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**CHINESE POLITICAL AND ECONOMIC  
GOVERNANCE SYSTEM AND THE IMBALANCE  
BETWEEN CONSUMPTION AND INVESTMENT**

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# Chinese Political and Economic Governance System and the Imbalance between Consumption and Investment

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## Abstract

The Chinese government has been pursuing economic growth under the guidance of “growth is a hard principle”. In the context of the Chinese political and economic governance system, local governments have employed the overtaking strategy (placing primary emphasis on the development of capital and technology-intensive industries) and the real estate development strategy to push for economic growth and fiscal revenue growth. This has led to a repressed labor share and an elevated capital and government share in primary and secondary income distribution structure. Using the empirical strategy of Acemoglu et al. (2003), we confirm that the development strategies have shaped an imbalanced consumption-investment structure through primary and secondary income distribution as well as other channels. It suggests that the Chinese government will be able to accomplish China’s transition from an investment-led growth model to a consumption-based growth model only if it modifies its political and economic governance system and removes the distortions in development strategies.

**Keywords:** Overtaking Strategy, Real Estate Development Strategy, Biased Income Distribution Structure, Consumption-Investment Imbalances

**JEL Classification:** E62, E65, H20, H77

# 1. Introduction

The rapid economic growth in China in the past few decades has been accompanied by serious internal imbalances, namely overinvestment and under-consumption. To tackle this problem requires an understanding of the fundamental reasons for China's macroeconomic imbalances. In our view, China's internal imbalances, to a large extent, stem from the "growth first strategy" of the Chinese government and the implications for the distribution of income which favors capital and government, instead of labor. To achieve the goal of promoting economic growth, the Chinese Communist Party (CCP) has established a regionally decentralized authoritarian regime characterized by political centralization and economic decentralization. The central leadership employs a promotion tournament and tax sharing system to motivate regional bureaucrats to pursue rapid local economic growth. In response, regional bureaucrats place primary emphasis on the development of capital and technology-intensive industries, and real estate, to stimulate local economic growth – which we refer to as the 'overtaking strategy'. As a consequence, these strategies have led to an income distribution structure biased toward capital and government and against labor. A repressed labor share and an elevated capital and government share discourages consumption and encourages savings and investment, resulting in a salient feature of internal macroeconomic imbalances, that is, the consumption-investment structure imbalances. This is reflected in a high return on capital (Bai et al., 2006), and high enterprise and government savings, which are endogenous to the overtaking strategy and the real estate market development strategy generated by the Chinese political and economic governance system.

Using province-level panel data set over the period 1996-2007, we show that proxy indicators of the overtaking strategy and the real estate development strategy have resulted in an imbalanced consumption-investment structure. One important channel mediating this effect is the biased primary and secondary income distribution that favors capital and government, but at the expense of labor. In addition, it is also found that the government's development strategies affect the consumption-investment structure through other channels.

Our study points out that the Chinese political and economic governance system, which was widely acclaimed as the institutional foundation for China's economic miracle in the past three decades, has generated serious distortions in primary and secondary income distribution, which is a major source of income distribution inequality and social tension. This directly contributes to underconsumption and overinvestment, and generates enormous difficulties for China's transition from an investment-led growth economy to a consumption-based one.

In our analysis, we also take into consideration how the consumption–investment structure evolves with the level of economic development and demographic structure. Consistent with our expectation, we observe a U-shaped relationship between the consumption ratio and GDP per capita, and an inverted U-shaped relationship between the investment ratio and real GDP per capita, and a U-

shaped relationship between the consumption ratio and the aged dependency ratio, and an inverted U-shaped relationship between the investment ratio and the aged dependency ratio.

This paper makes the following contribution to the literature. First, it provides a systematic study of how political and economic governance shapes internal macroeconomic imbalances in China. We emphasize that the growth-first strategy reflected in the overtaking strategy and the real estate market development strategy has positive effects (i.e., rapid growth) and negative effects (i.e., the unbalanced investment-consumption structure). We conduct a detailed analysis of these negative effects and argue that the governance system is one most important fundamental force in shaping internal imbalances in China. In this sense, our work adds to existing studies (e.g., Blanchard, 2005; Fang and Jin, 2010; Huang, 2010b; Huang and Tao, 2010; Huang and Wang, 2010; Lin et al., 2010; Lin, 2011; Wang and Fan, 2009; Woo, 2006; Yang, 2012) by shedding light on the institutional foundation for macroeconomic imbalances<sup>1</sup>.

Second, following the empirical strategy of Acemoglu et al. (2003), the paper provides some evidence that Chinese political and economic governance has shaped an imbalanced consumption-investment structure through a biased distribution of income as well as other channels. It suggests that getting the bureaucratic incentives in the system of governance right, and removing distortions in primary and secondary income distribution, are necessary to achieving a consumption-based growth model in China.

The rest of this paper is organized as follows. Section 2 develops our hypotheses in detail. Section 3 introduces data and discusses estimation methods. Section 4 presents and discusses empirical findings. The final section concludes by offering some important policy implications.

## 2. Hypothesis Development

### 2.1 The Overtaking Strategy and Consumption-Investment Imbalances

It is well observed that there was a substantial shift in development policies pursued by local governments in China around the mid-1990s (Cai, 2009; Bergsten et al., 2009; Rodrik, 2006, 2010; Anderson, 2008). Before then, local governments promoted labor-intensive industries, consistent with China's comparative advantage in the global economy. However, in his tour of South China in early 1992, the late Chinese paramount leader, Deng Xiaoping, adopted a pragmatic approach in emphasizing that the primary task of Chinese government was to pursue economic growth, which was a hard principle. It is argued that the Chinese leadership realized that the CCP did not have procedural legitimacy in keeping the monopoly of political power so it sought to deliver superior

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<sup>1</sup> Our paper complements Yang(2012) by focusing on one fundamental institution, i.e., the political and economic governance system, in China and its impact on macroeconomic imbalances.

performance in economic growth to win performance legitimacy (Jefferson and Zhang, 2008). This gives rise to the growth first development strategy. To accelerate GDP growth and boost local fiscal revenues, local governments pursued an overtaking development strategy by promoting capital and technology-intensive industries and real estate development, which are at odds with China's comparative advantage but constitute two major building blocks of the growth first development strategy.

A regionally decentralized authoritarian system laid the institutional foundation for the fulfillment of the growth-first strategy. China is characterized by highly centralized political and personnel control at a national level, and a decentralized administrative and economic system at a provincial and local level (see, e.g., Blanchard and Shleifer, 2001; Clarke, Murrell, and Whiting, 2008; Xu, 2011). This allows the central government to motivate local bureaucrats to achieve high growth targets through a 'promotion tournament'. It is documented in the literature that political appointments and promotions of regional and local bureaucrats are based on their performance in promoting economic growth with their performance measured relative to their immediate predecessors (Tsui and Wang, 2004; Li and Zhou, 2005; Chen et al., 2005). One important method of accelerating local GDP growth is to adopt an industrial policy that places primary emphasis on the development of capital and technology-intensive industries instead of labor-intensive ones (Peneder, 2003; Lin and Chang, 2009; Rodrik, 2006, 2010; Hausmann et al., 2007). In the traditional neo-classical growth model, the accumulation of capital and capital deepening play a vital role in promoting output growth (Mankiw, Romer and Weil, 1992). Recently, in examining the global growth experience, Jorgensen and Vu (2009, 2010) show that approximately 40-50% of world growth can be attributed to the accumulation and deployment of capital. Surprisingly, the use of labor input and productivity growth contribute only 25-33% and 20-35% respectively. Hence, the growth experience of the world economy verifies the importance of capital and technology-intensive industries in raising GDP growth. It is therefore not surprising that local bureaucrats with career concerns and facing the pressure of a promotion tournament have given priority to the development of capital and technology-intensive industries.

At the same time, tax sharing system reforms have strengthened the incentives to local bureaucrats to promote capital and technology-intensive industries. The reforms allow central government to centralize tax revenues to a large extent but leave the responsibility for local public expenditure with local governments. This has generated pressures on the fiscal capacity of local governments, forcing local bureaucrats to explore new avenues for raising tax revenues. Local governments understandably have striven to develop capital and technology-intensive industries that can swiftly raise local GDP growth and tax revenue growth. On the other hand, production-based value added taxes (VAT) are divided between central and local governments at a ratio of 75:25 as a basis rate. If local governments collect an amount of value-added taxes above a contracted target, the division between central and local government follows a ratio of 52.5:47.5, which is much more favorable to the local government due to a tax rebate scheme. These taxation schemes further motivate local governments to develop capital and technology-intensive industries because these industries typically require substantial fixed asset investments that can generate GDP growth and VAT revenues.

In a nutshell, the way local bureaucrats achieve promotion, on the basis of local economic growth, and tax-sharing system, form the institutional foundations for the overtaking development strategy that gives priority to capital and technology-intensive industries. As shown in Figure 1, the asset value of heavy industry as a proportion of all industries has remained above 65% since 1994 and shown an upward trend: the ratio was around 65% in 1994, and rose to 71% in 2003 and nearly 77% in 2009. The proportion of annual average net value of fixed assets of heavy industry in all industries exhibits a similar pattern.

The capital and technology-intensive industries have also contributed a substantial and an increasing share to industrial value added. Figure 2 shows that the ratio of the value added of heavy industry to total industrial value added in China has remained above 60% in almost every year since 1994, and it reached nearly 66% in 2003 and 70% in 2007.

It is therefore no surprise that capital and technology-intensive industries have played a leading role in generating tax revenues. Figure 3 illustrates that the value added tax payable by heavy industry accounted for 65%-75% of the total in the period 1994-2009. Similarly, the proportion of total tax payable by heavy industry out of the total has been above 56% in the period 1994-2009 and has been on a rising trend since 1998, reaching 68% in 2009.

The overtaking strategy consists of a series of industrial policies to support the development of capital and technology-intensive industries. This strategy is expected to raise the share of these industries in budgetary revenues and national income and reduce the share of labor income. On the one hand, the overtaking strategy raises the amount of capital employed and the expected return on capital so as to increase the share of capital income in GDP. According to the neo-classical economic theory, the share of labor income is affected by the capital-output ratio and the elasticity of substitution between labor and capital in the production function. When the substitution elasticity between capital and labor is larger than one, an increase in the capital-output ratio is accompanied by a decrease in labor's share in income. In other words, when a one unit increment in capital use crowds out more than one unit of labor the income share of labor declines (Bentolila and Saint-Paul, 2003). It is widely documented in the literature that capital and unskilled labor are substitutes whereas capital and skilled labor are typically complements (Schneider, 2011). Under China's overtaking strategy, industrial development biased toward capital and technology-intensive industries typically means a large degree of substitution of capital for unskilled labor. Recent empirical studies find that the elasticity of substitution between labor and capital was greater than 1 in 28 industries in the period 1996-99 and in 20 industries in the period 2000-5 (Yuan and Li, 2008). Therefore, the overtaking strategy can be expected to result in a declining labor share and a rising capital share in income by encouraging resources to flow to capital and technology-intensive industries.

In addition to increasing capital employment, the overtaking strategy also raises the return on capital through various channels. (1) Local governments have implemented a wide range of measures to lower the costs of doing business. They have provided preferential tax treatment, repressed land use

fees, offered fiscal subsidies, and overlooked environmental protection to provide a favorable treatment of investors (Su et al., 2012; Cai, 2009). One striking aspect is that local governments have been enthusiastic in establishing economic and/or high-tech industry development zones, and granted enterprises engaged in capital and technology-intensive industries favorable treatment. (2) Local governments have spared no effort in improving local infrastructure. This is aimed at attracting foreign direct investment (FDI) (Zhang et al., 2007), generating positive externalities to capital investment, and directly increases demand for capital and technology-intensive industries and boosts local GDP growth. (3) China's state-dominated financial system with financial repression helps to lower the cost of capital. The tight restrictions on capital outflow and the lack of alternative investment instruments leads to higher household deposits in banks and a higher supply of capital. In addition, interest rate regulations keep the cost of loans low. These factors push down the cost of capital (Huang, 2010a), and facilitates local governments in providing low-cost financing from the state-controlled financial system to investors. (4) Local bureaucrats often help to maintain monopoly positions for favored firms in local markets. By imposing local market entry barriers, local governments practice local protectionism allowing local enterprises to retain market monopoly power so as to achieve a high rate of return on investment (Lin and Liu, 2004). These actions, when combined together, have stimulated the development of capital and technology-intensive industries by raising the return on capital and the share of capital income in value added.<sup>2</sup>

Working in the same direction, the overtaking strategy steers resources away from labor-intensive industries towards capital-intensive ones, repressing the expansion of the demand for labor. Moreover, labor compensation rates remain low. Local governments do not make sufficient efforts to uphold labor rights. When conflict arise between capital and labor, local governments give priority to protecting the interests of capital while largely overlooking workers' rights (Lu and Gao, 2010). Medium and small-sized enterprises engaged in labor-intensive industries typically find it hard to obtain loans from the state-dominated financial system under the overtaking strategy. To increase retained earnings (on which their investment relies), enterprises typically squeeze labor compensation and lengthen working hours. At the same time, fierce competition in labor-intensive industries has forced enterprises to keep wages and fringe benefits for labor at a low level. These factors have slowed down the expansion of labor employment and the rise in labor compensation, resulting in an increasing capital share and a diminishing labor share in labor-intensive industries. In these ways, the overtaking strategy has increased the capital share in GDP and reduced the labor share.

The overtaking strategy is also expected to raise the share of government income for several reasons. Firstly, capital and technology-intensive industries often have higher value added from which governments can collect a larger amount of value added taxes. Secondly, taxation capacity variation across industries also matters. Value added taxes are a major source of government income from primary income distribution. It is easier for the tax authority to collect taxes from firms operating in capital- and technology-intensive industries than from those in labor-intensive industries. Capital and

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<sup>2</sup> Rodrik (2010) expressed a similar viewpoint.



technology-intensive industries often have a higher proportion of large firms than do labor-intensive industries. It is widely documented in the literature that in developing countries large firms are typically more visible and are subject to more intensive oversight by governments than smaller firms. When governments have relatively weak taxation capacity and limited resources for tax enforcement, taxes and regulations are often enforced only among larger firms (Tybout, 2000). Hence, firms in capital and technology-intensive industries are less likely to evade tax payment, and the bias of industrial development toward these firms would result in a larger government share in primary income distribution. Thirdly, the design of the value added tax system creates distortions. By 2008, production-based value added tax does not allow for deductions to previous tax payment for fixed asset purchases so that there exists double taxation of fixed asset depreciation (Lv and Guo, 2012a). For capital and technology-intensive industries, this double taxation is much more serious because of the larger purchase value of fixed assets. Hence, the preferential development of capital and technology-intensive industries is expected to raise the government share of income.

The overtaking strategy raises the capital and government share and lowers the labor share in secondary income distribution as well as primary. The secondary income distribution is affected by the redistribution efforts of governments through tax collection and fiscal transfers. According to Lv and Guo (2012b), the secondary income distribution differs from the primary one in China mainly because of corporate income taxes levied on capital, social insurance payments collected from labor, and government transfers to labor. In the context of our framework, the overtaking strategy raises income accruing to capital, which in turn increases the share of corporate income tax and that of government income in GDP in the secondary income distribution. At the same time, it is well documented that local government expenditure under the overtaking strategy puts a much larger weight on productive investment such as infrastructure investment than on fiscal transfers for the purpose of social welfare improvement, which has weakened the social safety net for labor and failed to raise the labor income share after redistribution in a significant way (Fu and Zhang, 2007; Nitikin et al., 2011). Moreover, the 'demographic dividend', i.e., the decline in fertility rates coexisting with a low dependency rate, has meant that social insurance payments collected from labor exceed that being withdrawn. As a result, government transfers to labor and the share of social welfare expenditure in GDP remains small (Lv and Guo, 2012b). Thus, we expect that, as with the primary income distribution, the overtaking strategy will increase the government share and reduce the labor share in national income after redistribution. Across provinces, those pursuing the overtaking strategy more intensively would have a particularly larger government share and lower labor share in the secondary income distribution. On the other hand, relative to the primary income distribution, corporate income tax might reduce the share of capital in national income in the secondary income distribution, which is confirmed by Lv and Guo (2012b). Nonetheless, because corporate income tax is a type of proportional tax, it would not change the relative size of the capital income share between different provinces after redistribution. Those provinces pursuing the overtaking strategy more intensively are expected to have a higher capital share in the secondary income distribution than those doing less intensively.

Consequently, we expect that government redistribution would not affect the labor share by much and that the cross-province variation in the secondary income distribution would be fairly consistent

with that of the primary income distribution. Figure 4-6 present scatterplots of the annual share of labor, capital and government in the primary income distribution (on the horizontal axis) and the secondary income distribution (on the vertical axis) across provinces over our sample period. Quite strikingly, the labor income share is similar before and after redistribution. The capital income share and the government income share are also similar before and after government income redistribution, although occasionally the capital share is slightly lower and the government share is slightly higher after redistribution.

The repressed labor share and the elevated capital and government shares in the primary and secondary income distribution are expected to contribute to an imbalanced consumption-investment structure, that is, the ratio of consumption to national income is expected to be lower and that of investment to national income higher. On the one hand, a declining labor share in GDP would reduce the share of household disposable income in GDP because labor income constitutes the most basic form of household disposable income for most households. Recent studies (see, e.g., Aziz and Cui, 2007; Guo and N'Diaye, 2010) have shown that low disposable household income is a principal culprit of low consumption in the Chinese economy. On the other hand, capital income typically has a lower propensity to consume than does labor income. In the context of the overtaking strategy, governments in China prefer productive investment to government consumption, especially social welfare provision.<sup>3</sup> Hence, a higher share of government and capital income in GDP is expected to be associated with a higher ratio of investment to GDP and a lower ratio of consumption to GDP.

**Hypothesis 1:** The regionally decentralized authoritarian regime in China generates an overtaking strategy placing primary emphasis on the development of the capital and technology-intensive industries, which leads to a primary and secondary income distribution which is biased toward capital and government and against labor; weakens the social safety net; and results in an imbalanced consumption-investment structure.

## 2.2 The Real Estate Development Strategy and Consumption-Investment Imbalances

Besides the overtaking strategy, the system of political and economic governance in China has created incentives for real estate development to help local governments achieve growth in GDP and fiscal revenues. Under the tax-sharing reform scheme, local governments are given land lease revenues as extra-budgetary funds to alleviate their fiscal burden (Nitikin et al., 2011; Liu and Sun, 2009; Su et al., 2012). As a natural result, local governments have vehemently pursued the development of the real estate sector. Property market development and the increase in housing market prices can help land lease generate maximum fiscal revenues (Liu and Sun, 2009), which provides funds for local governments to pursue various political and economic objectives, especially government-initiated investment in infrastructure, productive activities, etc. Property market

<sup>3</sup> However, it should be emphasized that although a rising share of tax revenues in national income has spurred their tendency to expand investment, local governments that adopt the overtaking strategy will not be constrained by the amount of budgetary revenue. In order to increase investment, they will seek funds from land transfer revenue-based extra-budgetary revenue and land-based mortgage loans (Nitikin et al., 2011).

development can also stimulate the growth of related upstream and downstream capital-intensive industries, which gives further impetus to local GDP growth and fiscal revenue growth. Consequently, real estate development directly contributes to a boom in investment, which further reinforces an imbalanced consumption-investment structure. Furthermore, like the overtaking strategy, real estate development is expected to generate primary and secondary income distribution biased toward capital and government and against labor, which contributes to a distorted consumption-investment structure characterized by underconsumption and overinvestment. It is noteworthy that local governments' land lease schemes provide an important institutional support to real estate development. By keeping monopoly power over the primary market for land, local governments have strong incentives and discretion to raise land prices by controlling the size of land supply through the land reserve system. Because real estate assets are relatively scarce, illiquid, and of fixed supply in the short run, the increase in land prices is in turn transmitted to a surge in housing prices, and the burden is borne by house purchasers (Su et al.,2012).

Local governments have adopted various measures to boost real estate market development and raise housing prices. In addition to fine-tuning land supply, local governments have stimulated the demand for housing by phasing out public housing provision scheme (in 1998), accelerating the urbanization process, adjusting taxation strategies, and colluding with property developers and banks in pushing up housing prices. The dramatic rise in housing prices has, in turn, fuelled expectations of further increases in housing prices (Liu and Sun, 2009), leading to large amounts of capital flowing into the property market resulting in a spiralling increase in housing prices and an expansion of capital-intensive industries. These expectations stimulate the speculative investment demand for property, and also strengthened the propensity of average households to save for the purpose of property purchase, which further reduces consumption and increases investment.

**Hypothesis 2:** The regionally decentralized authoritarian regime in China stimulates real estate development, which contributes to an imbalanced consumption-investment structure through a primary and secondary income distribution biased toward capital and government and against labor. Real estate development stimulates speculative investment demand through expectations of surging property prices; strengthens households' motive for precautionary savings; and generates huge land lease revenues, which further contributes to underconsumption and overinvestment.

In summary, Hypotheses 1-2 argue that the overtaking strategy and the real estate market development strategy generated by the Chinese political and economic governance system are the fundamental institutional foundations for the imbalanced consumption-investment structure, i.e., under-consumption and over-investment. The distortions to the structure of primary and secondary income distribution, reflected in a repressed share of labor income and an elevated share of capital and government income in national income, serve as a major channel for the two development strategies to shape the consumption-investment structure.

### 2.3 Structural Transformation, Demographic Characteristics, and the Consumption-Investment Structure

In addition to the institutional reasons, the consumption and investment structure can evolve with the transformation of the economic structure following economic development<sup>4</sup>. Generally, the labor share in value added is smaller in secondary industries than in the primary and tertiary industries (Chenery and Syrquin, 1975). We therefore expect that labor share will decline when an economy transforms from an agriculture-based one to a secondary industry-based one, but will rise when the economy moves toward a tertiary industry-based one. Thus, the labor share in GDP is expected to show a U-shaped relationship with real GDP per capita (Li et al., 2009). Similarly, because capital and government shares are higher in secondary industries than in other industries, it is not difficult to infer an inverted U-shaped relationship between both capital and government shares and real GDP per capita. Since labor share is of utmost importance to household consumption share in GDP, we expect that the consumption rate will display a U-shaped relationship while the investment rate an inverted U-shaped relationship with real GDP per capita (economic development stages).

**Hypothesis 3:** *Ceteris paribus*, the consumption rate and investment rate display a U-shaped and an inverted U-shaped relationship with real GDP per capita, respectively.

It is noteworthy that besides Hypotheses 1-2, Hypothesis 3 also implies that the transformation of economic structure might shape the consumption-investment structure through the primary income distribution, that is, that economic structure shapes the relative shares of labor, capital and government in national income so as to affect the consumption-investment structure.

Moreover, the consumption-investment structure is associated with demographic characteristics. When the dependency ratio, especially the old-age dependency ratio, is small, workers have less need for savings to support the elderly, which would expand consumption. When the old-age dependency ratio rises, the working population faces a higher burden and tends to consume less and save more. Since at this stage the working population still accounts for a large share of the whole population, the decreasing propensity to consume leads to a shrinking consumption rate and a rising savings rate. When the old-age dependency ratio exceeds some critical level, society will enter a phase of dissaving, i.e., the consumption (savings) rate of households would increase (decrease).

**Hypothesis 4:** *Ceteris paribus*, the consumption rate and investment rate display a U-shaped and an inverted U-shaped relationship with the old-age dependency ratio, respectively.

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<sup>4</sup> Some earlier studies (Rostow, 1960; Chenery and Syrquin, 1975) argued that at a lower development level, the share of the secondary industry value added in GDP is smaller than that of primary industry, resulting in a lower social organic constitution of capital and therefore a lower investment rate. Then, the investment rate will rise when an economy transforms from a primary industry-based one to a secondary industry-based one, but will decline when the economy moves toward a tertiary industry-based one. Here, we give a different explanation for the mechanisms behind the effects of structural transformation.

### 3. Data and Methodology

#### 3.1 Model Specifications

To test Hypotheses 1-4, we conduct province-level panel data regressions. Our analysis consists of several steps. Firstly, we examine the impact of the overtaking strategy and the real estate development strategy as well as other influences on the consumption-investment structure. We carry out the following regressions (Equations 1-3).

$$\begin{aligned} \text{Consumption ratio}_{it} = & \beta_1 \text{Overtaking Strategy}_{it} + \beta_2 \text{Real Estate Development Strategy}_{it} \\ & + \beta_3 \text{GDPPC}_{it} + \beta_4 \text{GDPPC}_{-sqit} + \beta_5 \text{Old Age Dependency Ratio} \\ & + \beta_6 \text{Old Age Dependency Ratio}_{-sqit} + \gamma \text{Control}_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Investment ratio}_{it} = & \beta_1 \text{Overtaking Strategy}_{it} + \beta_2 \text{Real Estate Development Strategy}_{it} \\ & + \beta_3 \text{GDPPC}_{it} + \beta_4 \text{GDPPC}_{-sqit} + \beta_5 \text{Old Age Dependency Ratio} \\ & + \beta_6 \text{Old Age Dependency Ratio}_{-sqit} + \gamma \text{Control}_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (2)$$

$$\begin{aligned} \text{Consumption/Investment ratio}_{it} = & \beta_1 \text{Overtaking Strategy}_{it} \\ & + \beta_2 \text{Real Estate Development Strategy}_{it} + \beta_3 \text{GDPPC}_{it} \\ & + \beta_4 \text{GDPPC}_{-sqit} + \beta_5 \text{Old Age Dependency Ratio} \\ & + \beta_6 \text{Old Age Dependency Ratio}_{-sqit} + \gamma \text{Control}_{it} \\ & + \alpha_i + \varepsilon_{it} \end{aligned} \quad (3)$$

Here we model the consumption-investment structure using three variables. *Consumption ratio* is the proportion of household consumption expenditure in GDP; *Investment ratio* is the fraction of gross fixed capital formation in GDP. To better capture the relative strength of consumption vis-à-vis investment, we also include the ratio of consumption to investment (*Consumption/Investment Ratio*).

Secondly, we investigate the impact of the overtaking strategy and the real estate development strategy, along with other factors, upon income distribution (Equations (4)-(7)). Here we mainly discuss the case of the primary income distribution. For secondary income distribution, we use the corresponding variables after government redistribution.

$$\begin{aligned} \text{Labor Income Share}_{it} = & \beta_1 \text{Overtaking Strategy}_{it} + \beta_2 \text{Real Estate Development Strategy}_{it} \\ & + \beta_3 \text{GDPPC}_{it} + \beta_4 \text{GDPPC}_{-sqit} + \gamma \text{Control}_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (4)$$

$$\begin{aligned} \text{Capital Income Share}_{it} = & \beta_1 \text{Overtaking Strategy}_{it} + \beta_2 \text{Real Estate Development Strategy}_{it} \\ & + \beta_3 \text{GDPPC}_{it} + \beta_4 \text{GDPPC}_{-sqit} + \gamma \text{Control}_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (5)$$

$$\begin{aligned} \text{Gov't Income Share}_{it} = & \beta_1 \text{Overtaking Strategy}_{it} + \beta_2 \text{Real Estate Development Strategy}_{it} \\ & + \beta_3 \text{GDPPC}_{it} + \beta_4 \text{GDPPC}_{-sqit} + \gamma \text{Control}_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (6)$$

$$\begin{aligned} \text{Labor Income} / (\text{Capital Income} + \text{Gov't Income})_{it} = & \beta_1 \text{Overtaking Strategy}_{it} \\ & + \beta_2 \text{Real Estate Development Strategy}_{it} + \beta_3 \text{GDPPC}_{it} \\ & + \beta_4 \text{GDPPC}_{-sqit} + \gamma \text{Control}_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (7)$$

Here *Labor income share* is the fraction of GDP serving as labor compensation; *Capital income share* is the ratio of the sum of operating surplus and fixed asset depreciation to GDP; and *Government income share* is the proportion of net production tax in GDP. To capture the relative strength of labor income share, which is instrumental to the determination of household consumption, we also include a dependent variable which is the ratio of labor income to the sum of capital and government income.

Finally, we test whether government strategies have shaped the consumption-investment structure through the income distribution. To do so, we follow the strategy of Acemoglu et al. (2003) to conduct a series of regression analyses. We first put *Labor Income / (Capital Income + Gov't Income)* into regression equation (3). Then, to assess whether the overtaking strategy and real estate market development strategy affect the consumption-investment structure via income distribution, we adopt the following criteria:

1. If the proxy variables for the overtaking strategy and real estate market development strategy lose statistical significance or their statistical significance and/or the magnitude of the estimated coefficients drop substantially, while the income distribution variable is statistically significant, we can regard income distribution as a primary channel for the impact of the government strategies on the consumption-investment structure. If income distribution is the main channel, these results would suggest that getting income distribution right is likely to be an important policy priority.

2. If the variable of income distribution is not statistically significant, it is not regarded as a channel linking government strategies to an imbalanced consumption-investment structure. In this case, the effect of government strategies on the consumption-investment structure is likely to be through a variety of other channels.

3. If both income distribution and the overtaking strategy and real estate market development strategy are statistically significant, and the statistical significance and magnitude of the latter estimated coefficients do not drop substantially, we can conclude that income distribution is an important channel, but may not be the primary channel through which government strategies translate into an imbalanced consumption-investment structure.

In panel data regression estimation based on Equations (1)-(7) above, we use the method of Driscoll and Kraay (1998) that deals with cross-sectional dependence. If cross-sectional dependence exists but is not addressed, regressions result in misleading conclusions. Compared with the feasible generalized least squares (FGLS) method, this method could more effectively deal with problems of autocorrelation, heteroskedasticity, and cross-sectional correlation in small samples where the number of cross-section units is larger than that of time periods.

### 3.2 Data and Variables

Our empirical analysis is mainly based on panel data from 27 provinces in China in the period 1996-2007. Because of the lack of consistent data in the period covered, our sample does not include four province-level administrative regions, i.e., Chongqing, Hainan, Sichuan, and Tibet. Detailed data sources are reported in Appendix A and summary statistics of all key variables are provided in Table 1.

We use three alternative indicators as proxy measures of the intensity of local governments' pursuit of an overtaking strategy. The first one is the technology choice index proposed by Lin (2009), *TCI*. It is defined as  $TCI = (AVI/LI)/(GDP/L)$ , where *AVI* is the value added of the high-technology industries, *GDP* is the total added value, *LI* is number of employees in high-technology industry and *L* is the total number of employees in the province. If a government adopts an overtaking strategy to promote capital and technology-intensive industries, the *TCI* in this province is expected to be larger than otherwise. Under an overtaking strategy, local governments typically grant some monopoly power in output markets for those enterprises engaged in capital and technology-intensive industries. At the same time, local governments often provide subsidies and cheap loans for them to lower their investment and operational costs. These policies tend to raise *AVI* in the *TCI* indicator. On the contrary, these capital and technology-intensive industries can absorb a relatively small amount of labor (*LI*), which, coupled with the above factor, helps raise the value of the *TCI* indicator. Hence, when holding income and other conditions constant, a higher value of the *TCI* index (named as variable *the overtaking strategy*<sup>1</sup>) corresponds to a more intensive pursuit of the overtaking strategy.

Based on Hypothesis 1, we expect that the estimated coefficients of *the overtaking strategy*<sup>1</sup> are statistically significant and negative in Equations (1), (3), (4) and (7), and statistically significant and positive in Equations (2), (5) and (6).

Nevertheless, this *TCI* index has its weaknesses. It is built upon the basis of industrial structure, which might be affected by the natural evolution process of structural transformation in economic

development as well as local government policies. To capture more powerfully the intention of local governments to pursue the overtaking strategy, we construct two indices based on local economic and technological development zones as proxy variables for the overtaking strategy. They are the logarithm of the number of local development zones (*the overtaking strategy*<sup>2</sup>) and the logarithm of the land area of local development zones (*the overtaking strategy*<sup>3</sup>), respectively, which are taken from the *Directory of Approved Development Zones in China* (2006). Table 2 lists the number and land area of the development zones officially approved by either the central government (the State Council) or provincial governments in the country. It shows that the growth rate of development zones was relatively low in the first eight years (1984-91).<sup>5</sup> Since Deng's remarks that re-launched economic reforms in 1992, there was a wave of new development zones. Under the Chinese regional decentralized authoritarian regime, local governments have very strong incentives to seek the approval of the central government (the State Council) or provincial governments for their plans to set up development zones<sup>6</sup>. By the end of 2006, the total number and land area of the development zones approved by the State Council and provincial governments were 1568 and 999,350 hectares, respectively. Among them, the number of national development zones and provincial-level zones were 222 (14%) and 1,346 (86%), respectively; the land area occupied by national development zones and provincial-level zones were 236,760 (24%) and 762,590 hectares (76%), respectively.

Considering that these development zones have higher technology and capital requirements for entry firms, we can conclude that they reflect policy initiatives of local governments to accelerate the development of capital and technology-intensive industries.

We use the ratio of land lease (land transfer) revenues to budgetary fiscal revenue as a proxy for local governments' efforts to develop local real estate market. As discussed above, land lease revenues are the major source of extra-budgetary revenues for local governments. To acquire land, local governments typically exercise administrative power to appropriate land use rights at an extremely low acquisition price from farmers. Afterwards, by going through a land consolidation and reorganization process, local governments can sell the land use rights at a much higher price, from which local governments reap tremendous land lease revenues. Examining the ratio of land lease revenues to budgetary revenues, we can get a sense of how important land transfer income is to local governments and thus how hard local governments have pushed for property market development. As shown in Table 1, the ratio of land lease revenues to budgetary fiscal income is as high as 23.75% on average, and the maximum ratio in our sample amounts to 170.47%. This shows the importance of land transfer income to local governments. According to Hypothesis 2, we expect that the estimated coefficients of real estate development strategy are negative in Equations (1), (3), (4) and (7), and positive in Equations (2), (5) and (6).

<sup>5</sup> The first development zone was established in Guangzhou in 1984 with approval obtained directly from the State Council. The practice was originally to emulate the experience of export processing zones in other developing countries. To attract foreign investment and facilitate the import of foreign technology as well as equipment, a special land area is designated, where tax concession and other preferential treatments are offered to foreign investors (see Lin, G(2009) for details).

<sup>6</sup> In 1993, the State Council formally conducted two level approve system on the establishment of development zones. i.e., the national development zones approved by the State Council, while the provincial development zones approved by provincial governments.



Real GDP per capita ( $GDPPC$ ) captures the stage of economic development of different provinces. It is derived from the data on nominal GDP per capita and the GDP deflator. To incorporate the potential nonlinear relationship (U-shaped and inverted U-shaped relations), we include both real GDP per capita and its square term ( $GDPPC_{-sq}$ ).

The old-age dependency ratio (*Old Age Dependency Ratio*) is measured as the ratio of the number of people aged 65 and over to the number of people aged 15-64 in a province (National Bureau of Statistics, 2009). To allow for the possible U-shaped and inverted-U-shaped relationship, we include both the aged dependency ratio and its squared term ( $Odr^2$ ).

Besides, we also include two additional control variables in the regression analysis, to capture economic openness and development of the private sector in the region. Economic openness is measured by the sum of exports and imports divided by GDP. The size of the private sector is measured by the ratio of industrial production, by value, of the non-state sector to total industrial production (Bai et al., 2004). Economic openness is intended to capture the bargaining power of owners of different types of production, and is expected to raise the capital share and lower the labor share (Harrison, 2002; Guscina, 2006). After examining over 100 countries over the period 1960-1997, Harrison(2002) finds that economic openness is negatively related to the labor share in income. She argues that this reflects the greater bargaining power of capital relative to labor in a financially-integrated world. Guscina(2006) argues that this “bargaining power” mechanism also plays an important role in generating a negative effect of economic openness on the labor share in industrialized countries. However, Diwan (2000, 2001) notes that the impact of economic openness on the labor share varies from country to country, and that results are highly sensitive to different models. Theoretically, the impact of the size of the private sector on income share is ambiguous. On the one hand, it could lower the labor share. Azmat et al. (2011) find that privatization has been an important factor in the decline of labor’s share of value added over the past two decades in the network industries in OECD countries. They argue that this occurs because state--owned firms place more value on employment rather than profits than privatized firms. This could apply to China in economic transition. Similarly, development of the private economy in China in the absence of labor rights protection could enhance the bargaining power of capital vis-à-vis labor so as to lower the labor share. Working in the opposite direction, the private sector in China is more likely to be engaged in labor-intensive industries than the state sector. Largely denied access to the state-dominated financial system and other favorable government policies, private sector firms find it difficult to enter capital and technology-intensive industries having a higher threshold requirement for capital. They are often forced to engage in labor-intensive industries, consequently, this could boost the labor share.

Economic openness and development of the private sector are also introduced into Equations (1)-(3) since they are likely to affect the consumption-investment structure directly. A more open economy might create greater opportunities for investment and consumption for domestic firms and consumers, and thus affects the consumption-investment structure. Development of the private sector might

restrain the investment impulse of local governments, which in turn affects the consumption-investment structure.

## 4. Empirical Results

### 4.1 Government Development Strategies and the Consumption-Investment Structure in China

In Tables 3-5, we present the regression results showing the impact of government development strategies on the consumption-investment structure, i.e., results for models (1), (2) and (3), where we use the three different indicators of the overtaking strategy respectively. There are several noteworthy findings.

Firstly, a more intensive pursuit of the overtaking strategy and the real estate development strategy is associated with a higher fraction of investment in GDP and a lower fraction of consumption in GDP, and therefore a lower ratio of consumption to investment, i.e., a more imbalanced consumption-investment structure. This is fully consistent with the predictions of Hypotheses 1-2.

Secondly, consistent with Hypothesis 3, the household consumption ratio, investment ratio and ratio of consumption to investment exhibit a U-shaped, an inverted-U shaped and a U-shaped relationship with real GDP per capita respectively. When the annual real GDP per capita is smaller (larger) than RMB 17405.1, household consumption ratio decreases (increases) with real GDP per capita. If we look at the data, we find that most provinces of China still lie in the left part of the U-shaped curve where the consumption ratio declines with real GDP per capita. Where the annual average real GDP per capita is smaller (larger) than RMB 19858.2, the investment ratio increases (decreases) with real GDP per capita. Similarly, we find that most of provinces in China still lie in the left area of the inverted U-shaped curve.

Thirdly, the household consumption ratio, investment ratio and ratio of consumption to investment exhibit a U-shaped, an inverted-U shaped and a U-shaped relationship with the aged dependency ratio respectively, which is consistent with Hypothesis 4. Where the aged dependency ratio remains below (above) 14%, the household consumption ratio decreases (increases) in the aged dependency ratio. An examination of the data tells us that most provinces of China still lie in the left part of the U curve with consumption decreasing in the aged dependency ratio. The investment ratio exhibits an opposite pattern. When the aged dependency ratio is smaller (larger) than 14.1%, the investment ratio increases (decreases) in the aged dependency ratio. Similarly, we find that most provinces of China still lie in the upward movement part where investment rises with aged dependency ratio.

The size of the private sector does not have robust significant effects on the consumption ratio or the ratio of consumption to investment, but has significant positive effects on the investment ratio. Economic openness does not have robust significant positive effects on the consumption ratio and the

ratio of consumption to investment, but has basically significant negative effects on the investment ratio.

#### **4.2 Government Development Strategies and the Biased Factor Income Distribution Structure**

To see how the Chinese political and economic governance system shapes the consumption-investment structure, we analyze, as an intermediate step, how the overtaking strategy and real estate development strategy as well as other factors affect the structure of factor income distribution, particularly the relative shares of labor vis-à-vis capital and government in national income.

Tables 6-8 present the results on the effects of the overtaking strategy, real estate development strategy, etc. on labor share, capital share and government share in the primary income distribution. Some observations can be made. First, a more intensive pursuit of the overtaking strategy and the real estate development strategy is associated with a lower proportion of labor income in GDP and a higher proportion of capital income and government income in GDP, and therefore a lower ratio of labor income to the sum of capital and government income, i.e., a primary income distribution biased against labor. Most of the estimated coefficients are statistically significant. These findings are fully consistent with Hypotheses 1-2.

Second, as predicted by Hypothesis 3, the labor share in GDP, the capital and governmental share in GDP and the ratio of labor income to capital and government income display a U-shaped, an inverted-U shaped, an inverted-U shaped and a U-shaped relationship with real GDP per capita, respectively.

Private economy development has significant negative effects on the labor share, which is consistent with the results of Luo and Zhang (2010). As pointed out by Li et al. (2009), economic transition increases capital owners' bargaining power, resulting in a decline in the share of labor income. Besides, economic reforms force urban redundant workers and encourage rural surplus labor to enter the labor market, thereby increasing labor supply and exerting downward pressures on wages (Luo and Zhang, 2010). In contrast, economic openness has significant positive effects on the labor share, which is not consistent with the results of Luo and Zhang (2010). One possible reason is that China's export sector is still focussed on labor-intensive products or labor-intensive parts of the production chain such as assembly, which might help raise the share of labor in national income.

In addition to the primary income distribution, we also examine the structure of secondary income distribution. When we use the post-redistribution shares of labor income, capital income and government income as the dependent variable respectively, we obtain qualitatively equivalent results. This is not surprising at all since as shown in Figures 4-6 there is a strong positive correlation between primary and secondary income distribution.

### 4.3 Income Structure as Channels

So far we have shown that government development strategies have shaped the primary and secondary income distribution and the consumption-investment structure. We now turn to test whether the impact of development strategies upon the consumption-investment structure work through the channel of income distribution. Tables 9-11 present the results of channel tests. We first present the results of the regressions of the ratio of consumption to investment on the proxy variables for the two types of government development strategy without including the primary income distribution indicators. Clearly, both strategies produce a statistically significant and negative impact on the consumption-investment ratio. Then, we add (Column 2 of the tables) the indicator of primary income distribution, i.e., the ratio of labor income to the sum of capital and government income. We find that the primary income distribution variable generates a statistically significant and positive estimated coefficient, whereas the estimated coefficients of the two government strategy proxy variables remain statistically significant. At the same time, the magnitude of the estimated coefficient of the real estate market development strategy is unchanged, while that of the overtaking strategy drops slightly. This indicates that the primary income distribution serves as one important channel of the impact of government development strategies on the consumption-investment structure, but it is hardly the primary channel.

Finally, in column 3 of the tables, we implement the instrumental variable regression to deal with the potential concern of endogeneity of the primary income distribution. For example, theoretically, it could be the case that the campaign for investment by local governments leads to overinvestment and underconsumption and distorts the consumption-investment structure in the region. Then, a large amount of investment under local government's favorable treatment may raise the share of capital and government income and lower that of labor income in local GDP. To tackle this issue, we use the one-year lagged value of the primary income distribution structure indicator as an instrumental variable and conduct a two-stage fixed effects regression on the panel dataset. The lagged income distribution variable is highly correlated with the current income distribution variable and thus satisfies the relevance condition. Furthermore, the lagged income distribution is believed to affect the current consumption-investment structure only through its impact on the current income distribution. Hence, it satisfies the exclusion restriction condition.

Our IV regression results remain qualitatively equivalent. The estimated coefficient of the income distribution variable becomes larger in magnitude, while that of the overtaking strategy indicator becomes smaller in magnitude. Compared with the results in Column 2 in the tables, the role of the primary income distribution as a channel to mediate the impact of the overtaking strategy on the consumption-investment structure has increased after we conduct the instrumental variable regressions.

Furthermore, when we test whether the impact of development strategies upon the consumption-investment structure work through the channel of secondary income distribution, we obtain similar results. It suggests that the overtaking strategy and the real estate development strategy have played

an important part in shaping the unbalanced consumption-investment structure. A significant part of the impact is mediated by the distorted primary and secondary income distribution. In addition, Tables 9-11 also show that the overtaking strategy and real estate development strategy indicators remain statistically significant after including the primary income distribution indicator. This “residual significance” suggests that the “growth-first” development strategy has also contributed to the biased consumption-investment structure through other channels. For instance, the real estate development strategy has stimulated speculative investment demand through expectations of surging property prices, strengthened households’ motive for precautionary savings, and generated huge land lease revenues, while the overtaking strategy has weakened the social safety net for local residents and intensified households’ motive for precautionary savings, all of which raise investment and lower consumption.

Our results suggest that getting the structure of primary and secondary income distribution right is not enough to achieving a consumption-based growth model in China. It is absolutely necessary for the Chinese government to reform its political and economic governance system to motivate local governments to spend their fiscal resources on the construction of a social safety net so as to improve the social welfare system.

## 5. Conclusion

In this paper, we conduct an analysis to understand the unbalanced consumption-investment structure in the context of China’s political and economic governance system. We argue that one fundamental cause of the imbalance between consumption and investment in China is China’s political and economic governance system, an institutional structure that is credited with China’s rapid economic development in the past three decades. The overtaking strategy and the real estate development strategy generated by this governance system has contributed to China’s neck breaking economic growth, but at the same time they have led to a distorted income distribution and internal macroeconomic imbalances.

Using the overtaking strategy and the real estate development strategy to characterize the behavior of local governments under a regionally decentralized authoritarian system, we document a strong relationship between the two strategies and the imbalanced consumption-investment structure. The impact of the governance system and growth strategies is not diminished even after considering the effects of the structure of the local economy and demographics. Moreover, we verify that the biased primary and secondary income distribution serves as an important channel through which the governance system and its development strategies affect the consumption-investment structure. Our findings imply that the Chinese government will be able to accomplish China’s transition from an investment-led growth model to a consumption-based growth model only if it modifies its political and economic governance system and thus removes the distortions arising from current development strategies.

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Table 1. Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Consumption ratio</i>	324	40.50	7.77	25.66	69.67
<i>Investment ratio</i>	324	42.08	11.28	24.86	82.58
<i>Consumption ratio/Investment ratio</i>	324	1.04	0.38	0.39	2.17
<i>Labor Income Share</i>	324	49.14	7.83	32.8	69.4
<i>Capital Income Share</i>	324	36.51	7.30	17.2	50.5
<i>Gov't Income Share</i>	324	14.35	3.02	7.6	26.6
<i>Overtaking Strategy<sup>1</sup></i>	324	3.58	1.69	0.65	10.03
<i>Overtaking Strategy<sup>2</sup></i>	296	2.96	0.93	0	5.14
<i>Overtaking Strategy<sup>3</sup></i>	296	9.68	0.85	7.35	11.39
<i>Real Estate Development Strategy</i>	324	23.75	25.76	0.35	170.47
<i>GDPPC</i>	324	3631.11	3399.98	639	25268
<i>Old Age Dependency Ratio</i>	324	11.02	2.55	6.13	21.88
<i>Open</i>	324	32.21	41.43	3.2	176.5
<i>Private economy development</i>	324	44.69	20.67	10.12	88.16

**Notes:** *Consumption ratio* is household consumption ratio, which is the proportion of household consumption in GDP. *Investment ratio* is investment ratio, which is the percentage of the total value of fixed capital formation in GDP. *Labor Income Share* is the share of labor compensation in GDP. *Capital Income Share* is the share of capital return in GDP. *Gov't Income Share* is the share of net production tax in GDP. *Overtaking Strategy<sup>1</sup>*, *Overtaking Strategy<sup>2</sup>*, *Overtaking Strategy<sup>3</sup>* refer to the overtaking strategy, which is measured by the ratio of the added value of high-technology industry per capita to GDP per capita, the logarithm of the number of local development zones, and the logarithm of the area of local development zones, respectively. *Real Estate Development Strategy* represents real estate market development strategy, which is measured by the ratio of land lease revenues to budgetary fiscal revenue. GDPPC is real GDP per capita. *Old Age Dependency Ratio* is measured as the ratio of the number of people aged 65 and over to the number of people aged 15-64 in a province. *Open* is the sum of exports and imports divided by GDP. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004)

Table 2. Growth of Development Zones in China, 1984-2006

	<i>Number</i>				<i>Area (thousand hectares)</i>			
	<i>National</i>	<i>%</i>	<i>Provincial</i>	<i>%</i>	<i>National</i>	<i>%</i>	<i>Provincial</i>	<i>%</i>
1984	9	90.00	1	10.00	18.86	96.32	0.72	3.68
1986	11	91.67	1	8.33	19.24	96.39	0.72	3.61
1987	12	92.31	1	7.69	19.26	96.40	0.72	3.60
1988	13	65.00	7	35.00	20.59	78.88	5.51	21.12
1989	16	66.67	8	33.33	29.60	81.30	6.81	18.70
1990	18	60.00	12	40.00	33.88	77.67	9.74	22.33
1991	46	69.70	20	30.30	85.10	85.29	14.68	14.71
1992	116	41.43	164	58.57	163.71	59.43	111.76	40.57
1993	130	32.10	275	67.90	180.50	48.45	192.04	51.55
1994	133	26.60	367	73.40	191.91	43.64	247.82	56.36
1995	136	25.37	400	74.63	199.32	42.46	270.06	57.54
1996	138	24.56	424	75.44	199.70	41.25	284.46	58.75
1997	139	23.56	451	76.44	201.91	40.09	301.76	59.91
1998	139	22.79	471	77.21	201.91	38.94	316.64	61.06
1999	139	22.24	486	77.76	201.91	38.14	327.50	61.86
2000	166	24.48	512	75.52	217.55	38.67	345.05	61.33
2001	173	24.06	546	75.94	224.21	37.92	366.98	62.08
2002	183	22.73	622	77.27	228.51	35.81	409.63	64.19
2003	197	22.39	683	77.61	231.94	34.03	449.61	65.97
2004	203	22.91	683	77.09	232.60	34.10	449.61	65.90
2005	222	24.53	683	75.47	236.76	34.49	449.61	65.51
2006	222	14.16	1346	85.84	236.76	23.69	762.59	76.31

Source: Lin (2009), pp.188.

**Table 3. Growth-First Development Strategy and the Imbalance between Consumption and Investment**

<i>Dependent</i>	<i>Consumption ratio (1)</i>	<i>Investment ratio (2)</i>	<i>Consumption ratio / Investment ratio (3)</i>
<i>Overtaking Strategy</i> <sup>1</sup>	-0.55** (0.015)	1.49*** (0.001)	-0.07*** (0.000)
<i>Real Estate Development Strategy</i>	-0.01** (0.016)	0.07*** (0.000)	-0.002*** (0.003)
<i>GDPPC</i>	-0.0022*** (0.000)	0.0028*** (0.000)	-0.0001*** (0.000)
<i>GDPPC_sq</i>	6.32e-8 *** (0.000)	-7.05e-8*** (0.000)	3.06e-9 *** (0.000)
<i>Old Age Dependency Ratio</i>	-2.79** (0.014)	5.62*** (0.007)	-0.16** (0.014)
<i>Old Age Dependency Ratio_sq</i>	0.10** (0.016)	-0.20*** (0.007)	0.005** (0.021)
<i>Private Economy Development</i>	-0.03 (0.190)	0.25*** (0.000)	-0.004** (0.028)
<i>Open</i>	0.05 (0.198)	-0.17*** (0.003)	0.005*** (0.006)
<i>Intercept</i>	67.74*** (0.000)	-15.24 (0.244)	2.87*** (0.000)
<i>N</i>	324	324	324
<i>R</i> <sup>2</sup>	0.5527	0.6624	0.6876

**Notes:** *Consumption ratio* is household consumption ratio, which is the proportion of household consumption in GDP. *Investment ratio* is investment ratio, which is the percentage of the total value of fixed capital formation in GDP. *Overtaking Strategy*<sup>1</sup> is measured by the ratio of the added value of high-technology industry per capita to GDP per capita. *Real Estate Development Strategy* is measured by the ratio of land lease revenues to budgetary fiscal revenue. *GDPPC* and *GDPPC\_sq* are real GDP per capita and its square term. *Old Age Dependency Ratio* and *Old Age Dependency Ratio\_sq* are measured as the ratio of the number of people aged 65 and over to the number of people aged 15-64 in a province and its square term. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004). *Open* is the sum of exports and imports divided by GDP. P values are in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% level, respectively.

**Table 4. Growth-First Development Strategy and the Imbalance between Consumption and Investment**

<i>Dependent</i>	<i>Consumption ratio (1)</i>	<i>Investment ratio (2)</i>	<i>Consumption ratio / Investment ratio (3)</i>
<i>Overtaking Strategy</i> <sup>2</sup>	-0.95 (0.208)	5.04* (0.098)	-0.13* (0.107)
<i>Real Estate Development Strategy</i>	-0.01** (0.015)	0.06*** (0.000)	-0.002*** (0.006)
<i>GDPPC</i>	-0.002*** (0.000)	0.002*** (0.038)	-0.0001*** (0.000)
<i>GDPPC_sq</i>	7.59e-8 *** (0.000)	-8.51e-8*** (0.000)	3.98e-9 *** (0.000)
<i>Old Age Dependency Ratio</i>	-2.91** (0.024)	5.89** (0.012)	-0.20** (0.029)
<i>Old Age Dependency Ratio_sq</i>	0.10** (0.025)	-0.20*** (0.010)	0.006** (0.031)
<i>Private Economy Development</i>	0.002 (0.949)	0.18** (0.017)	-0.002 (0.559)
<i>Open</i>	0.04 (0.536)	-0.12 (0.206)	0.004 (0.209)
<i>Intercept</i>	68.62*** (0.000)	-23.71 (0.132)	3.21*** (0.000)
<i>N</i>	296	296	296
<i>R<sup>2</sup></i>	0.4821	0.6493	0.6190

**Notes:** *Consumption ratio* is household consumption ratio, which is the proportion of household consumption in GDP. *Investment ratio* is investment ratio, which is the percentage of the total value of fixed capital formation in GDP. *Overtaking Strategy*<sup>2</sup> is measured by the logarithm of the number of local development zones. *Real Estate Development Strategy* is measured by the ratio of land lease revenues to budgetary fiscal revenue. *GDPPC* and *GDPPC\_sq* are real GDP per capita and its square term. *Old Age Dependency Ratio* and *Old Age Dependency Ratio\_sq* are measured as the ratio of the number of people aged 65 and over to the number of people aged 15-64 in a province and its square term. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004). *Open* is the sum of exports and imports divided by GDP. P values are in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% level, respectively.

**Table 5. Growth-First Development Strategy and the Imbalance between Consumption and Investment**

<i>Dependent</i>	<i>Consumption ratio (1)</i>	<i>Investment ratio (2)</i>	<i>Consumption ratio / Investment ratio (3)</i>
<i>Overtaking Strategy</i> <sup>3</sup>	-2.54*** (0.001)	8.25*** (0.000)	-0.24*** (0.000)
<i>Real Estate Development Strategy</i>	-0.01*** (0.007)	0.06*** (0.000)	-0.002*** (0.003)
<i>GDPPC</i>	-0.002*** (0.000)	0.002*** (0.002)	-0.0001*** (0.000)
<i>GDPPC_sq</i>	7.39e-8 *** (0.000)	-8.58e-8*** (0.000)	3.94e-9 *** (0.000)
<i>Old Age Dependency Ratio</i>	-2.35** (0.030)	4.67** (0.015)	-0.16** (0.039)
<i>Old Age Dependency Ratio_sq</i>	0.08** (0.030)	-0.16** (0.011)	0.005** (0.044)
<i>Private Economy Development</i>	0.009 (0.732)	0.17*** (0.007)	-0.001 (0.622)
<i>Open</i>	0.03 (0.527)	-0.12* (0.054)	0.004 (0.104)
<i>Intercept</i>	86.00*** (0.000)	-80.20*** (0.001)	4.85*** (0.000)
<i>N</i>	296	296	296
<i>R</i> <sup>2</sup>	0.4980	0.6811	0.6431

**Notes:** *Consumption ratio* is household consumption ratio, which is the proportion of household consumption in GDP. *Investment ratio* is investment ratio, which is the percentage of the total value of fixed capital formation in GDP. *Overtaking Strategy*<sup>1</sup> is measured by the logarithm of the area of local development zones. *Real Estate Development Strategy* is measured by the ratio of land lease revenues to budgetary fiscal revenue. *GDPPC* and *GDPPC\_sq* are real GDP per capita and its square term. *Old Age Dependency Ratio* and *Old Age Dependency Ratio\_sq* are measured as the ratio of the number of people aged 65 and over to the number of people aged 15-64 in a province and its square term. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004). *Open* is the sum of exports and imports divided by GDP. P values are in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% level, respectively.

Table 6. Growth-First Development Strategy and Biased Income Distribution Structure

<i>Dependent</i>	<i>Labor Income Share</i>	<i>Capital Income Share</i>	<i>Gov't Income Share</i>	<i>Labor Income Share / (Capital Income Share + Gov't Income Share)</i>
	(1)	(2)	(3)	(4)
<i>Overtaking Strategy</i> <sup>1</sup>	-1.47*** (0.000)	1.35*** (0.000)	0.12 (0.300)	-0.08*** (0.000)
<i>Real Estate Development Strategy</i>	-0.03*** (0.002)	0.02 (0.134)	0.01* (0.102)	-0.001*** (0.001)
<i>GDPPC</i>	-0.0019*** (0.000)	0.001*** (0.000)	0.0007*** (0.002)	-0.00006*** (0.000)
<i>GDPPC_sq</i>	3.6e-8*** (0.001)	-7.69e-9 (0.164)	-2.83e-8** (0.034)	9.25e-10 *** (0.000)
<i>Private Economy Development</i>	-0.05** (0.044)	0.09*** (0.000)	-0.04** (0.048)	-0.004*** (0.005)
<i>Open</i>	0.12*** (0.000)	-0.10*** (0.000)	-0.01** (0.030)	0.005*** (0.000)
<i>Intercept</i>	59.92*** (0.000)	26.35*** (0.000)	13.74*** (0.000)	1.56*** (0.000)
<i>N</i>	324	324	324	324
<i>R</i> <sup>2</sup>	0.4045	0.2975	0.1094	0.4213

**Notes:** *Labor Income Share* is the share of labor compensation in GDP. *Capital Income Share* is the share of capital return in GDP. *Gov't Income Share* is the share of net production tax in GDP. *Overtaking Strategy*<sup>1</sup> is measured by the ratio of the added value of high-technology industry per capita to GDP per capita. *Real Estate Development Strategy* is measured by the ratio of land lease revenues to budgetary fiscal revenue. *GDPPC* and *GDPPC\_sq* are real GDP per capita and its square term. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004). *Open* is the sum of exports and imports divided by GDP. P values are in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% level, respectively.



Table 7. Growth-First Development Strategy and Biased Income Distribution Structure

<i>Dependent</i>	<i>Labor Income Share</i> (1)	<i>Capital Income Share</i> (2)	<i>Gov't Income Share</i> (3)	<i>Labor Income Share /(Capital Income Share + Gov't Income Share)</i> (4)
<i>Overtaking Strategy</i> <sup>2</sup>	-2.69 (0.231)	1.85 (0.217)	0.84 (0.329)	-0.16 (0.148)
<i>Real Estate Development Strategy</i>	-0.05*** (0.000)	0.04*** (0.001)	0.01* (0.096)	-0.002*** (0.000)
<i>GDPPC</i>	-0.002*** (0.000)	0.002*** (0.002)	0.0007*** (0.000)	-0.00007*** (0.003)
<i>GDPPC_sq</i>	4.99e-8*** (0.001)	-6.27e-9 (0.164)	-4.36e-8*** (0.002)	1.40e-9 *** (0.000)
<i>Private Economy Development</i>	-0.02 (0.635)	0.07** (0.014)	-0.05** (0.025)	-0.002 (0.450)
<i>Open</i>	0.13*** (0.010)	-0.14*** (0.001)	0.007 (0.544)	0.007*** (0.003)
<i>Intercept</i>	61.57*** (0.000)	26.52*** (0.001)	11.91*** (0.000)	1.65*** (0.000)
<i>N</i>	296	296	296	296
<i>R</i> <sup>2</sup>	0.3270	0.2172	0.1289	0.3101

**Notes:** *Labor Income Share* is the share of labor compensation in GDP. *Capital Income Share* is the share of capital return in GDP. *Gov't Income Share* is the share of net production tax in GDP. *Overtaking Strategy*<sup>2</sup> is measured by the logarithm of the number of local development zones. *Real Estate Development Strategy* is measured by the ratio of land lease revenues to budgetary fiscal revenue. *GDPPC* and *GDPPC\_sq* are real GDP per capita and its square term. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004). *Open* is the sum of exports and imports divided by GDP. P values are in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% level, respectively.

Table 8. Growth-First Development Strategy and Biased Income Distribution Structure

<i>Dependent</i>	<i>Labor Income Share</i> (1)	<i>Capital Income Share</i> (2)	<i>Gov't Income Share</i> (3)	<i>Labor Income Share /(Capital Income Share + Gov't Income Share)</i> (4)
<i>Overtaking Strategy</i> <sup>3</sup>	-4.10** (0.022)	3.02*** (0.003)	1.07 (0.214)	-0.23*** (0.009)
<i>Real Estate Development Strategy</i>	-0.05*** (0.000)	0.03*** (0.002)	0.01* (0.108)	-0.002*** (0.000)
<i>GDPPC</i>	-0.002*** (0.000)	0.001*** (0.000)	0.0007*** (0.002)	-0.00008*** (0.000)
<i>GDPPC_sq</i>	4.84e-8*** (0.003)	-4.44e-9 (0.336)	-4.39e-8*** (0.002)	1.38e-9 *** (0.002)
<i>Private Economy Development</i>	-0.01 (0.740)	0.06*** (0.005)	-0.05** (0.033)	-0.001 (0.471)
<i>Open</i>	0.13*** (0.000)	-0.14*** (0.000)	0.007 (0.439)	0.006*** (0.000)
<i>Intercept</i>	92.92*** (0.000)	3.12*** (0.728)	3.96 (0.630)	3.35*** (0.000)
<i>N</i>	296	296	296	296
<i>R</i> <sup>2</sup>	0.3442	0.2288	0.1315	0.3295

**Notes:** *Labor Income Share* is the share of labor compensation in GDP. *Capital Income Share* is the share of capital return in GDP. *Gov't Income Share* is the share of net production tax in GDP. *Overtaking Strategy*<sup>3</sup> is measured by the logarithm of the area of local development zones. *Real Estate Development Strategy* is measured by the ratio of land lease revenues to budgetary fiscal revenue. *GDPPC* and *GDPPC\_sq* are real GDP per capita and its square term. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004). *Open* is the sum of exports and imports divided by GDP. P values are in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% level, respectively.

**Table 9. Growth-First Development Strategy and the Imbalance between Consumption and Investment: Channel Test**

<i>Dependent</i>	<i>Consumption ratio / Investment ratio</i> (1)	<i>Consumption ratio / Investment ratio</i> (2)	<i>Consumption ratio / Investment ratio</i> (3)
<i>Labor Income Share / (Capital Income Share + Gov't Income Share)</i>		0.13* (0.067)	0.21** (0.017)
<i>Overtaking Strategy</i> <sup>1</sup>	-0.07*** (0.000)	-0.06*** (0.000)	-0.04*** (0.002)
<i>Real Estate Development Strategy</i>	-0.002*** (0.003)	-0.002*** (0.009)	-0.002*** (0.006)
<i>GDPPC</i>	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)
<i>GDPPC_sq</i>	3.06e-9 *** (0.000)	2.97e-9*** (0.000)	2.95e-9*** (0.000)
<i>Old Age Dependency Ratio</i>	-0.16** (0.014)	-0.15** (0.014)	-0.11*** (0.001)
<i>Old Age Dependency Ratio_sq</i>	0.005** (0.021)	0.005** (0.023)	0.003*** (0.008)
<i>Private Economy Development</i>	-0.004** (0.028)	-0.004* (0.062)	-0.004** (0.027)
<i>Open</i>	0.005*** (0.006)	0.004** (0.021)	0.005*** (0.002)
<i>Intercept</i>	2.87*** (0.000)	2.61*** (0.000)	— —
<i>Endogeneity test</i>	—	—	0.07
<i>Method</i>	FE <sup>a</sup>	FE <sup>a</sup>	FE <sup>b</sup>
<i>N</i>	324	324	297
<i>R</i> <sup>2</sup>	0.6876	0.6947	0.6841

**Notes:** *Consumption ratio* is household consumption ratio, which is the proportion of household consumption in GDP. *Investment ratio* is investment ratio, which is the percentage of the total value of fixed capital formation in GDP. *Labor Income Share* is the share of labor compensation in GDP. *Capital Income Share* is the share of capital return in GDP. *Gov't Income Share* is the share of net production tax in GDP. *Overtaking Strategy*<sup>1</sup> is measured by the ratio of the added value of high-technology industry per capita to GDP per capita. *Real Estate Development Strategy* represents real estate market development strategy, which is measured by the ratio of land lease revenues to budgetary fiscal revenue. GDPPC is real GDP per capita. *Old Age Dependency Ratio* and *Old Age Dependency Ratio\_sq* are measured as the ratio of the number of people aged 65 and over to the number of people aged 15-64 in a province and its square term. *Open* is the sum of exports and imports divided by GDP. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004)

P values are in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% level, respectively.

a: Method proposed by Driscoll and Kraay is used.

b: We lag *Laborshare/(Capshare+Govershare)* by one year as instrument variables

c: We use *xtiivreg2* Command to estimate this model.

Table 10. Growth-First Development Strategy and the Imbalance between Consumption and Investment: Channel Test

<i>Dependent</i>	<i>Consumption ratio / Investment ratio</i> (1)	<i>Consumption ratio / Investment ratio</i> (2)	<i>Consumption ratio / Investment ratio</i> (3)
<i>Labor Income Share / (Capital Income Share + Gov't Income Share)</i>		0.20** (0.014)	0.29*** (0.002)
<i>Overtaking Strategy<sup>2</sup></i>	-0.13* (0.107)	-0.11* (0.074)	-0.07* (0.073)
<i>Real Estate Development Strategy</i>	-0.002*** (0.006)	-0.002** (0.020)	-0.002** (0.017)
<i>GDPPC</i>	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)
<i>GDPPC_sq</i>	3.98e-9 *** (0.000)	3.81e-9*** (0.000)	3.70e-9*** (0.000)
<i>Old Age Dependency Ratio</i>	-0.20** (0.029)	-0.18** (0.026)	-0.11*** (0.003)
<i>Old Age Dependency Ratio_sq</i>	0.006** (0.031)	0.006** (0.031)	0.003*** (0.010)
<i>Private Economy Development</i>	-0.002 (0.559)	-0.001 (0.637)	-0.002 (0.394)
<i>Open</i>	0.004 (0.209)	0.003 (0.308)	0.004** (0.035)
<i>Intercept</i>	3.21*** (0.000)	2.72*** (0.000)	— —
<i>Endogeneity test</i>	—	—	0.05
<i>Method</i>	FE <sup>a</sup>	FE <sup>a</sup>	FE <sup>b</sup>
<i>N</i>	296	296	270
<i>R<sup>2</sup></i>	0.6190	0.6404	0.6371

**Notes:** *Consumption ratio* is household consumption ratio, which is the proportion of household consumption in GDP. *Investment ratio* is investment ratio, which is the percentage of the total value of fixed capital formation in GDP. *Labor Income Share* is the share of labor compensation in GDP. *Capital Income Share* is the share of capital return in GDP. *Gov't Income Share* is the share of net production tax in GDP. *Overtaking Strategy<sup>2</sup>* is measured by the logarithm of the number of local development zones. *Real Estate Development Strategy* represents real estate market development strategy, which is measured by the ratio of land lease revenues to budgetary fiscal revenue. GDPPC is real GDP per capita. *Old Age Dependency Ratio* and *Old Age Dependency Ratio\_sq* are measured as the ratio of the number of people aged 65 and over to the number of people aged 15-64 in a province and its square term. *Open* is the sum of exports and imports divided by GDP. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004). P values are in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% level, respectively.

a: Method proposed by Driscoll and Kraay is used.

b: We lag *Laborshare/(Capshare+Govershare)* by one year as instrument variables

c: We use *xivreg2* Command to estimate this model.

Table 11. Growth-First Development Strategy and the Imbalance between Consumption and Investment: Channel Test

<i>Dependent</i>	<i>Consumption ratio / Investment ratio</i> (1)	<i>Consumption ratio / Investment ratio</i> (2)	<i>Consumption ratio / Investment ratio</i> (3)
<i>Labor Income Share / (Capital Income Share + Gov't Income Share)</i>		0.18** (0.024)	0.26*** (0.006)
<i>Overtaking Strategy<sup>3</sup></i>	-0.24*** (0.000)	-0.21*** (0.000)	-0.16*** (0.002)
<i>Real Estate Development Strategy</i>	-0.002*** (0.003)	-0.002** (0.011)	-0.002** (0.013)
<i>GDPPC</i>	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)
<i>GDPPC_sq</i>	3.94e-9 *** (0.000)	3.78e-9*** (0.000)	3.70e-9*** (0.000)
<i>Old Age Dependency Ratio</i>	-0.16** (0.039)	-0.15** (0.036)	-0.09** (0.017)
<i>Old Age Dependency Ratio<sub>-sq</sub></i>	0.005** (0.044)	0.004** (0.044)	0.003** (0.048)
<i>Private Economy Development</i>	-0.001 (0.622)	-0.0009 (0.703)	-0.001** (0.489)
<i>Open</i>	0.004 (0.104)	0.003** (0.206)	0.004** (0.028)
<i>Intercept</i>	4.85*** (0.000)	4.22*** (0.000)	— —
<i>Endogeneity test</i>	—	—	0.06
<i>Method</i>	FE <sup>a</sup>	FE <sup>a</sup>	FE <sup>b</sup>
<i>N</i>	296	296	270
<i>R<sup>2</sup></i>	0.6431	0.6590	0.6542

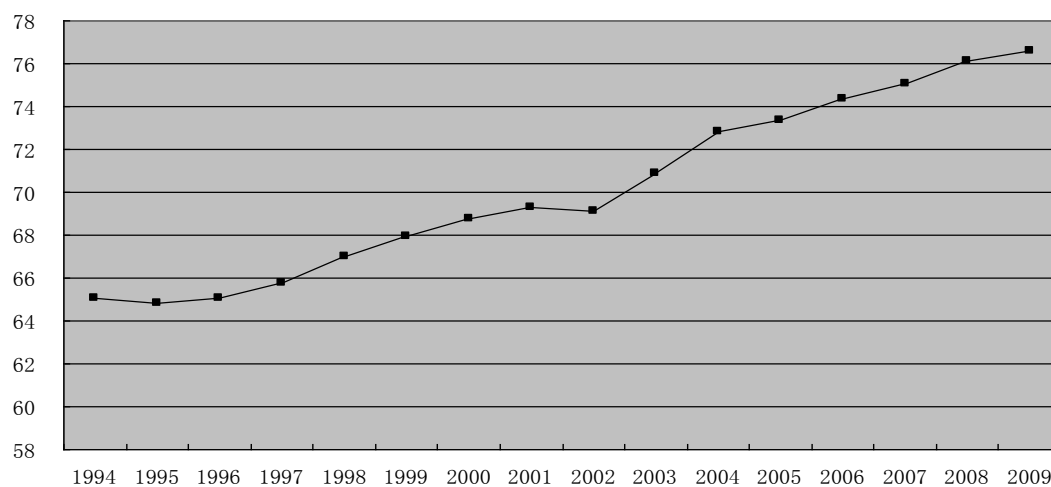
**Notes:** *Consumption ratio* is household consumption ratio, which is the proportion of household consumption in GDP. *Investment ratio* is investment ratio, which is the percentage of the total value of fixed capital formation in GDP. *Labor Income Share* is the share of labor compensation in GDP. *Capital Income Share* is the share of capital return in GDP. *Gov't Income Share* is the share of net production tax in GDP. *Overtaking Strategy<sup>3</sup>* is measured by the logarithm of the area of local development zones. *Real Estate Development Strategy* represents real estate market development strategy, which is measured by the ratio of land lease revenues to budgetary fiscal revenue. GDPPC is real GDP per capita. *Old Age Dependency Ratio* and *Old Age Dependency Ratio<sub>-sq</sub>* are measured as the ratio of the number of people aged 65 and over to the number of people aged 15-64 in a province and its square term. *Open* is the sum of exports and imports divided by GDP. *Private economy development* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004). P values are in parentheses. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% level, respectively.

a: Method proposed by Driscoll and Kraay is used.

b: We lag *Laborshare/(Capshare+Govershare)* by one year as instrument variables

c: We use *xivreg2* Command to estimate this model.

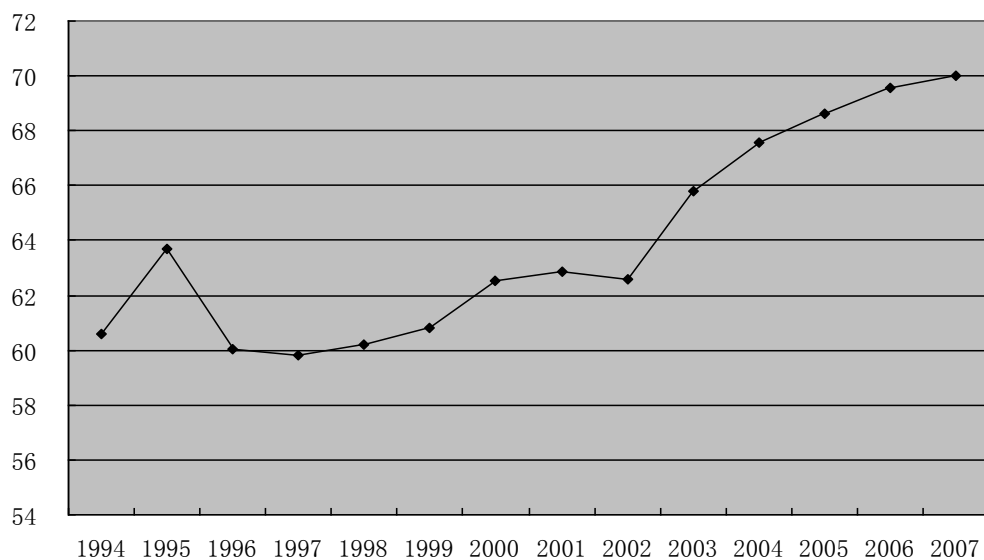
**Figure 1. The Evolution of Ratio of Assets of Heavy Industry to Total Assets of Industry in China**



Notes: (1) Industry includes heavy industry and light industry;

(2) Data sources: *China Industrial Economic Statistical Yearbook* (various years) and *China Statistical Yearbook* (various years)

**Figure 2. The Evolution of Ratio of Value Added of Heavy Industry to Total Value Added of Industry in China**

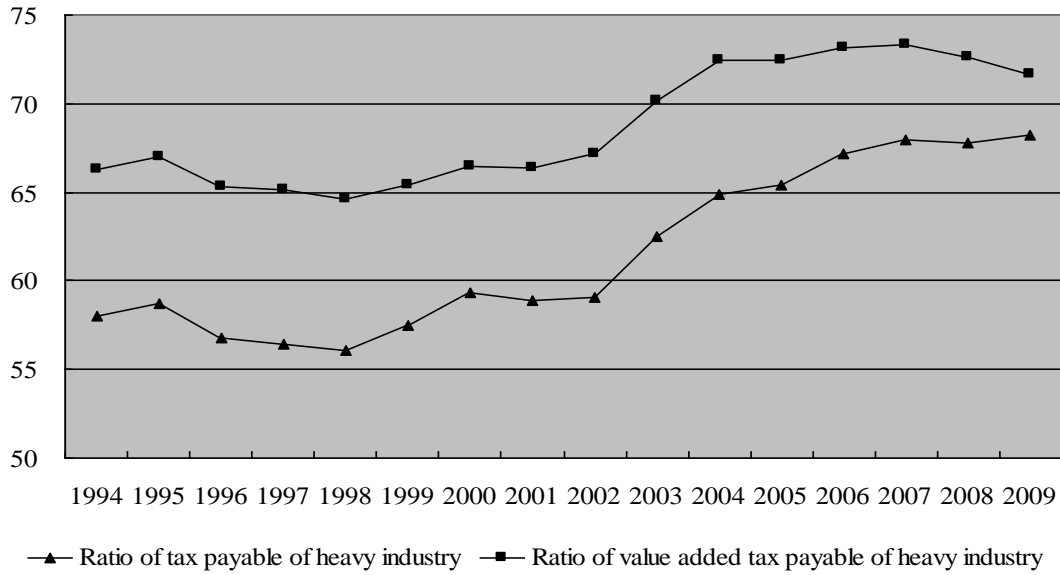


Notes: (1) Industry includes heavy industry and light industry;

(2) Figure 4 reveals why Chinese local governments developed capital and technology-intensive heavy industry rather than labor-intensive light industry;

(3) Data sources: *China Industrial Economic Statistical Yearbook* (various years) and *China Statistical Yearbook* (various years)

**Figure 3. The Evolution of Ratio of Tax Payable of Heavy Industry to Total Tax Payable of Industry, and Ratio of Value Added Tax Payable of Heavy Industry to Total Value Added Tax Payable of Industry in China**



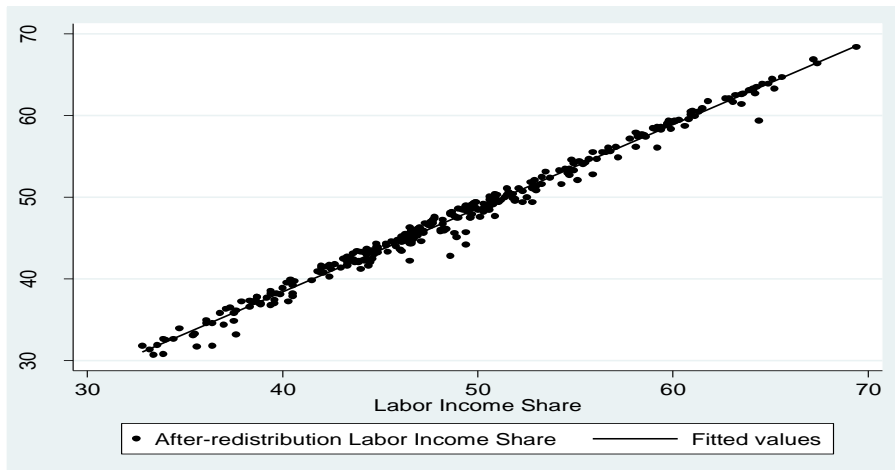
Notes: (1) Manufacturing industries are classified into heavy industry and light industry;

(2) tax payable equals the sum of value added tax payable and taxes and other charges on principal business revenues;

(3) Figure 6 shows why Chinese local governments developed capital and technology-intensive heavy industry rather than labor-intensive light industry. If taking enterprise income tax in the secondary income distribution into account, our result will be reinforced;

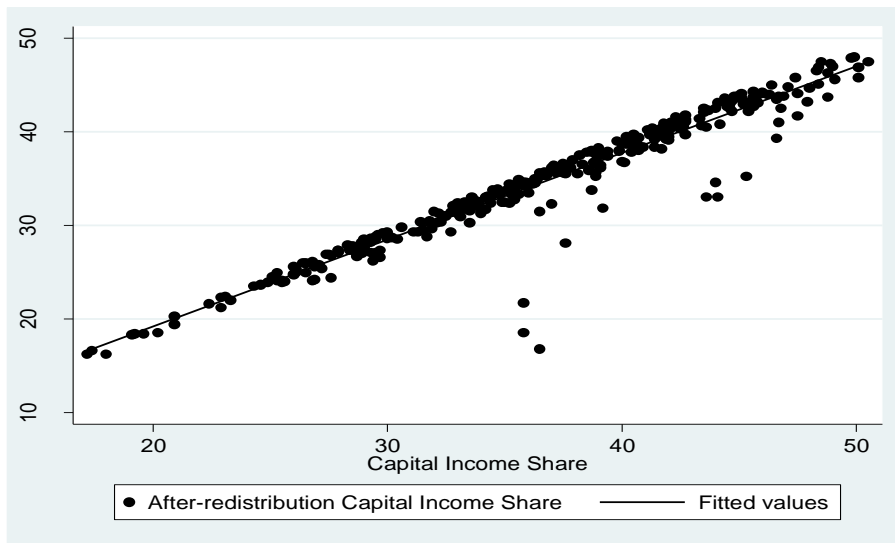
(4) Data sources: *China Industrial Economic Statistical Yearbook* (various years) and *China Statistical Yearbook* (various years).

**Figure 4. Labor Income Share and After-Redistribution Labor Income Share**



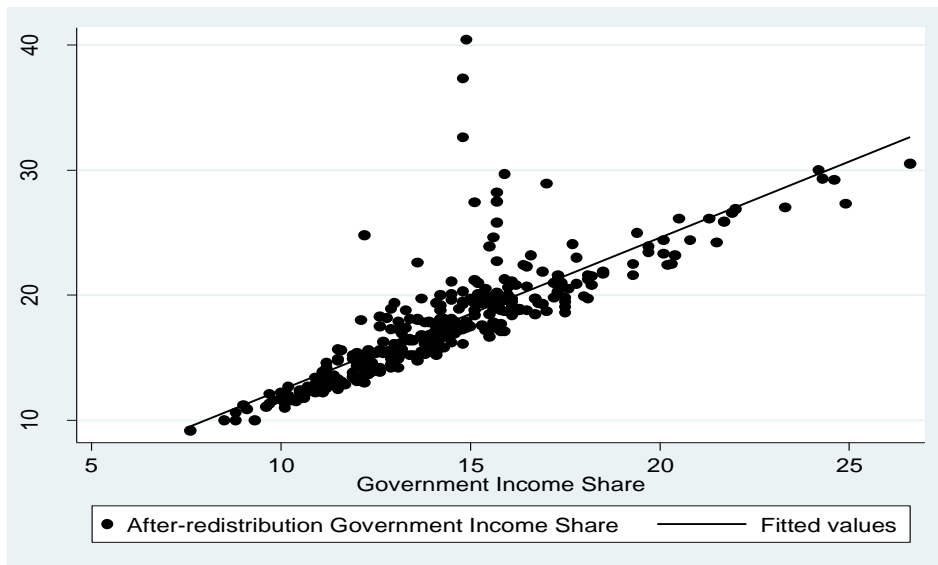
Data source: Lv and Guo(2012b).

**Figure 5. Capital Income Share and After-Redistribution Capital Income Share**



Data source:Lv and Guo(2012b).

**Figure 6. Government Income Share and After-Redistribution Government Income Share**



Data source: Lv and Guo(2012b).



## Appendix A. Data Sources

The data on the primary and secondary income distribution is taken from Lv and Guo(2012b). The data underlying the household consumption ratio, i.e., household consumption expenditures, GDP, are taken from *China Compendium of Statistics 1949-2004* and *China Compendium of Statistics 1949-2008*. The original data to measure the investment ratio, that is, gross fixed capital formation and GDP, are from *China Compendium of Statistics 1949-2004* and *China Compendium of Statistics 1949-2008*. The data used to construct the measure  $TCI^1$ (1996-2007), i.e., the data on the value added of high-technology industry, GDP, employees in high-technology industry, and the total employees, are from *China Compendium of Statistics 1949-2008*, *China Statistical Yearbook (Various years)*, and *China Statistics Yearbook on High Technology Industry (Various years)*. The number of local development zones and the area of local development zones, are taken from *Directory of Approved Development Zones in China* (2006). The data to measure *real estate development strategy* are from *China Land and Resources Statistical Yearbook*, *China Land and Resources Yearbook* and *Finance Yearbook of China (Various years)*.

The original data to measure  $GDPPC^7$ , i.e., GDP per capita and index of GDP per capita, are from *China Compendium of Statistics 1949-2008*. The data to measure the old dependency ratio, i.e., the number of people aged 65 and over and the number of people aged 15-64, are from *China Statistical Yearbook (Various years)*. *Open* is the sum of exports and imports divided by GDP, which are from *China Compendium of Statistics 1949-2008*. *Privatization* is the ratio of production value of industry produced by non-state-owned enterprises over that of industry (Bai et al., 2004), which are from *China Statistical Yearbook (Various years)*.

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<sup>7</sup> 1978 is a base year.