

Growth of China's Urban Middle Class: Its Impacts on the Social and Economic Development

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Abstract

Over the last two decades, China's social and economic structures have experienced some dramatic changes; Chinese households' real income and living standard have been improved considerably. Consequently, a new social class, so called middle class (or middle income class), has borne as a growing social and economic layer in the country; and it has become so influential that even the central government has adopted as a new strategic target in the next few decades clearly and openly documented on its official reports.

This study attempts (1) to clarify the concept, definition and criteria of middle class in China's context; (2) to measure the scope and the distribution of China's middle class; (3) to estimate the impacts of the growing trend of China's middle class on the economic and social development in China in near future.

In order to measure the impacts and determinates of the middle class on Chinese economic and social development, an econometrics modelling has been applied in the study. In the author's knowledge, this is the first attempt at least in the literature of Chinese section.

Based on the modelling results, some conclusions have been drawn.

- (1) The process of growing middle class follows a process of transformation of economic and social structure.
- (2) The size of middle class is important, but it makes more sense only if it is related to both the size of low income class and the size of up income class, the middle class size itself has some fundamental limits in terms measuring the society equality and welfare distribution.
- (3) Developing education is also effective means of the enlargement of the size of middle class.
- (4) The topic of middle class is a multi-dimension issue relating to economic, social, cultural, and possibly political aspects.
- (5) The results from this study also show that the changing trends of middle class in China imply two types of movements. (1) up-ward move from a lower income class to a higher income class, this phenomenon has been taking place in every provinces in China, and it is desirable; (2) enlargement of the gaps of the inter-regional middle class sizes and the gaps between the intra-regional income classes (i.e., the rich and the poor), this is something need to be monitored and controlled.

Key Words: Middle class, China, Urban, Social and Economic Impacts
Codes:

I Introduction

China has gone through thirty years of economic reform, especially after 1990s, its achieved remarkable results. The fast growth of the country's economy has made China as the biggest developing economy in the world. Consequently, Chinese households' real income and living standard have been improved considerably.

However, the success of China, or the Chinese economic miracle, has brought about new and emerging issues and challenges, such as government policy, development and a widening inequality. As China's social and economic structures have experienced some dramatic changes, it must address and resolve these fundamental problems while maintaining its high growth momentum.

China model has already questioned the baseline of the current western democracy, however, no one would ignore the huge gap between rich and poor, even the Chinese own party leadership. On the 17th Chinese Communist Party (CCP) Congress on 21 October 2007, a seven-day long conference. An aim of the Congress was to develop a harmonious society using a scientific approach instead of pure economic growth. China's ultimate economic goal is to build a harmonious society with sustainable prosperity for its people. And hence, a new social class, so called middle class (or middle income class) has borne as a growing social and economic force in the country.

China's middle class has become so influential that even the central government has clearly and openly documented on its official reports. For example, in the 16th congress, the middle income class, as a new concept and definition, has been well documented into the final report.

This study attempts (1) to clarify the concept, definition and criteria of middle class in China's context; (2) to measure the scope and the distribution of China's middle class; (3) to estimate the impacts of the growing trend of China's middle class on the economic and social development in China in near future. (need to change after build the whole paper structure)

Based on a thorough review of the existing literature in the field, the concept, the scope and the measurement of Chinese middle class have been discussed; the differences between the concepts of Chinese middle class and the middle in west literature have been carefully distinguished.

In order to measure the impacts and determinates of the middle class on Chinese economic and social development, an econometrics modelling has been applied in the study. In the author's knowledge, this is the first attempt at least in the literature of Chinese section.

Based on the modelling results, some conclusions have been drawn.

It's believe that the study, as the first piece of quantitative measure of the impacts of Chinese middle class, has achieved some important development in the field, although these are some room for further improvement and development.

II Literature Review

The studies on the field of middle class have been a very interesting and attractive topic in the modern society, enormous research work has been well documented in literature. However, it seems like that most of those studies are focused on the political and sociologic aspects, only a few of studies shed some lights on economic issues. It's widely believed that a higher share of income for the middle class is empirically associated with higher income, higher growth, more education, better health, better infrastructure, better economic policies, less political instability, more social "modernization," and more democracy.

As early as 306 BC, Aristotle has already stated that "Thus it is manifest that the best political community is formed by citizens of the middle class, and that those states are likely to be well administered, in which the middle class is large .. where the middle class is large, there are least likely to be factions and dissension."

In the times of Marx and Engels, these two teachers had studied the middle class or the middle status. According to the property possession status, Marx and Engels (1859) stratified the capitalist society into two main classes, which are the proletariat class and the capitalist class. The group of people between those two classes could be belonged to the petite bourgeoisie (Middle class). The followers of Marx carried on this class analysis method. They kept on academic analysis of the middle class, which on the basis of such social stratification and formed neo-Marxist middle class view. Therefore, the neo-Marxist studied the class was tried to focus on the point of politics. One of the typical theories of the middle class view of the neo-Marxism is the "new petty bourgeoisie theory", which by the Greek scholar Poulantzas in 1973. Li (2004) introduced the Poulantzas began with Marx's financial-position-based criterion and analyzed various managerial staff, technical staff and government officials who lived on salaries and freelancers, it could be called as new middle class or new petty bourgeoisie.

Gerth et al (1958) stated Weber believed that it was inadequate that Marx only stratified social classes in terms of financial criterion, which is the possession of production materials. Weber (1921) deemed though financial status was important and Marx had pointed out the important influence of finance on social structure, he also suggested that Marx only noticed production process in understanding economy but neglected the circulation process. Weber (1921) brought up his own theory and considered the class idea of Marx is an economic idea. And then, he broadened the idea of class and supposed the class status was not only decided by the production materials one owned, but also depended on the market opportunities, which affected one's social status as well. According to Weber (1921)'s theory, the criteria of social stratification are multi-dimensional, at least including financial income, power and social reputation. Therefore, the social stratification theory was set out by Weber, which is a multi-dimensional and could be called "multi-dimensional social stratification". Gerth et al (1958) introduced that the neo-Weberists, which promoted the Weber's social stratification theory, and put under various managerial staff and professional technical staff as "the middle class" or the "new middle class".

Political economy explanations of development outcomes usually focus on "society's polarization and degree of social conflict" (Alesina 1994, p.38). Causal observation suggests that among the most common polarizing forces are differences between classes and differences ethnic groups.

Economic historians have pointed out the importance of a middle class for economic development. Landes 1998 says the "ideal growth and development society" would have "a relatively large middle class" (pp. 217-18). He cites "the great English middle class" as a reason for England's being first at industrialization (p. 221).

Adelman and Morris 1967 noted that “in the economic development of Western Europe, the middle classes were a driving force”. Moreover, they presciently said that “it is clear from many country studies that the growth of a robust middle class remains of crucial importance in contemporary low-income nations.”(p. 30, Adelman and Morris 1967.)

The opposite of a middle class society is an unequal one where landowner lord it over peasants. A number of empirical cross-country studies find high inequality linked to poor growth outcomes (Alesina and Rodrik 1994, Persson and Tabellini 1994, Clarke 1995, Perotti 1996, Birdsall, Ross, and Sabot 1994, Birdsall and Londono 1998, Deininger and Squire 1998, the latter two using land inequality). Perotti 1996 links the effect of inequality on growth to the effect through human capital and through political instability. Alesina, Baqir, and Easterly 1999 find that high inequality is associated with higher government employment, which they interpret as an inefficient and disguised redistributive device.

A large theoretical literature also links inequality to low growth and low human capital accumulation. Galor and Zeira 1993 postulate that the poor are liquidity-constrained from accumulating human capital; higher inequality implies a greater share of the population will be liquidity constrained and thus the society accumulates less human capital. Alesina and Rodrik 1994 and Persson and Tabellini 1994 link high inequality to low growth through the poor majority imposing a tax on the rich.(may not related to this paper.)

The importance of the middle class in determining societal prosperity takes on increased urgency in light of academic and popular stories of the disappearing middle class in the US over the last few decades (Decornez 1998, Kreml 1997, Harrison and Bluestone 1988). This is a reversal of what has long been saluted as the special American tradition of equality of opportunity. In the famous opening words of De Toqueville’s *Democracy in America*: “Amongst the novel objects that attracted my attention during my stay in the United States, nothing struck me more forcibly than the general equality of conditions.”

The output collapse in Eastern Europe and the former Soviet Union has been linked to destruction of the old middle class before a new middle class could be established. Milanovic 1999 describes the “hollowing out” of the old state-sector middle class. A conference on the woes of the ex-Communist economies was entitled “The Middle Class as Precondition for a Sustainable Society” (Wallace and Haerpfer 1998, Tikidjiev 1998).

The first strand of the literature relevant to Chinese middle class is captured well by a paper focus on political study by Zhang 2002. Zhang (2002) stated that firstly, the middle class is the advocate for the current political environment and positive policies in the whole society.

Chen 2004 analyzed in economic area firstly, the study on the middle class which plays an important instructing role in promoting China’s national economic development and boost spending. Chen (2004) stated the model role of the middle class is a positive guide in the socialist market economy. For example, obeying the transaction rules in the market economic activities so as to promote the formation of “fair play”; accumulating wealth by legal means and repaying society with well doings, which also providing many employment opportunities to other people and so on. The middle class tends to gain the sense of income security and the sense of status superiority through hard working. They know well about the gap between the upper class and middle class, and because of people come and go frequently; they also

understand the difficulty in establishing their current status in the society. Therefore, they always exert the potentials and specialties by their voluntary efforts, and improve their financial status and financial power. These model role functions will stimulate economic prosperity and help eliminate the corruption in the economic field.

Ma and Li (2006) argued that in Chinese history, the first appearance of the national capitalism was in late Qing Dynasty around the end of the 19th century; the entry of foreign force into the country on the one hand invaded the national sovereignty, on the other hand, it brought with some fresh and institutional thoughts which caused some changes into the country's traditional culture and made some dramatic changes in the society; "May 4th movement" was a good example. Consequently, the modern industry was born in China first time in the country's history. However, due to several wars including civil wars occurred during the first half of the 20 century, the development of the national industry was largely lagged behind. During the Mao's period of 1949-1978, the word "class" was politically sensitive and the middle class stopped growing.

After 1978, the change of the economic system, which caused the change of production relation, as well as the change of financial status, both of them would inevitably lead to a new social stratification. In the decades of China's reform and developing process, the soaring economy, social progress and the improvement of living conditions have changed social structure deeply. A lot of evidences had shown China's social and economic changes that have resulted in the emergence of new social classes. The middle class has begun to grow and develop again. (Zhao, 2006)

III Data Collection and Methodology

The methodology employed in this study mainly consists of two approaches: firstly, the approach for measuring the size of middle class in different regions and provinces; secondly, the approach for analyses (1) the factors which determinate the size of the middle class, and (2) the contribution of the middle class to the country's economic growth.

Given two distinguishing tasks of the current study, the modeling process will go through two phases: measuring the size of the middle class of some selected regions, and analyzing the determinants of MIDDLE CLASS and the contribution of MIDDLE CLASS to GDP.

III-1 The Sampling Size and Data collection

The data for the researching, most of them could be collected from China's regional statistical yearbook between 2001 and 2006, and the data cover 16 different regions and cities in China. For the eastern area, it includes Beijing, Shandong, Shanghai, Jiangsu, Zhejiang, Tianjin and Fujian; the central part includes the Shanxi, Anhui, Henan and Jiangxi, and Ningxia, Guangxi, Chongqing, Sichuan and Xinjiang represent the western regions. Therefore, the observation could be the 16 different regions in 5 years. However, depending on the China's objective conditions, such as the large gap between urban and rural areas, as well as the integration of town and country, the middle class's variables have to just focus on the urban

data and index. Thus, the variables include the real output of gross domestic product (GDP); the total capital investment in fixed assets; the number of employees in urban area; the number of year-end permanent registered residents in urban area; the urban residents' disposal income per capital by five equal level, which includes low level, medium-low level, medium level, medium-high level and high level, the urban households' annual expenditure and the food's expenditure per capital by five equal level, the last variables which is the education level in urban area, it focuses on the college and higher level.

III-1.1 The Data Collection on the Middle Class's Disposal Income

For the middle class's disposal income, it could be collected from the urban residents' disposal income per capital by five equal levels. Firstly, utilizing the lowest and highest figures, that could calculate the lower and upper boundaries for different region and areas successfully.

Table 3 The people's disposal income in Beijing (2001—2005)

(Unit: per capital /Yuan)

Year	Lowest Income	Highest Income	Whole distance	Middle Value	W D /6	Lowest boundaries	Upper boundaries
2001	6271	20653	14382	13462	2244	11218	15706
2002	6058	23349	17291	14704	2451	12253	17154
2003	7314	29010	21696	18162	3027	15135	21189
2004	7401	29635	22234	18518	3086	15432	21604
2005	8581	32968	24387	20775	3462	17312	24237

Resources: collected from Beijing's statistics year book (2001-2005)

The table 2 shows that the lowest and upper boundaries of middle class's disposal income in Beijing between 2001 and 2005. For the modeling running, it just collects the middle value as the middle class's disposal income that between the lowest and upper data by each region in different year. Namely, the middle class's expenditure also could utilize same technique for collecting.

III.1.2 The Data Collection on the Number of Middle Class

According to the current papers and definition, there is not a common criterion for judging the number of China's middle class, as well as a specific percentage. However, there are some delimit standards could be considered, such as income level, educational background, occupation feature and consume behavior. For the best desirable design among the many factors, Let M_{rt} denote the whole number of middle class in region r at time t , if it can be determined by other variables, such as In_{rt} (income level), Oc_{rt} (occupation feature), Ed_{rt} (educational background) and Co_{rt} (consumption behavior), that are associated with the design, then the Nu_{rt} could be expressed as Equation (6):

$$M_{rt} = \sum_{i=1}^n w_{rt} x_{rt} \quad (\text{For a region } r \text{ at time } t) \quad (1)$$

Here, $x_{rt} \in [In, Oc, Ed, Co]$, w_{rt} indicate the weight for r at time t , and the value of the weights are estimated based on existing literature and experts' opinion.

$$\mu(M'_{rt}) = \begin{cases} 1 & \text{if } M'_{rt} \geq M^u_{rt} \\ 1 - (M^u_{rt} - M'_{rt}) / (M^u_{rt} - M^l_{rt}) & \text{if } M^l_{rt} \leq M'_{rt} \leq M^u_{rt} \\ 0 & \text{if } M'_{rt} \leq M^l_{rt} \end{cases} \quad (2)$$

However, depending on china's current objective situation, most of people are very difficult to meet each factor absolutely. For the technique, it requires to calculate the number of middle class obviously. Because of the data limitation and exist objective situations, such as opaque in some people's income, the technique could be very difficult for operating. Therefore, it could just as a discussion method for the further researching.

For the paper, the measurement for calculating the number of middle class, which utilize the Engel coefficient as the boundary line for judging. Food and Agricultural Organization of UN (2001) stated the Engel coefficient means the percentage of the food's expenditure which account for the whole expenditure. According to the FAO's criterion about the Engel coefficient, which above 59% denoted poverty, 50% to 59% means adequately fed and clothed, 40% to 50% stands for ease, while people living with 30% to 40% Engel Coefficient are rich, those who below 30% are the richest. Therefore, for consider the China's middle class's number, especially the research focuses on urban residents, it just collected the urban people's Engel coefficient which between 30% and 40%. Based on the five equal level of consumption in different region's statistics year book, it could obviously calculate the percentage of people's Engel coefficient between 30 and 40, then using the percentage times the whole numbers of urban residents; it could be the real number of middle class in urban areas.

Fan and Peng (2005) stated the consuming behavior could be the best measurement for judging the China's middle class. Firstly, depending on China middle class's objective situation, such as high level education and new living attitude, their expenditure behavior could affect the social and economic development, such as different demands in branding and good quality products, which requires the nation has to adjust the production structure and establishing the branding culture. And hence, it is a well known fact, that Chinese people's income is always opaque, especially in some monopoly industries, and it

could be very difficult for defining some people's occupation. Accordingly, the consuming behavior which based on the Engel coefficient should be the best technique for operating.

According to the National Bureau of Statistics report, in 2005 the Engel Coefficients of Chinese urban and rural households were 36.7 percent and 45.5 percent respectively. Based on the UNESCO standard, the rural residents are living well off lives. It also said that the Engel coefficient for urban residents in Beijing reached the well-to-do level in 2006. The Engel Coefficient of Shanghai's urban residents stood at 35.6%, and the coefficient of Shanghai's rural stood at 37.8%. As Engel coefficient is a major indicator of people's living standard internationally. Therefore, the report concludes the lifestyle of people has changed from being merely sufficiently fed and clothed, to comfortable.

There are also researchers who argue about the merits of the coefficients, saying that the Engel coefficient alone cannot accurately tell the well-being of Chinese people, as China doesn't have a complete healthcare and social security system. Furthermore, an investigation shows that Beijing residents have to spend nearly half of their incomes on education, housing and medical care. In order to pay for those expenditures, many ordinary families have to keep other expenses low. There's still a big disparity between the life of residents in Beijing and other developed countries.

It is true that there are number of limits by using Engel coefficients to measure the living standard along, some more considerations should also been taken into account. Given the limits of Engel coefficients and the reality of China's case, the threshold of entering the middle class taken by the current study is 0.35 of Engel coefficients, rather than 0.4, as an adjustment.

Another comment says the gap between poor and rich has made the figure misleading. The reality is the rich have contributed a lot for the expanded expenditures beyond food. The comment points out the lower Engel Coefficient in fact reflect the high pressure on residents in terms of rising spending on education, housing and healthcare. When the figure is forced to go down because of other expenditures, what people actually feel is life is getting harder. To some degree, they have not benefited from the increased family income. The authorities should have a accurate judgment on people's living standard.

III-2 The Analytical Framework of the Empirical Study

In this study, it is assumed that GDP is the function of a set of variables, including the number of the middle class in a region; and the size of the middle class is also the function of many other variables, such as disposal income, consumers expenditure, etc. Thus, the form of the Cobb-Douglas production function has been employed as the base model for analyzing both the determinants and contribution of the middle class. In another word, the specific forms used in the following sections are derived from the basic form of the Cobb-Douglas production function.

III-2.1 The Analytical Framework for the Determinants of Middle Class

As discussed previously, the size of the middle class is influenced by a number of factors. It is assumed in this study that number of middle class is the function of capital, labour, disposal income, consumers' expenditure, and the level of education in a particular region.

$$M_{rt} = f(K_{rt}, L_{rt}, D_{rt}, Ex_{rt}, Ed_{rt}) \quad (3)$$

Express (3) as the Cobb-Douglas form, it becomes as the following:

$$M_{rt} = \alpha + \beta_1 k_{rt} + \beta_2 L_{rt} + \beta_3 D_{rt} + \beta_4 Ex_{rt} + \beta_5 Ed_{rt} + \varepsilon \quad (4)$$

Where:

M_{rt} = the real number of middle class in region r at time t

K_{rt} = the capital investment that defined as the value of fixed assets in region r at time t

L_{rt} = the number of employees in region r at time t

D_{rt} = the middle class's disposal income in region r at time t

Ex_{rt} =the middle class's expenditure in region r at time t

Ed_{rt} = the number of people who are at college and above level in region r at time t

ε = error sections

Capital investment including foreign direct investment (FDI) is important for economic development, hence, for the growing of the middle class. Employment is another critical factor which positively relates to the size of middle class; the more employment, the higher the average householder income. It is the level of disposal income (not the income of householders in general sense) which directly determines the Engel coefficients, showing consumption structure as well as the living standard. As mentioned early, the middle class is a comprehensive indicator, which is directly or indirectly influenced by the mode of professions, hence, the level of education.

III-2.2 Empirical Framework Analysis on the Contributions of Middle Class

In this study, it is assumed that GDP is the function of a set of variables, including the number of the middle class in a region. This is to say,

$$Y_{rt} = f(K_{rt}, L_{rt}, D_{rt}, N_{rt}, Ex_{rt}, Ed_{rt}) \quad (5)$$

In the form of the Cobb-Douglas production function model, then (5) can be expressed as:

$$\ln Y_{rt} = c + \alpha \ln K_{rt} + \beta \ln L_{rt} + \beta_1 N_{rt} + \beta_2 D_{rt} + \beta_3 Ex_{rt} + \beta_4 Ed_{rt} + \varepsilon \quad (6)$$

Where:

Y_{rt} = the real output of GDP in region r at time t

K_{rt} = the capital investment that defined as the value of fixed assets in region r at time t
 L_{rt} = the number of employees in region r at time t
 N_{rt} = the real number of middle class in region r at time t
 D_{rt} = the middle class's disposal income in region r at time t
 Ex_{rt} =the middle class's expenditure in region r at time t
 Ed_{rt} =the number of people who are at college and above level in region r at time t
 \mathcal{E} = error sections

Equation (6) is a conventional expression of the Cobb-Douglas function; the only new variables introduced into the model are the number of the middle class and the level of education. It is general believed that an appropriate size of the middle class plays a positive role in the economic growth within a certain extend. The level of education shows the quality of human resources a society possessed, which is particularly fundamental for the development of a modern economy.

IV Empirical Results Analysis

This Chapter presents (1) the estimated results of the size of middle class by provinces and by years; (2) the analysis of determinants of the middle class and the contribution of the middle class size to economic growth.

IV-1 Estimates of the Proportion of Middle Class

By using Engel coefficients based approach as discussed in the previous Chapter (4.1), we have obtained a set of estimated results by selected provinces and by year between 2001 and 2005. Due to the limits of space, we only present the results of the beginning year (2001) in Table 4 and the end year (2005) of the sampling period in Table 5 for discussion; the result of the middle period can be found from the Appendix end of this thesis.

There are obvious differences of both Engel coefficients and the size of the middle class between regions/provinces. By considering the purchase power parities (PPP) between regions, the inflation over years, and the reduction of the government's subsidiaries in housing and medicine care; it may be rational to set up the different upper boundary and lower boundary for defining the size of middle class. Thus, 0.40 and 0.35 are used as the lower boundaries for 2001 for the Centre & West provinces and for the East provinces, 0.35 and 0.30 are used as the lower boundaries for 2005, respectively.

It is well known that there was nearly no middle class existing in China's society before the economic reform, as the consequence of the equalitarian ideology and the planned economic regime, the new born

of the middle class in China is a phenomenon of the economic reform. .

As Table 4 shows that by year 2001, the middle class had been formed and it was in growing trend compared with the situation of the early 1980s. Among all selected provinces, there were also big gaps between the urban areas in different provinces.

Table 4 Engel Index in China's 16 provinces in 2001

	Engel coefficients						% of Class *	
	L Income	M-L Income	M Income	M-U Income	U Income	Ave	LC	MC & above
Beijing	0.425	0.419	0.38	0.337	0.310	0.374	74.6	25.4
Shanghai	0.432	0.427	0.376	0.352	0.321	0.382	76.6	23.4
Fujian	0.501	0.482	0.426	0.376	0.329	0.423	80.5	19.5
Shandong	0.461	0.444	0.438	0.397	0.297	0.407	82.9	17.1
Jiangsu	0.471	0.442	0.421	0.383	0.318	0.407	82.9	17.1
Tianjin	0.433	0.421	0.402	0.388	0.324	0.394	84.4	15.6
Zhejiang	0.454	0.415	0.403	0.398	0.357	0.405	83.3	17.7
Jiangxi	0.477	0.463	0.442	0.421	0.367	0.434	84.6	15.4
Xinjiang	0.445	0.449	0.435	0.394	0.352	0.415	83.6	16.4
Chongqing	0.467	0.444	0.407	0.381	0.367	0.413	78.5	21.5
Henan	0.475	0.454	0.426	0.391	0.337	0.417	83.2	16.8
Anhui	0.487	0.464	0.432	0.391	0.377	0.430	82.5	17.5
Guangxi	0.497	0.464	0.421	0.392	0.344	0.424	83.2	16.8
Shanxi	0.502	0.482	0.451	0.392	0.355	0.436	84.4	15.6
Sichuan	0.516	0.473	0.441	0.398	0.359	0.437	82.8	17.2
Ningxia	0.529	0.488	0.421	0.402	0.386	0.445	87.4	12.6

* Note: For the detailed estimation of the size of the middle class, refer to Appendix at the end of this thesis.

Table 5 Engel Index in China's 16 provinces in 2005

	Engel Coefficients						% of Class*	
	L Income	M-L Income	M Income	M-U Income	U Income	Ave	LC	MC & above
Beijing	0.351	0.331	0.298	0.271	0.245	0.299	64.4	35.6
Shanghai	0.378	0.339	0.301	0.27	0.266	0.311	65.7	34.3
Fujian	0.418	0.407	0.351	0.287	0.252	0.343	75.2	24.8
Shandong	0.402	0.356	0.331	0.309	0.287	0.337	76.4	23.6
Jiangsu	0.401	0.366	0.339	0.327	0.289	0.344	75.4	24.6
Tianjin	0.365	0.347	0.327	0.296	0.254	0.318	78.6	21.4
Zhejiang	0.387	0.321	0.307	0.285	0.264	0.313	80.2	19.8
Jiangxi	0.403	0.367	0.321	0.285	0.254	0.326	81.2	18.8
Xinjiang	0.355	0.321	0.301	0.278	0.256	0.302	79.4	20.6
Chongqin	0.387	0.356	0.301	0.279	0.254	0.315	79.2	20.8

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Henan	0.402	0.386	0.301	0.285	0.254	0.326	80.1	19.9
Anhui	0.403	0.4	0.343	0.301	0.285	0.346	80.6	19.4
Guangxi	0.427	0.402	0.356	0.31	0.288	0.357	81.3	18.7
Shanxi	0.442	0.421	0.365	0.341	0.300	0.374	82.8	17.2
Sichuan	0.454	0.428	0.377	0.352	0.342	0.391	80.2	19.8
Ningxia	0.475	0.447	0.395	0.359	0.345	0.404	84.2	15.8

* Note: For the detailed estimation of the size of the middle class, refer to Appendix at the end of this thesis.

By comparing Table 4 and Table 5, there are some clear changing trends.

1. There was big change in terms of Engel coefficients. Interestingly, the largest reduction occurred in the middle class and the up-middle class, while the up class reduced also dramatically (see Table 6).

Table 6 % Decrease of Engel Coefficients by Classes: 2001-2005

Low	Low-Middle	Middle	Up-middle	Up
15.4	15.0	29.3	27.1	24.6

2. Between 2001 and 2005, the proportion of the middle and up class in the selected provinces increased, while the percentage of the low income class decreased considerably (refer to Table 7). This is in line with the large improvement of living standard in all parts of China.

Table 7 % Change of the Size of Middle & Up Class by Province: 2001-05

Region	Change (%)	Region	Change (%)
Beijing	20.1	Xinjiang	27.2
Shanghai	18.6	Chongqing	23.7
Fujian	18.9	Henan	21.8
Shandong	17.2	Anhui	19.5
Jiangsu	15.5	Guangxi	15.8
Tianjin	19.3	Shanxi	14.2
Zhejiang	22.7	Sichuan	10.5
Jiangxi	24.9	Ningxia	9.2

3. Given the increase trend in general, the size of the middle and up class in East region increased much faster than that in West and Centre regions (refer also to Table 7).

IV-2 Baseline Model Result

IV-2.1 The Determinants of the Size of Middle Class

One of the interesting issues in research in the field is to find out the determinants of forming and growth of middle class. By applying the modeling framework introduced in Chapter 4 (Equation 4) with some variations of variables chosen, a set of the modeling results have been produced; they are presented in Table 6 below.

Table 8 Modelling Results of the Determinants for Size of Middle Class

Variables	Model ₁	Model ₂	Model ₃	Model ₄	Model ₅
K	0.1203** (0.0101)	0.0862** (0.0259)		0.1182** (0.0101)	0.1450*** (0.0022)
L	0.0948 (0.0166)	0.1098 (0.0044)	0.0500 (0.1733)	0.0944 (0.0161)	0.1022** (0.0123)
D	1.12E-05** (0.0457)	1.28E-05** (0.0208)	8.95E-06 (0.1216)	1.21E-05** (0.0155)	1.31E-05** (0.0232)
Ex	3.72E-06 (0.7345)	7.52E-06 (0.4817)	-1.98E-07 (0.9861)		8.94E-06 (0.4204)
Ed	1.0922** (0.0285)	1.2424** (0.0115)	1.4061*** (0.0062)	1.1275** (0.0200)	
R²	0.889	0.869	0.928	0.909	0.898
D-W	1.538	1.452	1.683	1.254	1.367

Note 1: The figures “R²” is the adjusted R-squared

Note 2: The figures in brackets are the p-values

Note 3: * Significant at the 10-percent level

** Significant at the 5-percent level

*** Significant at the 1-percent level

In those models, the dependent variable is the size of middle class population,

Table 6 shows that all variables employed play positive roles to the change of the size of middle class, particularly the test results show that **Ed** (education level), **D** (disposable income) and **K** (capital investment) are very significant either at 5% level or at 1% level in all models. The roles of **Ex** (expenditure) and **L** (labour) are insignificant; one explanation of that may be due to the possible existence of collinearity between **D** and **Ex** and between **L** and **Ed**.

IV-2.2 The Contributions of Growing Middle Class to GDP

By applying the baseline model (Equation 6), the modeling results have been produced. For the more desirable results, four variations in the model forms are also been conducted. Those results are presented in Table 9. the dependent variable, the logged GDP in region r at time t , is regressed on a set of independent variables, which include two inputs (expressed in logarithms), i.e., total capital investment ($\ln K_{rt}$) and the number of employees in urban area ($\ln L_{rt}$), the size of middle class in urban areas (N_{rt}), the middle class’s disposal income in urban area (D_{rt}), the middle class’s expenditure in urban area (Ex_{rt})

and the educational level in urban area (Ed_{it}). All these variables have been employed to capture their direct and indirect effects on the growth of GDP in China.

Table 9 Modelling Results of Middle Class Contribution to GDP Growth

Variables	Model₁	Model₂	Model₃	Model₄	Model₅
Ln(K)	0.3717*** (0.001)	0.4404*** (0.001)	0.4915*** (0.001)	0.4986*** (0.007)	0.4490*** (0.003)
Ln(L)	0.1625** (0.026)	0.2076*** (0.000)	0.1348** (0.030)	0.1810*** (0.007)	0.1812*** (0.006)
N	8.84E-06 (0.817)		8.80E-05*** (0.004)	8.79E-05*** (0.003)	9.39E-05*** (0.002)
D	1.79E-05* (0.093)	1.74E-05** (0.022)		2.56E-05*** (0.001)	2.04E-05** (0.026)
Ex	4.17E-05** (0.045)	1.86E-05 (0.291)	5.15E-05*** (0.003)		3.76E-05** (0.047)
Ed	1.6132* (0.084)	1.4417* (0.068)	1.1696 (0.145)	1.3382* (0.077)	
R²	0.992	0.883	0.884	0.886	0.887
D-W	1.355	1.782	1.650	1.965	1.945

Note 1: The figures “R²” is the adjusted R-squared

Note 2: The figures in brackets are the p-values

Note 3: * Significant at the 10-percent level

** Significant at the 5-percent level

*** Significant at the 1-percent level

It can be seen from Table 9 that all variables in the contribution to the GDP are valid and play a positive role to some extent, however, the significant levels amongst all independent variables vary.

Firstly, the best model among the five is Model 4. In the model, four out of five variables are significant at 1% significant level, and **Ed** (education level) is also significant at the 10% level. Comparing the specification of Model 4 with that of Model 1, it shows that there may be a multi collinearity between **D** and **Ex**.

Secondly, the modeling results show that in most cases, the change in the middle class size significantly influence the change in GDP, the positive coefficients indicate a positive relation between those two: the larger the middle class size, the faster the GDP growth.

Thirdly, in all models, the capital investment and employment have played a very significant role. Those results are not surprising, however, they still confirm that the model’s performance and fitness.

V Conclusive Points and Discussions

Based on the analysis of the modeling results presented in Chapter 5, with the review of the existing literature in the field presented in Chapter 3, it is now in the position to discuss some important and interesting points in relatively detail.

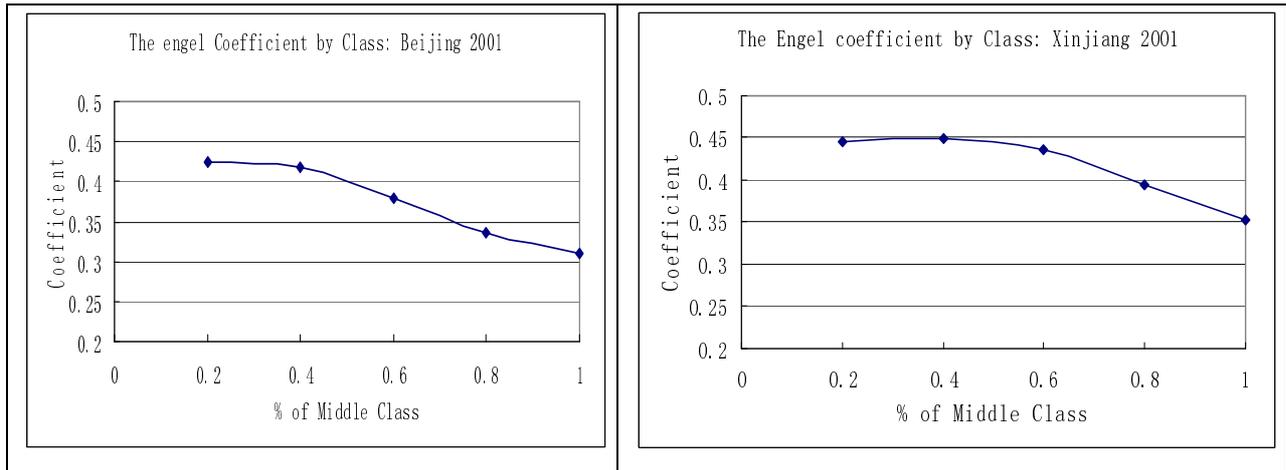
V-1 The Main Conclusive Points and Some Policy Implementations

1. It is reasonable to say that increase of middle class is the key step towards build up the harmonious and well-off society under the current economic and social conditions in China today.
2. The process of growing middle class follows a process of transformation of economic and social structure. The general way is to transfer a large proportion of farmers from agricultural based sector to manufacture workers, and then to professional, clerks, skilled technicians. The process is also in line with the process of industrialization and urbanization. This has been approved by not only the experience from West countries, but also by the practices of the Eastern regions in China. The figures in Table 4 – Table 7 clearly illustrate the trend that, in terms both the absolute size and the relative increase rate of the middle class, the East-coastal regions developed much faster than other regions, this is closely correlated with other factors, such as investment, labour input, the quality of human resources (educational levels), and the life styles (the disposal income and expenditure levels).

Thus, the most effective way to increase the size of middle class is to speed up the transfer process of farmers and agricultural sector as fast as possible.

3. The size of middle class is important, but it makes more sense only is it related to both the size of low income class and the size of up income class, the middle class size itself has some fundamental limits in terms measuring the society equality and welfare distribution. For example, Beijing and Xinjiang in 2001 have a more or less the same level of middle class (see Figure 1), but Beijing has about 60 % of low income class and 20% of up-income class, while Xinjiang has about 80% low-income class and merely any up-income class in statistics sense (see Figure 1)

Figure 1 The Distribution of Engel Coefficients of Beijing and Xinjiang in 2001



4. Developing education is also effective means of the enlargement of the size of middle class. As the modeling results in Table 8 show that **Ed** (education) positively and significantly determines the size of the middle class in nearly all cases; the regions possessing large size of middle class are always correlated with the regions where the education is more developed. Thus, in the view of narrowing the disparities between the geographical locations and between the rich and the poor in long term, education should play a key role. In China, the nine-year compulsory education should be financially guaranteed and fully implemented, so that the schooling-age children with desire and ability to learn will receive a good education. The popularization of basic education is the most important factor of equality, which enables the children of low-income to access to employment opportunities, and creates a prerequisite for changing poverty situation.

5. The topic of middle class is a multi-dimension issue relating to economic, social, cultural, and possibly political aspects. Thus, apart from developing and strengthening the market mechanism, appropriate macro-policies are critical and indispensable. There are a number of relations which need to be carefully deal with by the policy makers especially in the centre government.
 - 1) Enlargement of middle class and reduction of low-income class;
 - 2) Enlargement of middle class and raise of farmers income level;
 - 3) Enlargement of middle class and adjustment of government policies towards the re-distribution, particularly the tax lever applied on the up-income class.

6. The results from this study also show that the changing trends of middle class in China imply two types of movements. (1) up-ward move from a lower income class to a higher income class, this phenomenon has been taking place in every provinces in China, and it is desirable; (2) enlargement of the gaps of the inter-regional middle class sizes and the gaps between the intra-regional income classes (i.e., the rich and the poor), this is something need to be monitored and controlled. It is may be too naïve and too simple to believe that the larger the middle class size, the better-off the society

will be. In fact, the structure of the income classes in a society should be balanced in a dynamic way. The process of the dynamic balance is a mechanism of trade-off between efficiency and equality, which has been approved by the West experience and the China's practice.

This is to say that Deng Xiaoping's theory of "getting a part of the population rich first" was right in the consideration of improving the efficiency in the early stage of the reform; however, as nearly 30 years later and some impressive economic growth has been achieved, some policy adjustments may be necessary to harmonise the relation between different income classes by towards a "Olive Type" distribution of the society. Thus, it is high time to pay more attention to the equality aspects for policy making.

V-2 The Main Conclusive Points of Modelling Techniques

To the author's knowledge, this is the first piece of work in the field by using quantitative methods to measure the size of middle class and to analyze the impacts of middle class to the economic growth. Generally speaking, the application has been successful.

1. The variables employed in the modelling are appropriate and played significant role, particularly the size of middle class and the education levels.
2. In the case where the real statistical data for middle class is not available, it is possible and valid to use Engel coefficients to derive the estimated middle class size. This study provides some evidence to show the feasibility.
3. By using a weighted measurement with some ideas from Fuzzy theory to deal with some multi-dimensions and, in some extend, conflicting indicator, and this current study also shows that the tentative approach can be very useful and approved to be successful.
4. Given the achievement of quantitative analysis, however, the results from this research can only be refereed carefully with some cautious due to the limits of the availability and quality of the data in China's case. Thus, the author firmly believes that as long as some reliable data become available, there are still some rooms for improvement of this study.

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APPENDIX

Table A-1 The Engel Index in China's 16 provinces in 2001

	L Income	M-L Income	M Income	M-U Income	U Income	Average
Beijing	0.425	0.419	0.380	0.337	0.310	0.374
Shanghai	0.432	0.427	0.376	0.352	0.321	0.382
Fujian	0.501	0.482	0.426	0.376	0.329	0.423
Shandong	0.461	0.444	0.438	0.397	0.297	0.407
Jiangsu	0.471	0.442	0.421	0.383	0.318	0.407
Tianjin	0.433	0.421	0.402	0.388	0.324	0.394
Zhejiang	0.464	0.435	0.423	0.417	0.357	0.419
Jiangxi	0.477	0.463	0.442	0.421	0.367	0.434
Xinjiang	0.435	0.429	0.395	0.364	0.342	0.393
Chongqing	0.467	0.444	0.407	0.381	0.367	0.413
Henan	0.435	0.404	0.366	0.341	0.317	0.373
Anhui	0.487	0.464	0.432	0.391	0.377	0.430
Guangxi	0.497	0.464	0.421	0.392	0.344	0.424
Shanxi	0.502	0.482	0.451	0.392	0.355	0.436
Sichuan	0.516	0.473	0.441	0.398	0.359	0.437
Ningxia	0.529	0.488	0.421	0.402	0.386	0.445

Table A2 The Engel Index in China's 16 provinces in 2002

The Region	L Income	M-L Income	M Income	M-U Income	U Income	Average
Beijing	0.412	0.401	0.367	0.311	0.299	0.358
Shanghai	0.426	0.418	0.350	0.342	0.301	0.367
Fujian	0.488	0.466	0.407	0.344	0.329	0.407
Shandong	0.449	0.422	0.417	0.387	0.367	0.408
Jiangsu	0.451	0.431	0.401	0.372	0.348	0.401
Tianjin	0.421	0.399	0.366	0.341	0.301	0.366
Zhejiang	0.452	0.406	0.382	0.366	0.347	0.391
Jiangxi	0.457	0.420	0.399	0.373	0.327	0.395
Xinjiang	0.409	0.400	0.375	0.313	0.306	0.361
Chongqing	0.442	0.421	0.386	0.362	0.333	0.389
Henan	0.421	0.415	0.366	0.341	0.302	0.369
Anhui	0.466	0.453	0.410	0.378	0.344	0.410
Guangxi	0.485	0.455	0.400	0.383	0.331	0.411
Shanxi	0.497	0.473	0.432	0.363	0.342	0.421
Sichuan	0.501	0.455	0.431	0.368	0.331	0.417
Ningxia	0.518	0.475	0.409	0.387	0.365	0.431

Table A-3 *The Engel Index in China's 16 provinces in 2003*

Region	L Income	M-L Income	M Income	M-U Income	U Income	Average
Beijing	0.401	0.377	0.342	0.294	0.277	0.338
Shanghai	0.407	0.400	0.333	0.319	0.287	0.349
Fujian	0.456	0.441	0.386	0.321	0.309	0.383
Shandong	0.431	0.408	0.400	0.365	0.331	0.387
Jiangsu	0.421	0.405	0.392	0.361	0.320	0.380
Tianjin	0.409	0.386	0.351	0.320	0.287	0.351
Zhejiang	0.429	0.378	0.362	0.341	0.309	0.364
Jiangxi	0.441	0.403	0.366	0.348	0.309	0.373
Xinjiang	0.399	0.366	0.331	0.306	0.288	0.338
Chongqing	0.431	0.409	0.342	0.319	0.289	0.358
Henan	0.440	0.425	0.344	0.331	0.288	0.366
Anhui	0.440	0.429	0.390	0.341	0.329	0.386
Guangxi	0.468	0.432	0.392	0.346	0.321	0.392
Shanxi	0.486	0.455	0.419	0.347	0.321	0.406
Sichuan	0.492	0.466	0.420	0.396	0.361	0.427
Ningxia	0.501	0.459	0.403	0.367	0.342	0.414

Table A-4 *The Engel Index in China's 16 provinces in 2004*

Region	L Income	M-L Income	M Income	M-U Income	U Income	Average
Beijing	0.376	0.352	0.309	0.285	0.266	0.318
Shanghai	0.393	0.352	0.309	0.290	0.273	0.323
Fujian	0.431	0.429	0.375	0.302	0.287	0.365
Shandong	0.419	0.387	0.352	0.335	0.303	0.359
Jiangsu	0.409	0.387	0.365	0.341	0.301	0.361
Tianjin	0.384	0.362	0.342	0.309	0.266	0.333
Zhejiang	0.401	0.352	0.329	0.301	0.299	0.336
Jiangxi	0.426	0.383	0.341	0.310	0.287	0.349
Xinjiang	0.384	0.346	0.319	0.287	0.267	0.321
Chongqing	0.407	0.378	0.328	0.300	0.265	0.336
Henan	0.421	0.409	0.327	0.319	0.272	0.350
Anhui	0.428	0.414	0.366	0.317	0.308	0.367
Guangxi	0.451	0.418	0.376	0.329	0.300	0.375
Shanxi	0.465	0.431	0.399	0.369	0.306	0.394
Sichuan	0.476	0.451	0.401	0.372	0.354	0.411
Ningxia	0.489	0.461	0.408	0.374	0.349	0.416

Table A-5 The Engel Index in China's 16 provinces in 2005

	L Income	M-L Income	M Income	M-U Income	U Income	Average
Beijing	0.351	0.331	0.298	0.271	0.245	0.299
Shanghai	0.378	0.339	0.301	0.270	0.266	0.311
Fujian	0.418	0.407	0.351	0.287	0.252	0.343
Shandong	0.402	0.356	0.331	0.309	0.287	0.337
Jiangsu	0.401	0.366	0.339	0.327	0.289	0.344
Tianjin	0.365	0.347	0.327	0.296	0.254	0.318
Zhejiang	0.387	0.321	0.307	0.285	0.264	0.313
Jiangxi	0.403	0.367	0.321	0.285	0.254	0.326
Xinjiang	0.355	0.321	0.301	0.278	0.256	0.302
Chongqing	0.387	0.356	0.301	0.279	0.254	0.315
Henan	0.402	0.386	0.301	0.285	0.254	0.326
Anhui	0.403	0.400	0.343	0.301	0.285	0.346
Guangxi	0.427	0.402	0.356	0.310	0.288	0.357
Shanxi	0.442	0.421	0.365	0.341	0.300	0.374
Sichuan	0.454	0.428	0.377	0.352	0.342	0.391
Ningxia	0.475	0.447	0.395	0.359	0.345	0.404