
Northeast	8.4	6.6	9.1	8.0	7.5	3.4	4.1	4.1	7.3	4.4	10.2	8.6	13.4	14.0	10.3	9.1
East	11.2	6.5	16.1	10.2	7.8	-0.3	4.2	3.9	11.6	7.5	20.2	10.7	14.7	9.3	16.1	11.7
Central	9.1	5.1	10.6	9.4	6.6	1.2	3.8	3.0	10.0	6.1	15.4	11.8	12.8	9.2	12.6	11.1
South	9.4	10.1	17.8	8.8	5.3	5.0	5.6	4.2	11.2	13.1	27.5	10.4	12.1	10.3	14.4	8.4
Southwest	10.0	5.8	10.2	7.9	7.6	2.0	3.1	3.1	10.5	7.5	14.9	9.2	13.6	8.7	12.1	9.9
Northwest	10.4	7.0	8.6	7.8	9.5	4.1	3.4	3.5	8.0	6.4	11.5	9.4	15.3	10.9	9.7	8.5
Qingzang	7.8	2.6	6.8	7.7	3.9	0.8	0.9	1.5	5.9	4.7	9.3	9.2	15.7	2.0	9.5	10.4

Table 10. Assumed annual growth rates (%) of per capita GDP by region, baseline, 1996-2030.

	Reported 96-00	Adjusted 96-00	01-05	06-10	11-15	16-20	21-25	26-30
China: National	7.2	7.2	7.2	6.6	6.0	5.5	5.0	4.5
China: Weighted	9.1	7.2	7.2	6.6	6.0	5.5	5.0	4.5
North	9.5	7.6	7.6	6.8	6.1	5.5	5.0	4.5
Northeast	8.0	6.4	6.4	5.9	5.4	5.0	4.7	4.3
East	10.2	8.1	8.1	7.3	6.6	5.9	5.3	4.8
Central	9.4	7.5	7.5	6.7	6.1	5.5	4.9	4.4
South	8.8	7.0	7.0	6.3	5.7	5.1	4.6	4.1
Southwest	7.9	6.3	6.3	5.8	5.4	5.0	4.6	4.3
Northwest	7.8	6.2	6.2	5.7	5.3	4.9	4.5	4.2
Qingzang	7.7	6.1	6.1	5.7	5.2	4.8	4.5	4.1

Table 11. Assumed annual growth rates (%) of per capita GDP by region, low and high growth scenarios, 2001-2030.

	Low growth						High growth					
	01-05	06-10	11-15	16-20	21-25	26-30	01-05	06-10	11-15	16-20	21-25	26-30
China	7.1	6.3	5.5	4.8	4.1	3.6	7.1	7.0	6.6	6.3	6.0	5.7
North	7.6	6.5	5.6	4.8	4.1	3.6	7.6	7.1	6.7	6.3	5.9	5.5
Northeast	6.4	5.5	4.8	4.1	3.6	3.1	6.4	6.3	6.2	6.1	6.0	5.9
East	8.1	7.0	6.0	5.2	4.4	3.8	8.1	7.6	7.2	6.7	6.3	6.0
Central	7.5	6.4	5.5	4.8	4.1	3.5	7.5	7.0	6.6	6.2	5.8	5.5
South	7.0	6.0	5.2	4.5	3.8	3.3	7.0	6.6	6.2	5.8	5.5	5.1
Southwest	6.3	5.6	4.9	4.4	3.9	3.4	6.3	6.2	6.1	6.0	5.9	5.8
Northwest	6.2	5.5	4.9	4.3	3.8	3.4	6.2	6.1	6.0	5.9	5.8	5.8
Qingzang	6.1	5.4	4.8	4.2	3.8	3.3	6.1	6.0	5.9	5.9	5.8	5.7

Table 12. Assumed annual population growth rates (%) by region, central or baseline, 2001-2030.

	01-05	06-10	11-15	16-20	21-25	26-30
China:	0.72	0.61	0.54	0.41	0.27	0.14
North	0.63	0.53	0.47	0.33	0.20	0.08
Northeast	0.35	0.21	0.10	-0.05	-0.26	-0.41
East	0.52	0.42	0.37	0.24	0.13	-0.01
Central	0.42	0.28	0.20	0.05	-0.11	-0.24
South	2.22	2.03	1.89	1.70	1.51	1.36
Southwest	0.38	0.27	0.19	0.06	-0.10	-0.26
Northwest	0.99	0.85	0.77	0.61	0.43	0.30
Qingzang	1.35	1.23	1.18	1.03	0.87	0.74

Source: Toth et al., 2003.

Table 13. Projected annual GDP growth rates (%) by region, baseline, 1996-2030

	Reported 96-00	Adjusted 96-00	01-05	06-10	11-15	16-20	21-25	26-30
China: National	8.2	8.2	8.2	7.3	6.6	5.9	5.2	4.6
China: Weighted	10.1	8.2	8.2	7.3	6.6	5.9	5.2	4.6
North	10.4	8.4	8.2	7.4	6.6	5.9	5.2	4.5
Northeast	8.8	7.1	6.7	6.1	5.6	5.0	4.4	3.9
East	10.9	8.9	8.7	7.8	7.0	6.2	5.5	4.8
Central	10.0	8.1	7.9	7.0	6.3	5.5	4.8	4.2
South	10.3	8.4	9.4	8.5	7.7	6.9	6.2	5.6
Southwest	8.7	7.0	6.7	6.1	5.6	5.0	4.5	4.0
Northwest	9.0	7.3	7.3	6.6	6.1	5.6	5.0	4.5
Qingzang	9.4	7.6	7.6	7.0	6.5	5.9	5.4	4.9

Table 14. Projected annual GDP growth rates (%) by region, low and high growth scenarios, 2001-2030.

	Low growth						High growth					
	01-05	06-10	11-15	16-20	21-25	26-30	01-05	06-10	11-15	16-20	21-25	26-30
China	8.2	7.0	6.1	5.2	4.4	3.7	8.2	7.6	7.2	6.7	6.3	5.8
North	8.2	7.1	6.1	5.2	4.3	3.6	8.2	7.7	7.2	6.6	6.1	5.6
Northeast	6.7	5.7	4.9	4.1	3.3	2.7	6.7	6.5	6.3	6.0	5.7	5.5
East	8.7	7.4	6.4	5.4	4.6	3.8	8.7	8.1	7.6	7.0	6.5	5.9
Central	7.9	6.7	5.7	4.8	4.0	3.3	7.9	7.3	6.8	6.3	5.7	5.2
South	9.4	8.2	7.2	6.2	5.4	4.7	9.4	8.7	8.2	7.6	7.1	6.6
Southwest	6.7	5.8	5.1	4.4	3.7	3.1	6.7	6.5	6.3	6.1	5.8	5.5
Northwest	7.3	6.4	5.7	4.9	4.3	3.7	7.3	7.0	6.8	6.6	6.3	6.1
Qingzang	7.6	6.7	6.0	5.3	4.7	4.1	7.6	7.3	7.2	6.9	6.7	6.5

Table 15. Previous projections of China's GDP growth in China in the early 21st century.

Study	Projection period	Methodology	Assumption of annual GDP growth (%)
OECF (1995)	1995-2010	Expert justification	8.0
World Bank (1997)	1995-2020	General equilibrium model	6.0
IFPRI (2001)	1997-2020	Expert justification	6.0
LEI-CCAP (2003)	2001-2020	Expert justification	5.7
DRC (2002)	2001-2010	Model (not discussed) with expert justification	7.5
	2011-2020		6.1
	2021-2030		5.4
Li (2001)	2001-2010	Model (not discussed) with expert justification	8.1
	2011-2020		6.4
	2021-2030		5.4
This study (baseline)	2001-2010	Expert justification assisted with econometric models	7.7
	2011-2020		6.2
	2021-2030		4.9

Table 16. Econometric estimation of agricultural GDP shares in 1980-2000.

	Intercept		$b (P)^{-c}$		R^2
	Parameter-a	t-value	Parameter-b	t-value	
National	-3.53	-3.04	1683	26.97	0.97
North	0.60	0.42	1597	27.22	0.96
Northeast	-0.27	-0.22	1128	14.53	0.92
East	4.06	3.02	10630	31.63	0.97
Central	9.24	10.25	8799	37.55	0.96
South	14.30	13.77	1538	34.20	0.96
Southwest	-0.71	-0.66	1656	38.43	0.95
Northwest	11.93	10.67	1105	22.53	0.87

Note: the models are estimated used OLS method. The c-values are 0.5 for North, Northeast, South, Southwest and Northwest, and 0.75 for East and Central. The parameters for provincial dummies are not reported.

Table 17. Projected structures of economy by region, baseline, 2000-2030

	Reported 2000	Adjusted 2000	Projected					
			2005	2010	2015	2020	2025	2030
Agricultural GDP %								
China: National	16	16	13	11	9	8	7	6
China: Weighted	15	16	13	11	9	8	7	6
North	15	16	12	10	8	7	6	5
Northeast	13	14	12	10	9	8	8	7
East	11	12	9	7	6	5	5	4
Central	19	20	17	15	13	12	11	11
South	15	16	12	11	9	8	7	6
Southwest	23	25	20	17	15	13	11	10
Northwest	20	21	19	17	15	14	13	12
Qingzang	20	21	18	16	15	14	13	12
Industrial GDP %								
China: National	50	50	49	49	48	47	46	46
China: Weighted	47	50	49	49	48	47	46	46
North	48	55	55	54	53	52	52	51
Northeast	51	59	58	57	56	56	55	54
East	50	57	57	56	55	54	54	53
Central	43	50	49	48	47	47	46	45
South	46	53	53	52	51	50	50	49
Southwest	42	47	46	45	44	44	43	42
Northwest	43	50	49	48	48	47	46	45
Qingzang	37	42	41	41	40	39	38	38
Service GDP %								
China: National	33	33	38	40	43	45	47	48
China: Weighted	38	33	38	40	43	45	47	48
North	37	33	33	36	39	41	42	44
Northeast	36	32	30	33	35	36	37	39
East	39	34	34	37	39	41	41	43
Central	38	33	34	37	40	41	43	44
South	39	35	35	37	40	42	43	45
Southwest	35	32	34	38	41	43	46	48
Northwest	37	32	32	35	37	39	41	43
Qingzang	43	38	41	43	45	47	49	50

Appendix Table A. Predicted per capita GDP (yuan in 2000 price) by region, 2001-2030.

	Low growth				Base line				High growth			
	2000	2010	2020	2030	2000	2010	2020	2030	2000	2010	2020	2030
China	7084	13538	22315	32543	7084	13732	24014	38104	7084	13942	26080	45989
North	7338	14472	24022	35030	7338	14679	25833	40934	7338	14888	27888	48657
Northeast	8414	14974	23122	32060	8414	15247	25413	39407	8414	15524	28141	50142
East	10521	21775	37481	56166	10521	22108	40512	66353	10521	22444	43965	79823
Central	5524	10820	17866	25952	5524	10973	19200	30279	5524	11127	20711	35930
South	9032	16969	27158	38536	9032	17195	29058	44540	9032	17422	31202	52306
Southwest	4093	7278	11453	16366	4093	7365	12199	18815	4093	7497	13492	23872
Northwest	4734	8357	13079	18606	4734	8456	13920	21355	4734	8606	15377	27016
Qingzang	4507	7901	12296	17414	4507	7993	13076	19953	4507	8133	14427	25171