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The effect of household income on household consumption in China
The limited consumption potential of Chinese households

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Abstract: China's economic growth undoubtedly led to an increase in the standard of living. Nevertheless, the price that China paid for this remarkably fast growth since its opening up in 1978 cannot be neglected. Due to a restructuring of the economic growth model, inequality occurred to a certain extent and has been strengthened by Chinese institutional features. The current growth model is considered as unsustainable and prone to external shocks – whereat it could not rely on the household consumption. The latter is extremely low by international standards, wherefore several factors are held responsible. The aim of this paper is to measure the effect of income and other Chinese characteristics that are claimed to be responsible for negatively affecting the household consumption. By using a comprehensive survey from 2011, these effects are measured directly at the household level. Having an understanding of the magnitude of these effects, especially about the importance of household income, certain solutions are discussed.

Key words: China, growth model, household consumption, household income, China Household Finance Survey

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List of abbreviations

CCP – Chinese Communist Party

GDP – Gross Domestic Product

GNI – Gross National Income

USA – United States of America

UK – United Kingdom

NBS – National Bureau of Statistics

RMB – Renminbi (Chinese Currency)

SME – Small and Medium Sized Enterprises

SOE – State Owned Enterprise

WTO – World Trade Organization

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1. Introduction

China's low household consumption is already a hot topic in the economic related media. Concerns are not only raised by western media, but also by Chinese politicians. At the 18th National Congress of the Chinese Communist Party (CCP) in 2012, the former president Hu Jintao announced plans to let the domestic consumption become a main pillar of the economy (IDCPC, 2012). At present, the main contributors to the gross domestic product (GDP) are investments and export. The economic crisis in 2008 showed that China's economic growth was highly sensitive through the decreasing demand for Chinese exports from its trade partners (Jain, 2014). Only by political measurements, such as a huge economic stimulus package used for investments could the economic downward trend be stopped. Even though these measures were efficient in terms of maintaining high GDP growth rates during the economic crisis, it seemed like China woke up and became aware of its high dependency on others country's economic situation (Morrison, 2014). Even though in 2013 China's domestic household consumer market belonged to one of the biggest in the world in absolute numbers (Economist, 2013), its contribution of 34.1 per cent to the GDP is one of the lowest in international comparison (The World Bank, 2015a). Although the household consumption is growing on a strong level of 8 percent per year; its contribution to the GDP is still low (Dorrucci et al., 2013).

Given the growing concern about low domestic consumption, the aim of this thesis is to identify factors that affect the household consumption in China and measure their effects in an econometric approach. Based on the results, a discussion shall explain what the findings may imply for the further development of China and the role of household consumption as a contributor to the GDP. This thesis considers only private household consumption in its investigation and excludes government consumption. The following definition is applicable: "Household final consumption expenditure (formerly private consumption) is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses" (The World Bank, 2015a).

The aim of this paper is operationalised in the following research question that will lead to the econometric analysis:

What role does a higher household income play for a higher household consumption?

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The contribution of this paper to the previous research is to measure the effect of income and other factors on the consumption on a household level. This will be realised with the help of a very recent and thorough household survey that was conducted in 2011. The existing literature so far considers these factors mainly on a macro level, but no literature was found that covered the entire spectrum of household expenditures. Before the situation in China is investigated on a household level, the issue at hand is analysed in a broader picture, giving an overview of the Chinese growth model and explaining the need of a rebalance.

The paper is structured as follows: The previous research will break down the issue from a broader perspective and explain the development of the Chinese growth model since the opening up in 1978. The next chapter of the previous research shows the threats of the current growth model and why it is not sustainable. Afterwards, suggested reasons for the low household consumption are stated. Based on these suggestions, the ones that affect a household are explained in detail, the income in particular.

In a next step, hypotheses are derived from the previous findings. The following methodology part introduces the econometric approach that is applied in this paper. Afterwards, after a presentation of the results, a discussion will investigate the findings and their effects in detail. The paper ends with a conclusion that revisits the research question.

2. Previous research

2.1 How the Chinese growth model developed

Without any doubt, the economic growth of China has been rapid since its opening up in 1978. Even though China's growth model helped millions of people out of poverty and increased China's importance in the world economy, its negative side effects cannot be neglected. The growth model is often considered as not being sustainable and being too reliant on export and investments financed by the government. The practise of an economic policy that focused on short term growth in the recent past caused a lot of social and economic imbalances (Dorrucci et al., 2013).

Due to the socialist development strategy China has pursued after the nation was founded in 1949, household consumption was not in the focus of the government; especially in rural areas, where household consumption was remarkably low. From 1952 until China's opening in 1978,

the per capita consumption in rural areas only grew by 58 percent, whereas the urban consumption grew by more than 200 percent (Naughton, 2007: 80).

After the implementation of the reforms in 1978, and a political re-orientation towards a more open and industrialised economy, many investments were made by the government to set up the infrastructure and enable rural residents to move to urban areas to work. By bringing more people into urban areas and providing work, consumption was always on a very high level. In absolute terms it strongly increased from the opening-up of China, but in relative terms it has always been crowded out by investments, due to high impact of the government on the economic landscape. (Hubbard et al., 2012) This paper refers to the expenditure approach of composing the GDP, which is the sum of government consumption, household consumption, investment and net exports of goods and services (Lardy, 2006).

Figure 1 shows the development of the GDP, broken down into the expenditure categories. It is noticeable that for the first decade after the reforms, until the Tiananmen incident in 1989, the GDP composition was mainly based on household consumption with a share of around 50 percent for this period and the fastest growing component of all. This was possible due to increased prices of agricultural products the government paid for, and the resulting increase in income of the peasants. There was also an increase of income in urban areas which contributed to the overall high household consumption (Dorrucci et al., 2013).

The strong economic growth of the post-reform period was mainly due to a factor reallocation from the rather agricultural rural areas with abundant labour force, towards the industrial urban areas (Wang, 1999). However it was not only this change of location and the economic sector that was a significant reason for the economic growth, but also a movement of labour from SOEs towards non-SOEs. This reconstruction of the SOEs led to a massive lay-off of employees and consequently caused a noticeable decrease in the domestic consumption share due to an increase in unemployment. In addition, SOEs lost their responsibility to cover the education and social security expenditures of their employees (Fukumoto and Muto, 2011). This led to an increase in household savings up from China's opening in 1978. Whereas the household saving rate was about 6 to 7 percent of the GDP at this point of time, it increased to 22 percent in 2007 (Yang et al., 2011). The high savings rate provided capital for the government for investment. Making use of a high saving rate for government investment to generate economic growth in a

so called "Keynesian-style" is insufficient without generating incentives to consume on the other hand (Wang and Gang, 2009).

Figure 1: Development of GDP composition
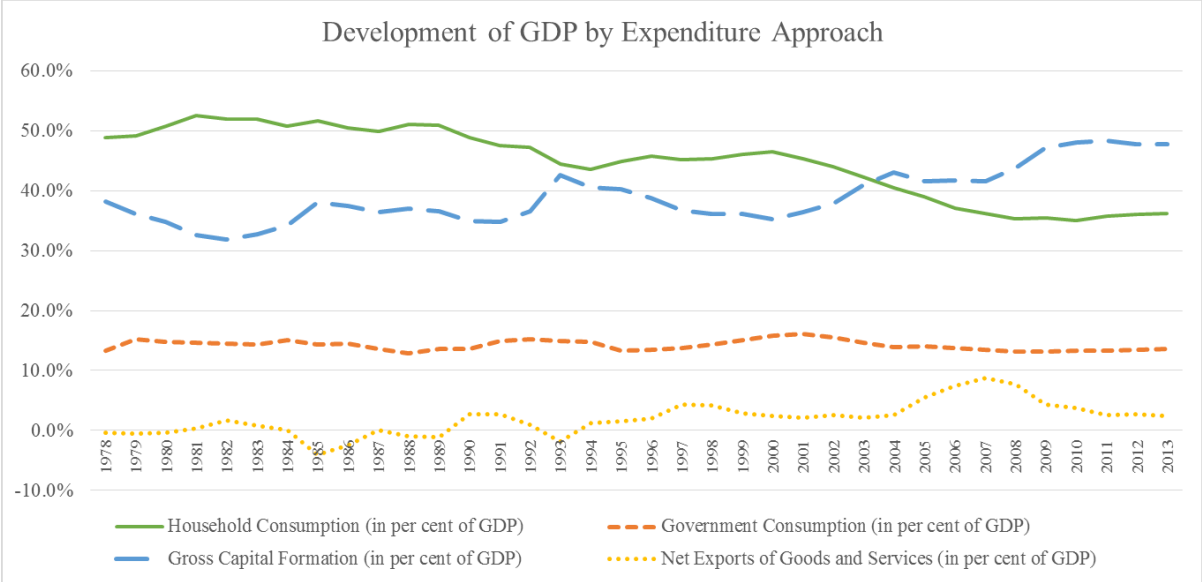
Source: NBS, 2014

After the Tiananmen incident, the government was forced to take action to cool down the economy and lowered its investments. This was the time when the income growth slowed down and affected the consumption share. An expected decrease of the GDP did not take place though, since the government consumption increased on the one hand, but even more important, the net export was boosted by the help of a gradual currency devaluation (Zhu and Kotz, 2011).

The period from Deng Xiaopings southern tour in 1992, in which he set the basis for a systematic change towards a market economy, until China's entry into the WTO in 2001, was mainly characterised by a strong increase of government investments to set up the environment for an economic reorientation and a stronger export. This development lasted for about 3 years, until the government decided to revaluate the currency in order to keep the inflation rate low. After entering the WTO, the importance of the foreign trade for the GDP grew even more. Exports and fixed investment became the main driver for economic growth from 2001 onwards, which led to very high and steady economic growth figures (Zhu and Kotz, 2011). As figure 1 shows, a drop in the export share due to the global financial crisis since 2007 has been countervailed by government investments.

2.2 Why the growth model should be rebalanced

As stated in the introduction, the Chinese government became aware of the threats of its growth model. The following chapter gives an understanding of the lack of sustainability of the current model. According to e.g. Lardy (2006), Wang and Gang (2009) and Dollar (2013), amongst others, sustainable growth can only be reached by an increase in the share of domestic consumption.

To reach such a sustainable growth level with China's current model, it is argued that the domestic consumption must at least grow with the same pace as the overall economy, what has not been the case for China since 2000. The minimum level for household consumption in China which is required to achieve a sustainable model swings at around 45 percent GDP (Wang and Gang, 2009). In 2013, the household consumption share accounted for 36 percent (NBS, 2014). Hence, China is at the very end of this ranking amongst developing economies (Fukumoto and Muto, 2011). A comparison with other economies - western and Asian - shows that the Chinese household consumption is remarkably low. For example, the United States of America (USA) or the United Kingdom (UK) as well as Asian economies like Japan and South Korea currently have significant higher consumption shares, between 71 and 67 percent, and 55 and 48 percent, respectively (McKinsey, 2009).

Many issues about the current growth model are discussed in the literature, and most of them can be explained by the economic development from the 1990s onwards, where two major issues appeared: the high share of fixed investment, and export (Zhu and Kotz, 2011). First of all, the high share of exports that contributes to the GDP implies a high dependency on the economic situation of its trade partners. To maintain high growth rates like the current ones in China, the export has to grow constantly on a high level as well. On average, the customer countries show growth rates around 2 to 3 percent per annum which might turn into a threat in the long run, especially in times of a recession. A decrease in exports has a multiplier effect on a country's GDP and this effect is getting more severe with a higher export share in the GDP. More threats are likely to appear in the long run. They are mainly based on political disparities between China and its trading partners, but also on the imbalance between the exported and imported goods. Whereas China mainly exports manufactured goods, its import of raw materials is not negligible (Zhu and Kotz, 2011). Besides potential political issues, the high dependency on the absorption of Chinese goods by its trading partners might turn out to be the most severe. In order to maintain high growth, Chinese companies have to produce and sell

more. Since the domestic market is not absorbing these goods, the dependency on export markets is getting stronger and the need for higher domestic consumption even more necessary (Wang and Gang, 2009).

The high contribution of fixed investments by the government to the GDP growth comes along with significant risks, even though high investment shares are typical for developing countries and are especially profitable in strong growth periods (Fukumoto and Muto, 2011). Meanwhile, China's investments are facing the problem of low efficiency. Based on a calculation, the GDP share of fixed investments would ideally be around 30 percent at a GDP growth of about 10 percent. Yet, China's fixed investment share swings around 40 percent of GDP and does not pay off in a required way. Since these high investments are mainly made to maintain a high GDP rate and thereby suppress the consumption share, an economic break down is a possible result (Zhu and Kotz, 2011). In addition, a vicious circle emerged through this heavily investment-based growth structure. Most of the investments that have been made were directly flowing into the capital-intensive secondary sector, which is not as efficient as the tertiary sector in terms of generating jobs (Fukumoto and Muto, 2011). As incentives were given to expand the secondary sector, the third sector lags behind in its development and consequently the employment growth. As a result of an underrepresented service sector, the employment growth is negatively affected and consequently the wage level, including the purchasing power, as well. Since it can be considered as a natural development that people shift towards the service sector and consequently employment and wages increase, China's development seems to be different (Dorrucci et al., 2013).This development becomes even clearer considering the facts presented by Dorrucci et al. (2013). Whereas China's GDP grew about 10 percent per annum on average, the employment growth was just about 1 percent between 2001 and 2010. A comparison with a selection of developed and developing countries, amongst them some Asian like South Korea, Hong Kong, Thailand, Malaysia and Japan, show that China's average GDP growth is differing significantly from the pattern that other economies show, having an uncommonly low employment growth.

The development that China has experienced so far came along with the emergence of many disparities and imbalances. The still remaining dominance of the SOEs in certain industries is a result of the strong influence of the CCP on the economic landscape. SOEs are thereby used as instruments for fixed government investments. Whereas SOEs are favoured also in terms of access to the heavily state controlled credit market, the small and medium sized private

enterprises (SMEs) especially suffer from a hindered access to financing, which ultimately leads to restricted growth for the SMEs, since profits have to be used for investments instead of paying higher wages, dividends, etc. (Dorrucci et al., 2013; Aziz and Cui, 2007). This effect ultimately results in the hindrance of having to create more jobs for private SMEs (Wang and Gang, 2009)

The foregoing chapter showed that China's export and investment-focused way of development came with many issues. To receive a more sustainable and robust growth, higher reliance on the household consumption seems unavoidable. In the following chapter, suggestions by researchers shall be presented how to achieve this transformation.

2.3 What causes the imbalance?

In order to pinpoint factors that cause the imbalance, or restrict the household consumption respectively, researchers looked into various fields. These factors range from the household registrations system (hukou), the dominance of the state owned enterprises, the repressive financial system and the incentive and reward system for local politicians (Dollar, 2013), to rather fiscal policy based ones, including tax reduction and exchange rate deregulation (Lardy, 2006). Even though the reduction of income taxes might be a common practice to stimulate consumption, there is not much scope to reduce the income tax. A tax reduction in 2004 has not led to a significant increase in the household consumption. Increasing the government consumption, especially on health, education, welfare and pensions, is expected to have a much stronger effect (Lardy, 2006). An increase in government expenditures is seen as a way to stimulate household consumption. This Keynesian assumption has been proven in a case presented by Wang and Gang (2009). In terms of expenditures, the USA in the 1930s exemplifies that the implementation of a social security system, labour standards and income taxes led to a reduction in income inequality and ultimately in an increase in household consumption (Wang and Gang, 2009). A further example is Taiwan, where in 1998 almost the entire population became covered by national health insurance and household consumption increased (Lardy, 2006).

Based on a calculation of the McKinsey Global Institute, the household consumption share could increase up to 50 per cent by 2025 by realising political measures: firstly by enabling of consumer spending, by for example granting easier access to credit or availability of products all over the country; Secondly, by improving the social security net which would lead to a relief

of expenditures on medical treatment and pensions. Ultimately, a rebalance of investment and income would take place (McKinsey, 2009).

Some researchers assume that the household consumption will reach a more sustainable level the moment the income per capita advances to a middle-income level as it has been the case with other Asian economies. They are optimistic and believe that the disposable household income will automatically increase and hence lead to higher consumption when the abundant supply of labour force is reduced, even without political intervention (Hubbard et al., 2012; Zhu and Kotz, 2011). The case of Japan in the 1970s showed that reaching this point, the so-called Lewis turning point, ultimately led to an increase in wages (Fukumoto and Muto, 2011).

China has still a lot of potential to grow and generate jobs. Due to high domestic savings in total and comparatively low government debts of 50 per cent of the GDP, the Chinese government would be able to generate jobs by investments in the short run, and consequently, generate consumption. Seeing this as an opportunity, the high investment share of the GDP would be a legitimate option to increase household consumption (Lin, 2015).

Some opinions exist that impute the strong growth of household consumption to the urbanisation that took place so far (Hubbard et al., 2012; Dorrucci et al., 2013). However, Fukumoto and Muto (2011) see the urbanisation process as failed, since the household registration system (hukou), which is also considered as one of the main reasons for the low domestic consumption by Dollar (2013), comes along with significant restrictions for rural residents. Rural residents are highly de-incentivised as they will not become a part of the urban social security, education and health care system if they relocate. To tie in with the comparison of Japan's situation in the late 1970s, the Japanese government had been actively promoting the urbanisation and was providing financial incentives to move to urban areas, which ultimately resulted in a boosted household consumption. In China, urban residents are privileged in terms of social security compared to their rural counterparts, even though in 2007 the coverage of pension insurance (34 percent), medical care insurance (30 percent) and unemployment insurance (40 percent) is remarkably low. Since rural residents do not benefit from these systems in the same way, a higher saving rate is the consequence (Wang and Gang, 2009).

With regard to the high share of investments, Japan faced a similar challenge in the 1970s, having a mainly investment driven economy. By an increase in labour wages, its growth

structure turned into a more balanced one. Even though the initial conditions differ, it can be said that China is now at the same economic development level as Japan was at that point of time. In Japan, the catching up period with the technologically higher developed countries led to high return on investment rates and after catching up, the returns were diminishing. Since lower return on investment rates hindered the attractiveness of investments, the investment share of the GDP decreased with the development of the economy. Another factor that has affected the attractiveness of government investments was a reformation of the banking system in the late 1970s. Japan turned away from a regulated lending policy towards a more liberalised system. Consequently, the cost for capital increased and reduced the incentive for investment (Fukumoto and Muto, 2011). As already stated above, the investments in China already turned out to be inefficient, hence this is not necessarily leading to a decrease in investments in China. However, a reformation of the banking system is generally feasible.

To underline the advantage of an increased household consumption for the economy, the multiplier effect, or theory respectively, by Keynes can be applied. It describes the consecutive effect that money spent by consumers has on the economic cycle - namely the fact that a higher demand for goods leads to an increase in employment at the supplier side, which benefits from higher profits and more capital to pay wages that can be used for consumption. The multiplier effect is not only applicable for household consumption though, but also for government consumption, investments and also exports. An important factor for the multiplier effect is the marginal propensity to consume (MPC), which means the share of additional income that is used for consumption. Consequently, the reciprocal would be the share that is saved. The effect of the multiplier can be calculated by: $1/(1-MPC)$, which means that if half of the additional income is used for consumption, the multiplier is two. This means that twice the amount spent will lead to generation of goods and services (Mankiw and Taylor, 2011: 709-711).

2.4 How did the pinpointed factors develop in China

The foregoing chapter showed a variety of factors that are commonly suggested to change in order to obtain an increase of the household consumption. Some of them seem to be dominant in affecting the household consumption directly; namely income, location and the social security system, including education. Keeping the research question in mind, the factor of income shall be specifically investigated further in the following, but the other factors will be mentioned also. Based on the following analysis, the hypotheses shall be derived.

2.4.1 Income

Based on China's economic growth, it is surprising that China is still struggling with its domestic consumption and showing an opposing trend between economic growth and household consumption. This indicates that this economic success story has not been spread across the entire society (Fukumoto and Muto, 2011; Aziz and Cui, 2007).

The following figure demonstrates the development of the GDP in comparison to the household consumption. This supports the fact that this development drifted apart from each other.

Figure 2: GDP vs household consumption
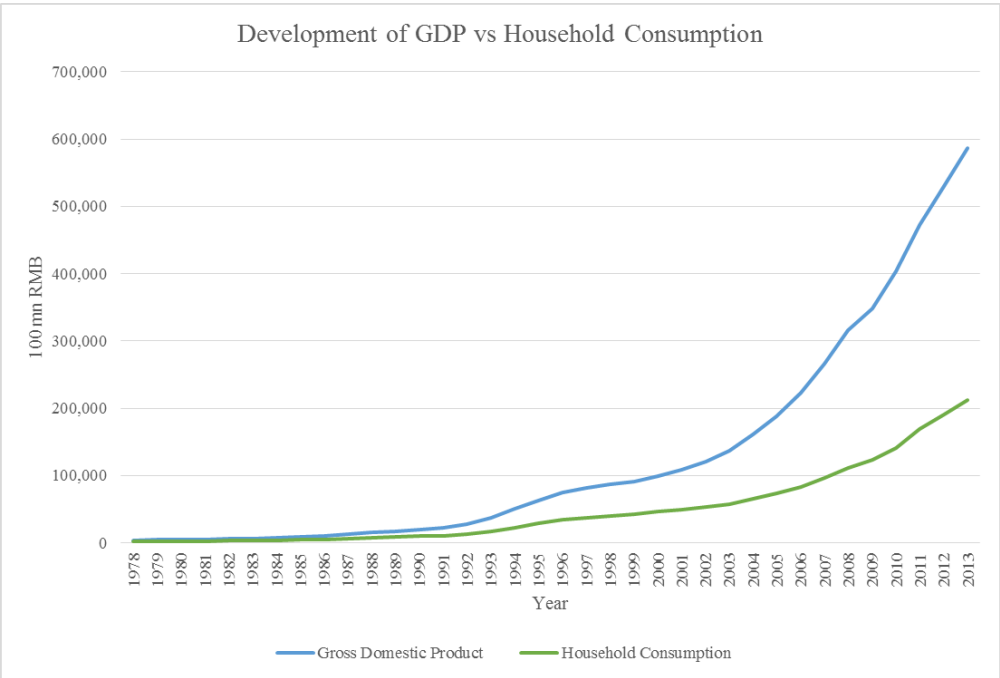
Source: NBS, 2014

It is assumed that the household consumption will increase the moment the income per capita reaches the middle-income level (Hubbard et al., 2012; Zhu and Kotz, 2011). By definition of the World Bank, this would be the case at a per capita income between \$1.045 and \$12.746 (Gross National Income Atlas Method), whereas there is a threshold between lower and upper middle-income countries at \$4.125. (World Bank, 2014). Keeping everything else constant, this should be easily proved by the development of other economies; taking Japan, South Korea and Hong Kong as a benchmark - as these are often used as benchmarks for comparisons by e.g. the McKinsey (2009), Dollar (2013) or Dorrucci et al. (2012). It becomes clear, that household

consumption is not clearly correlated to the income level and that China reached the lower middle-income level in 2001, and the upper middle-income level in 2010.

The following figure shows a comparison between the disposable income and the share of the household consumption in the respective economy.

Figure 3: GNI per capita vs GDP share of household consumption
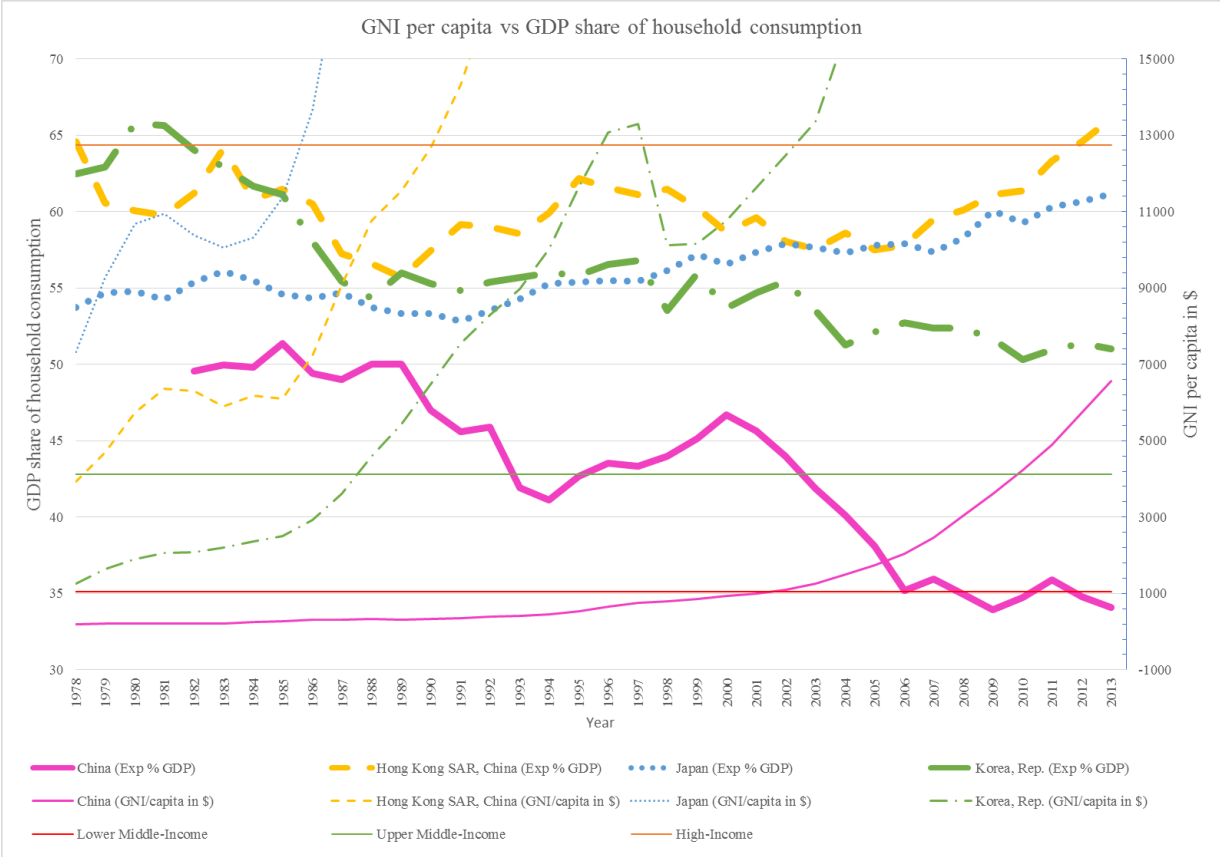
Having in mind that the gross national income has been increasing steadily over time, and recalling Keynes (1936: 66) that the consumption grows with increasing income - even though not to the same extent as income growth - the question at hand is whether the increase in income is received by the households in every income group or whether inequality in income distribution is present. This can be part of the puzzle of why household consumption is not increasing in accordance with the income per capita.

The economic restructuring in the 1990s led to a massive lay-off of former SOE-workers (Fukumoto and Muto, 2011). This period contributed to an increase in income inequality. Even though income inequality might be good for an economy to set incentives for the lower income

groups to ascend towards a higher income group, it is a thin line between incentivizing and discrimination (Wong and Yu, 2002).

According to the findings of the survey that is used for this paper, 57 per cent of the national income in 2010 had been earned by just the upper 10 percent (Economist, 2012). Other official numbers look less intimidating, even though they still seem to be comparatively high. The World Bank for example specifies the income share held by the upper 10 percent with 30 percent for the same point of time (World Bank, 2015b). However, as the figure below shows, almost half of the income is held by the upper 20 percent of the society. This share has been growing over time and hence inequality became a more and more apparent phenomenon in China.

Considering that such a high share of income is held by such a small group and recalling that the propensity to save increases with a higher income, inequality is getting even stronger under these circumstances. This significant amount of accumulated savings could have been used for consumption in a more equally distributed income society (Wang and Gang, 2009). The effect of savings is strengthened by the overall strong saving mentality of Chinese people not only due to the lack of social security, but also for prestige reasons and future purchasing. Limited access to consumer credits force people to save to realise unusual purchases like household durables (Kraay, 2000). However, the main reason for high savings is most likely in order to create financial reserves for social security, health and education as described in the following.

Figure 4: Income distribution in China
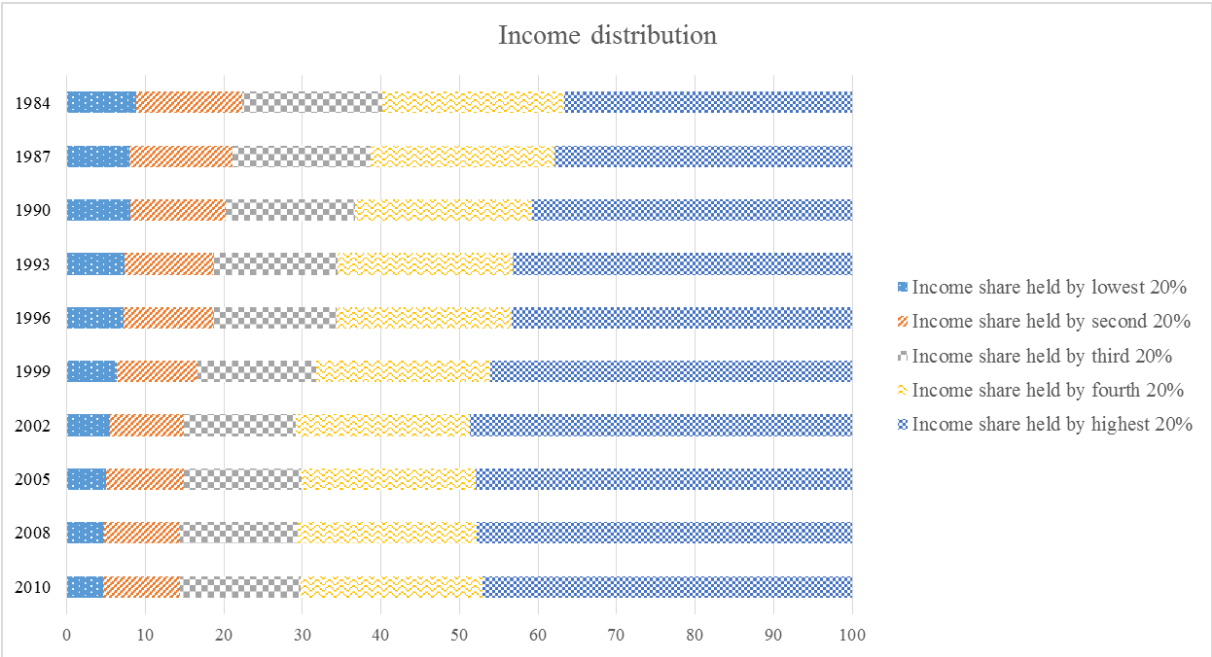
The income disparities between rural and urban people are also an apparent phenomenon. According to the NBS, the net income of rural residents was 6,977 RMB, compared to 23,979 RMB of urban residents in 2011. Even though the real growth rate is 3 percentage points higher for rural residents with 11.4 percent compared to 8.4 percent, the gap is still significant. The income gap consequently decreased from 3.23:1 in 2010 down to 3.13:1 in 2011 (NBS, 2012). However, poverty in rural areas was substantially decreased - in 1988 about 67 per cent of the rural residents were living under the poverty line of 1.25$ per day, whereas in 2007 only 3 per cent remained in poverty (Zhang et al., 2012).

2.4.2 Urbanisation

The previous chapter indicated that urbanisation is a crucial factor for consumption growth. The Chinese hukou-system constitutes a significant constraint for further urbanisation and, hence, income equality between urban and rural areas. The hukou separates Chinese citizen into rural and urban residents. With this separation, different rights and privileges come along. As a rural citizen, only a few options to receive an urban hukou exist, e.g. by marrying or studying. Even though rural residents without an urban hukou do not have the right to enjoy urban education, employment and social welfare (including medical services, pension insurance and housing security), the population in urban areas has increased by 560 million people to 730 million between 1978 and 2013. Despite the fact that this represents an urbanisation rate of 53.7 per cent, only 36 per cent of the Chinese own an urban hukou. The difference can be explained by rural migrants who moved to urban areas and accept restricted access to the above mentioned urban privileges (Wang et al., 2015). Since this limitation of urbanisation is often described as a factor that limits China's development towards sustainable growth, the Chinese government just recently released a strategy plan on how to improve urbanisation by 2020 (Wang et al., 2015).

2.4.3 Social security system

The social security system in China does not cover the entire population. In urban areas only half of the people have health insurance, vs. one fifth in rural areas. The government spending on social security totalled only 3.5 per cent of the GDP in 2005 (Lardy, 2006).

The restructuring in the 1990s also brought a change in the social security system. A governmental cut in health care support transferred the burden of these payments from the state to the employees and employers, which ultimately led to an increase in income inequality

(Wong and Yu, 2002). The share of health expenditures that have been covered on the own expenses of Chinese people increased to 55 per cent in 2003, compared to 20 per cent after the opening up in 1978 (Lardy, 2006). Social security has since been provided by the work unit that a worker belongs to and consequently, the quality of social security varied. This also contributed to inequality in social security, since the resources of an urban work unit were most likely higher than a small, rural, agricultural work unit. The bigger SOEs were especially able to provide far-reaching social security, like retirement payrolls. After China's transformation and growing privatisation, these benefits disappeared in many cases, and local funds tried to compensate this, which were paid by the employers and employees. The lay-offs led to a strong migration of workers to urban areas, where they did not obtain the local (urban) social security due to their rural hukou (Watson, 2012).

Unemployment insurance in 2005 covered only 14 per cent of the working population. In case of an accident at work, the number of workers who would be covered by a workers' compensation is even lower, with 11 per cent, hence high savings are a consequence (Lardy, 2006).

In times of retirement, the current pension model is only covering a negligible share of the population; in 2005, only 17 per cent of the workers had the right to receive a pension. Receiving a basic pension is unlikely to provide sufficient support, since it will only pay 20 per cent of the average local wages (Lardy, 2006).

Education is an important factor in helping rural areas reach the upper middle-income class (Zhang et al., 2012). Nevertheless, education expenditures by the government were steadily decreasing and consequently taken over by the households as a stronger financial strain (Wong and Yu, 2002). However, compulsory education has at least been made free everywhere in China since 2007; and poor families are supported by the government with books etc., which led to an enrollment rate of 99.5 percent for primary school and 98.5 for secondary school (Zhou, 2013).

3. Hypotheses

Based on the situation that has been described in the previous chapter, the following hypotheses shall shed some light on the impact of these factors on household consumption. Recalling the research question, the effect of income on the household consumption will be the main independent variable. Other variables are included to either test or control for them or to put the difference in income groups into relation.

The first hypothesis addresses the effect of household income on household consumption, since the differing development of economic growth and household consumption raises the question of inequality across the society. The following hypothesis shall clarify whether the effect of income is stronger on the poorer society since their financial resources to cover all the expenditures are more limited. The first hypothesis is called:

> *H1: The impact of household income on the household expenditures decreases for higher income households.*

Based on the introduced issue of a rural-urban-disparity, it will be interesting to measure how this circumstance effects household consumption. Hypothesis two aims at investigating whether pushing forward the urbanisation in combination with an increase in income will lead to a higher household consumption. Therefore, the second hypothesis is called:

> *H2: The effect of living in a rural area on the household expenditure is stronger with poorer income groups.*

Since higher education seems to be a valuable good in China and hence the access to it is closely tied to the income situation of a family, it might be interesting to know whether higher government expenditure on education and hence a higher level of education across the society would be a reasonable investment.

> *H3: Government expenditures on education will pay off.*

The weak social security system that is claimed in many cases to be insufficient and unfair in China, is according to the previous literature held responsible to some extent for high saving rates and consequently low domestic consumption. Therefore, it will be interesting to see how strongly it actually effects the household consumption.

> *H4: Relying on a social security system has a positive effect on household consumption.*

4. Methodology

The aim of this thesis is to assess the effect of **income** on the **consumption** behaviour of the Chinese on a household level. Previous research shows that other factors besides income are held responsible for holding back the household consumption as well.

These factors can be roughly categorised as income, location, education and social security system. The following approach shall test for these effects in the best possible way, by making use of a survey that has been conducted within 8,438 households across China. Some answers can be chosen as good proxies to address the effect of the above mentioned factors.

Other socio-economic factors will also be included as control variables like age and sex, as done by e.g. Zhang et al. (2012) in the case of China, or Heshmati and Rudolf (2014) in the case of South Korea.

The following regressions therefore intend to investigate these assumptions and show the magnitude of its effects.

4.1 Methodology

The method that is used in this work to test the hypothesis is Ordinary Least Squares (OLS). This econometric method will allow the analysis of so-called independent variables on one dependent variable. The variables for this analysis will be described in the following.

The relationship between dependent and independent variables can be explained by a linear function:

$$Y = \alpha + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i} + \cdots + \beta_{10} x_{10i} + u_i$$

4.2 Dataset

The dataset used for this analysis is the "China Household Finance Survey" (CHFS). The CHFS is provided by the Survey and Research Center of China Household Finance, Southwestern University of Finance and Economics, Chengdu, China. The dataset is the result of a survey that has been conducted in 2011. It contains answers on demographic characteristics, assets and debts, insurance and social welfare and income and expenditure affairs of 8,438 Chinese households, represented by 29,463 individuals. The sample claims to be representative of China's geographic characteristics by covering 80 counties from 25 provinces in China. The final selection in the rural areas has been made randomly, where 20 households have been

picked. In the urban areas, 140 households have been selected for interviews - based on a distribution of the housing prices in the regarding area -, whereas the wealthier households were more strongly represented than the poorer ones (chfsdata.org, 2015).

It is a cross sectional dataset that contains the answers of numerous different observations at a certain point of time. A cross sectional dataset allows the investigation of different aspects, in this case it is the household financial situation of the survey participants in 2011.

The entire dataset consists of two parts. Part one is the questions that have been answered on an aggregated household level, e.g. the location, distance to the city centre, household income and expenditures. Part two consists of individual responds on the questions like gender, age, level of education, having a job, retirement payment, social health insurance and unemployment insurance. The two datasets have been merged based on their household identification number, which means that the aggregated household related data appears for every household member. To avoid errors due to differing statements within one household, only the household head has been taken into consideration.

4.3 The econometric model

To test for the aforementioned hypotheses, an econometric model has been constructed to use it for an OLS regression.

Based on the literature and findings by other researchers, the model contains corresponding variables that serve as a proxy for the influences on the household consumption. Since the research question aims to analyse the effect of income on household consumption, the econometric model uses expenditures of the household as the dependent variable. More details about the expenditures will follow further down. The main independent variable will be the household income of the family to measure the linear relationship between these two variables, or in other words the impact of income on the consumption behaviour. Other independent variables will be further described and justified later. The model looks as follows:

$$Y_{(\ln)expenditure}$$
$$= \beta_1 + \beta_2 * (\ln)income_i + \beta_3 * urbal\_rural\_status_i + \beta_4$$
$$* distancetocitycentre_i + \beta_5 * education_i + \beta_6 * safetynet_i + \beta_7$$
$$* socialhealthinsurance_i + \beta_8 * having\_a\_job_i + \beta_9 * sex_i + \beta_{10} * age_i$$
$$+ \beta_{11} * age^2{}_i + \beta_{12} * number\_of\_householdmembers_i + u_i$$

4.3.1 Dependent variable

The dependent variable "household expenditures" represents the aggregated expenditures of a household for an entire year. It contains various groups of expenditures, namely: meals; water, electricity, fuel, etc.; daily necessities (household items); housing services; local transportation; communication; entertainment; clothes; housing, decoration, maintenance, etc.; heating; household durables; luxury goods; education and training; conveyance; traveling; health care; medical expenses. These variables are all expenditure related variables in the dataset. This aggregation is in accordance with the definition of household consumption by the World Bank, mentioned in the introduction. Since on a macro level all these categories appear on an aggregated level, consequently this dataset provides an appropriate reflection of the overall expenditure situation of households in China.

Since a logged dependent variable is used, an elasticity between the income, education, etc. levels will be shown.

4.3.2 Independent variables

The data for the **household income** is provided by the dataset as an imputed annual household income. Unfortunately, there is no further information available about how this is composed. Since it could have been expected that there exists a positive linear relationship between income and consumption, a recent categorisation by McKinsey of disposable household income into poor/lower income (less than 60.000 RMB/year), lower middle-income (60.000 – 106.000 RMB/year), upper middle-income (106.000 – 229.000 RMB/year) and affluent (more than 229.000 RMB) seemed to be more appropriate and informative (McKinsey, 2013). This definition is basically in accordance with the NBS, whereas the upper boarder of middle income is defined by 500.000 RMB/year (Wang, 2010). The McKinsey classification has been preferred as the NBS classification would lead to a very small group of affluent people.

The second test variable is the **rural vs. urban** variable. Since the difference in income and social security seems to have a significant impact on the living conditions in both areas, this impact shall be measured by using this variable. The location is also directly linked to the access to markets. A variable indicating the **distance to the city centre** in minutes shall explain the effect of the accessibility of goods on household consumption.

The access to **education** has been described as unequal and one of the key concerns of families to save money and hence negatively affect consumption. Testing the impact of the educational background of individuals on the consumption of their household will give an indication of whether the support of education pays off for the government, as higher education might lead to more wealth and consequently higher consumption. Besides education, the social security system is considered as one of the main constraints for households to consume, as precautious savings might limit consumption. A question from the survey that asks for the **most important form of safety net** for a household shall give indication about the amplitude of various options on household consumption. The effect of enjoying **social health insurance** is supposed to give further indication about the necessity to implement a comprehensive social security system in order to boost household consumption.

To receive a higher explanatory power of the model, four variables have been added to control for: the question whether an individual has a **job**, its **gender**, the **age** and the **number of household members**. There are reasons to assume that the development of the saving and consumption behaviour is not a linear development over the lifetime of an individual. As the so called life-cycle hypothesis suggests, the development of saving is supposed to reach a peak during the working life of an individual and decreases afterwards (Jappelli and Modigliani, 2003). Therefore the age variable is taken as a squared function into the regression, expecting that the consumption behaviour takes an opposed development.

The inclusion of these variables seemed to be the best possible fit to combine the previous research and the answers that could be taken from the survey at hand. Since most of the variables are used as categorical variables, their regression output will be in comparison to a reference category. The according reference categories are as follows:

Table 1: Reference categories

Variable	Reference category
Urban vs. Rural	Rural households
Educational background	Never attended school
Most important form of safety net	Savings
Social health insurance	Having a social health insurance
Job	Having a job
Gender	Male

To gain the maximum explanatory power of the model, only the answers of household heads have been taken into consideration. Also the legal age has been considered for the model,

consequently household heads under 21 have been excluded. Survey answers that were not showing any information were excluded, hence the number of observations shrank from originally 8,438 households to 4,634. This cut in observations did not affect the proportions of the respective income groups.

4.3.3 Descriptive statistics

The following descriptive statistics show the aggregated values for all income classes, except for the household income. Since this is the main variable, it is listed in detail. More detailed descriptive statistics for the respective income groups can be found in the appendix.

Table 2: Descriptive statistics for variables used in the regression

	Observations	Mean / Percent	Std. Dev.	Min.	Max.
household expenditure	4634	32847.17	41944.45	216	876344
household income	4634	48961.52	115183.1	6.33	3000000
affluent	90	567745.7	588966.8	230000	3000000
upper middle-class	253	144473.8	31605.93	106000	227500
lower middle-class	634	78470.86	13147.11	60000	105880.4
poor	3657	24470.37	16179.92	6.33	59948.29
rural	2690	58.05			
urban	1944	41.95			
distance to city centre	4634	42.81	41.34	0	660
no school education	389	8.39			
primary school	1,259	27.17			
junior high	1,568	33.84			
high school	694	14.98			
secondary/vocational school	206	4.45			
college	269	5.8			
undergraduate	232	5.01			
master	17	0.37			
savings	756	16.31			
child support	1,709	36.88			
social welfare	889	19.18			
retirement pay	1,079	23.28			
commercial insurance	23	0.5			
spouse or relative	31	0.67			
other	147	3.17			
having a social health insurance	4,293	92.64			
no social health insurance	341	7.36			
having a job	3631	78.36			
no job	1003	21.64			
male	3,594	77.56			
female	1,040	22.44			
age	4634	56.03	10.59	41	93
age2	4634	3252.06	1260.12	1681	8649
familymembers	4634	3.51	1.58	1	18

4.4.4 Testing

To get control over the impact of outliers, the dependent expenditure and the independent income variable are defined as a log-value. By logging the continuous variable, the results cannot be seen as a change in absolute units, but rather in an elastic way.

Also a test with robust standard errors has been conducted, but did not show any difference. However, due to the nature of the dataset - which contains observations from various social classes with different behaviours - heteroskedasticity still exists but has been considered as not having a strong impact on the results. There is no sign of multicollinearity for the model, a test can be found in the appendix.

4.4.5 Limitations

Assumptions had to be made due to quality issues of the dataset. For example the household income is only described as household income, leaving it open whether it is the disposable income or total income before paying taxes. Despite this, these assumptions have been made to the best of my knowledge and belief.

A further limitation is the fact that the only geographical distinction can be made on the basis of urban and rural observations. It can be assumed that there exist also disparities in income and expenditures between the coastal areas and the hinterland. Even though the regarding questions for the provinces exist in the survey, the data has been included defectively in the dataset.

It can also be considered as a limitation that only actual expenditures are taken into consideration. There cannot be any conclusion taken from the dataset about whether certain income groups, etc. would like to consume more. It merely represents a snap-shot of the current expenditure situation.

5. Results

The results below are shown for all income groups together on the left side and also for every income group separately. Some categories that will not be explicitly discussed later on have been left out in the presentation, for example the effect of having visited vocational school on income.

Due to the nature of the variables, the majority of the independent variables appear as categorical variables; hence, the results have to be interpreted in relation to the previously mentioned reference categories. The output of the OLS regression looks as follows:

Table 3: Regression results

	All		Affluent		Upper middle-class		Lower middle-class		Poor	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
(ln) household income	0.2657***	0.0112	0.0812	0.1060	0.3748*	0.1980	0.4992***	0.1641	0.1984***	0.0145
urban	0.3266***	0.0375	0.4148	0.2518	0.0432	0.1309	0.4137***	0.0912	0.3107***	0.0437
distance to city centre	-0.0009***	0.0003	0.0011	0.0033	0.0010	0.0016	-0.0011	0.0009	-0.0008**	0.0003
primary school	0.1759***	0.0464			0.2313	0.2774	0.2982*	0.1681	0.1753***	0.0498
high school	0.3024***	0.0545	-0.1994	0.2961	0.0287	0.2838	0.4820***	0.1688	0.2991***	0.0605
college	0.4070***	0.0701	-0.0655	0.2918	0.0836	0.2997	0.5776***	0.1804	0.3415***	0.0894
undergraduate	0.5535***	0.0735	0.0868	0.2858	0.3706	0.2987	0.4770***	0.1782	0.4944***	0.1073
master	1.0212***	0.1969	0.7395*	0.3931	0.6503*	0.3825	0.3606	0.3450	2.6963***	0.8057
child support	-0.0638*	0.0345	-0.5921**	0.2904	-0.2209	0.1534	0.0433	0.1018	-0.0497	0.0384
social welfare	0.0985**	0.0414	-0.4471**	0.1983	0.1961	0.1392	0.0169	0.1024	0.1269***	0.0484
retirement pay	0.1114**	0.0475	-0.4445**	0.2057	0.1545	0.1500	0.0262	0.1093	0.1662***	0.0576
no social health insurance	-0.0131	0.0441	0.1058	0.2896	-0.3355**	0.1490	0.0789	0.1310	-0.0057	0.0497
no job	0.2692***	0.0424	0.6611**	0.3456	0.3524**	0.1482	0.0660	0.0939	0.3313***	0.0510
female	-0.0297	0.0292	0.2411	0.1739	-0.0742	0.0993	0.0013	0.0668	-0.0432	0.0342
age	-0.0665***	0.0105	0.1149	0.1186	-0.0957**	0.0370	-0.0578**	0.0248	-0.0621***	0.0122
age2	0.0004***	0.0001	-0.0012	0.0011	0.0005*	0.0003	0.0004**	0.0002	0.0003***	0.0001
familymembers	0.1006***	0.0080	0.1303**	0.0589	0.0203	0.0320	0.0747***	0.0205	0.1075***	0.0091
_cons	8.8745***	0.3281	7.2814**	3.3713	9.5033***	2.5605	5.7467***	1.9936	9.3703***	0.3812
Obs.:	4634		90		253		634		3657	
Adj. R-squared	0.3911		0.2922		0.1961		0.1282		0.2958	

Dependent variable: (ln) household expenditure; (***) 1% Level, (**) 5% Level, (*) 10% Level

The regression output originated interesting findings that will be described first, and then discussed in the next chapter. The adjusted r-squared value of 0.39 for the overall model provides sufficient explanatory power to interpret its coefficients, but also the individual income group regression outputs show satisfying adjusted r-squared values.

It is the primary intention to measure the effect of household income on household expenditures. The results show that there is a positive effect of a household's income on its expenditures. Considering all income groups from my sample, while holding all things equal, 1 percent increase in income would lead to 0.26 percent increase in expenditures. Having a closer look on the respective income groups, this effect is the strongest on the lower middle-class, where 1 percent increase in income leads to 0.4992 percent increase in consumption. At the lower end of the income groups, this effect decreases since 1 percent income increase only leads to 0.1984 percent increase in expenditures. Towards the upper income groups, the effect decreases as well. Even though the results for the affluent group are not statistically significant, the tendency can be assumed to be right. Consequently, hypothesis one cannot be validated since the impact of income on expenditures is increasing first and then decreasing. This finding will be discussed later on.

To test for hypothesis two, a look on the coefficient for the urban localised households is necessary. For the all-including model, this effect is statistically significant and needs to be interpreted by the following formula:

$$\Delta_y = 100 \times \left(e^{\hat{\beta} \times \Delta X} - 1 \right)$$

Whereas ΔX is the change in units (1) and $\hat{\beta}$ the coefficient shown in the result table. Applying this formula, household expenditures are about 38.6 per cent higher in urban households compared to rural households. The statistical significant results from the poor and lower middle-income group are already sufficient to refuse hypothesis two, since the effect of living in an urban area on the expenditures is higher in a lower middle-income household than in a poor household. In addition, the inclusion of the distance variable shows that the factor of distance to a city centre and hence market can be almost neglected and that the urban-rural-disparity is not based on aggravated access to goods.

Even though many results are not statistically significant for testing hypothesis three, tendencies are recognisable. Particularly, the all-including model gives sufficient information to prove the

assumption that a higher educational background of the household head is positively related to a household's expenditure. Consequently, based on the statistical significant results, hypothesis three can be confirmed for the model at hand. Since there is no observation in the affluent group that has never attended school, the reference category is primary school.

The importance of a supportive social security systems is shown by the results of the all-including model. Households that rely on social welfare, or retirement pay respectively, are consuming more than households that rely on their savings. However, having a closer look on the different income groups, these tendencies vary, which is why hypothesis four cannot be validated. Taking the social health insurance into consideration is not supportive, since the results are only statistically significant for the upper middle-class and hence no conclusion can be drawn from it.

Even though they are not the main investigated objects, the included control variables deliver interesting results as well. Most significant is the effect of age, which shows that except for the affluent income class, people tend to consume less first with an increasing age and at some point this phenomenon turns around and the consumption increases.

The different findings will be part of the discussion in the next chapter.

6. Discussion

The results deliver clear and interesting indications of how strongly the household consumption is effected by the previously identified factors. The following chapter shall discuss them through the lens of the research question. It shall be analysed how these factors can be utilised by the government to realise an increase of this important GDP component by taking over parts of the investment share.

As the results show the significant impact of income on household consumption, there are two main questions that need to be clarified. First of all, since the statistics and the regression underline the issue of inequality in China, a closer look at that issue is necessary. Secondly, to lift the findings back onto the bigger picture where the research question emerged from: would an increase in household income automatically lead to a higher household consumption?

While keeping in mind that the dataset claims to be representative for the Chinese household situation, the descriptive statistics show that by definition the majority of households belong to the poor household income group, followed by the lower middle class. The official definition of income groups can be considered as slightly problematic, since not only does the income vary between urban and rural areas, but so does the cost of living (Wang, 2010). However, as for example shown in the case of Chongqing, the urban-rural-income and urban-rural-consumption ratios are the same, hence the effect of income on household consumption is the same for both areas (Zhu and Jin, 2011).

Testing for hypothesis one showed that the effect of household income on household expenditure is the strongest for the lower middle-income group. Except for the affluent income group, all results are statistically significant and hence reliable for a discussion. The comparatively low effect for the poor group is not too surprising. A high tendency to save money is based on uncertainty. As determined in the foregoing chapters, a non-comprehensive social security network and high costs for education and health care force especially poorer people to save more. This effect is strengthened by a generally strong saving mentality of Chinese people. The positive effect of relying on social welfare or a retirement pay in comparison to savings can be considered as an indicator that poorer people are especially dependent on a social security system. The assumption that the social security net is important for poor people but unimportant for affluent households is supported by the finding that relying on social welfare or retirement pay has a negative effect compared to savings for affluent households. The savings of the affluent class are most likely contributing more to the expenditures than social security could do.

The combination of statistics and results reveal that due to the comparatively big size of the poor class, an increase in income would unleash a massive group of potential consumers. This is proven by the strong effect of income on consumption of the lower middle class compared to the poor group. Referring this finding in relation to research question, the role of a higher household income is extremely significant on the domestic consumption in absolute terms.

Having determined that the biggest differences exist between the poor households and lower middle-income households, the question at hand is how to increase the income level and let the poor benefit from it in order to rise up to the middle-income class.

First of all, job creation has to take place in order to provide more people with income. The limited access to financial resources for companies will play an essential role, since the private companies - which are more efficient in creating jobs - have only limited access to capital and consequently limited growth opportunities (Aziz and Cui, 2007). Not only would companies benefit from a more liberalised capital market, but further investment opportunities for private investors would also contribute to a higher household consumption. The current situation shows that compared to OECD-members, the household income is mainly based on wages and less on profits from investment (Aziz and Cui, 2007). A more market-driven capital market will most likely lead to a relaxation of credit access for private consumers as well and hence a higher consumption, or lower saving rate respectively (Kraay, 2000). In 2010, 18 provinces in China planned to raise the minimum income about 20 per cent and employees in the production sector were intended to double their income within five years (Yang et al., 2011). The effects of these plans remain to be seen.

China's abundant labour is considered as one factor for low wages. The Lewis turning point, which describes the point when the surplus of labour in an economy is exhausted, has not been reached yet in China and is expected to occur between 2020 and 2025, depending on the demographic development (Das and N'Diaye, 2013). In the case of Japan, reaching this point in the 1970s played an essential role for the increase of income and ultimately to an increase in consumption (Fukumoto and Muto, 2011). Jobs are most likely to grow in service industries (Fukumoto and Muto, 2011). By putting the focus on the growth of the tertiary sector, a decrease in the capital-intense service sector can be a positive side effect, since these investments are not efficient and crowding-out the consumption share.

The regression output gives information about the effect of a household's location on its consumption. As it could have been expected based on the previous information, the urban population consumes more than the rural. The strongest and statistically significant magnitude for the expenditure gap between urban and rural can be found for the lower middle-class. This could be mainly explained by the help of statistics. Whereas two thirds of the poor people live in rural areas, two thirds of the middle-income class live in urban areas. Consequently, realising further economic growth combined with a well-planned urbanisation could unleash a massive potential of consuming households. The urbanisation rate is still low by international standards, which leaves a lot of potential. By taking the result that shows the effect of the distance to a city centre, the factor of remoteness of rural areas can be considered as not important and

differences between urban and rural residents are most likely based on lower income. Urbanisation will be controlled by the government, which means that for a successful realisation of a higher urbanisation rate, investments are unavoidable (Dorrucci et al., 2013).

As briefly mentioned, the interpretation of the social security net results show a higher dependency on governmental support for the poorer income group. An improved nationwide social security system would therefore contribute to higher household consumption on the one hand, and on the other hand it would reduce the amount of cautious savings which could be set free for more consumption. Also inequality could be reduced by a lower need to save income (Yang et al., 2011). The current social welfare system only benefits people who have paid into local funds, or have been employed respectively (Watson, 2012). The same applies for a standardised and nationwide pension system. As long as retirees are dependent on the retirement payroll of their previous employees, inequality will exist amongst the older generation (Watson, 2012). By 2020, the government aims to completely cover the poor society with social welfare, including health care, education and housing (Jain, 2014). First steps are initiated – in rural areas, a minimum living allowance system and a cooperative medical service system was set up in 2006 (Wang and Gang, 2009). The regression hypothesises that further measures are most likely to boost household consumption. Even though the statistical significance for the social health insurance is not given, except for the upper middle-class, its tendency still gives indications. The value for the upper middle-class reveals that people with a health insurance spend about 40 per cent more than their non-insured counterpart. It is questionable whether such a strong difference can be simply explained by the higher cautious savings of the non-insured group. However, it gives an indication that providing this part of a social security net has a positive impact on the household consumption as well.

The education system that can be considered as a component of the social security system in a broader sense represents an important factor to increasing household consumption as well. One of the main issues with education is the high costs, whereof the government only covers the compulsory level (Zhou, 2013; Wang and Gang, 2009). A commercialised education system resulted in high costs and hence exclusion of the poorer society (Zhu and Kotz, 2011). As the results show, a higher degree of education is strongly positively connected to the household consumption. The same counts for education as for e.g. the pension or social welfare. The fewer savings which have to be made accessible to these "institutions", the more income can be used for consumption. Consequently, the government might benefit from higher spending on

education in the long run, since a higher average level of education might contribute to a higher level of quality for economic growth.

The control variables prove effects that could have been expected, like a positive effect of having a job or increasing expenditures with an increase in household members. Surprisingly, no statistical significant effects for the role of the gender could be found. This might be due to a strong underrepresentation of women amongst the household heads. For the statistical significant income groups, the assumptions based on the findings of Jappelli and Modigliani (2003) could be proved, stating that the expenditure behaviour will increase after a downward trend for a certain amount of years.

Even though the results provide a clear picture of how strong the effects of addressing the mentioned issues in an effective way will be, China still faces the issue of an investment driven growth model. Different to Japan, where an increase of costs for capital led to a decrease in investments, China's investment is mainly undertaken by the government and due to the dominance of state owned banks, the cost of capital will not necessarily lead to lower investments (Fukumoto and Muto, 2011). It is rather the willingness of the government to invest less that will ultimately lead to a lower investment share. The previous results show that a decrease in investments could be compensated by household consumption, in case the right measures are addressed and the government spending increased.

7. Conclusion

In order to answer the research question, a higher household income plays a significant role for a higher household consumption. All the factors above are worth a paper on their own. However, this paper intended to show their interaction and tried to convey a better understanding of the magnitude of the most important factors that constrain household consumption.

The comparison of the GDP vs. household consumption and the GNI vs. household consumption over time with other economies give reason to believe that China is different in its economic growth structure. Even though the foregoing work shows that income has a very strong impact on a household's consumption, especially in the lower income groups, there are other factors significant for the consumption as well. The strong influence of the government on the economic structure of China can be actively used to minimise these inequalities by spending more and investing less, hence rebalancing the shares of the economy. It might just

be a matter of time until the Chinese government risks to decrease its investments and let the consumption take over. Factors that will help to set the course have been analysed.

It will be difficult on the one hand to increase household income by generating a higher income level and relieve households from their burden of paying for education, health etc. and on the other hand to rely less on investment to maintain economic growth at the same time. Rather, it can be expected to be a gradual transition from one to the other. Taking away this burden from the households possibly causes a double-effect. Firstly, it will lead to a decrease in the saving rate which hence frees up capital to consume, and secondly it will provide the government with less capital that could be used for inefficient investments.

If the government does not properly address income inequality and the other factors, the current development will most likely continue as a vicious circle. As Bislimi (2013) states, if an economy consumes too much, it has a deficit in available capital to invest. Reaching this phase seems to be far away for China.

In conclusion, it is not the case that Chinese households do not consume at all. The investment based growth strategy by the government has been responsible for crowding out the household consumption share. The results show that there is reason to believe that an increase in income might lead to a replacement of the high dependency on investment by household consumption.

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Appendix

Detailed statistics

Table 4: Descriptive statistics of the affluent income group as used for the regression

affluent	Observations	Mean / Percent	Std. Dev.	Min.	Max.
household expenditure	90	104186.5	68191.55	7582	443719
household income	90	567745.7	588966.8	230000	3000000
rural	25	27.78			
urban	65	72.22			
distance to city centre	90	21.98889	24.97617	0	100
no school education					
primary school	8	8.89			
junior high	14	15.56			
high school	10	11.11			
secondary/vocational school	4	4.44			
college	19	21.11			
undergraduate	30	33.33			
master	5	5.56			
savings	23	25.56			
child support	14	15.56			
social welfare	20	22.22			
retirement pay	29	32.22			
commercial insurance	2	2.22			
spouse or relative	1	1.11			
other	1	1.11			
having a social health insurance	84	93.33			
no social health insurance	6	6.67			
having a job	80	88.89			
no job	10	11.11			
male	70	77.78			
female	20	22.22			
age	90	50.43333	8.350537	41	72
age2	90	2612.478	906.3462	1681	5184
familymembers	90	3.544444	1.375231	1	9

Table 5: Descriptive statistics of the upper middle-class income group as used for the regression

upper middle-class	Observations	Mean / Percent	Std. Dev.	Min.	Max.
household expenditure	253	70775.22	72194.87	5737	876344
household income	253	144473.8	31605.93	106000	227500
rural	66	26.09			
urban	187	73.91			
distance to city centre	253	30.75889	26.15751	0	120
no school education	7	2.77			
primary school	25	9.88			
junior high	61	24.11			
high school	48	18.97			
secondary/vocational school	20	7.91			
college	44	17.39			
undergraduate	42	16.6			
master	6	2.37			
savings	36	14.23			
child support	38	15.02			
social welfare	74	29.25			
retirement pay	99	39.13			
commercial insurance	1	0.4			
spouse or relative	5	1.98			
other					
having a social health insurance	232	91.7			
no social health insurance	21	8.3			
having a job	188	74.31			
no job	65	25.69			
male	187	73.91			
female	66	26.09			
age	253	53.8498	10.20276	41	93
age2	253	3003.486	1217.299	1681	8649
familymembers	253	3.541502	1.43761	1	13

Table 6: Descriptive statistics of the lower middle-class income group as used for the regression

lower middle-class	Observations	Mean / Percent	Std. Dev.	Min.	Max.
household expenditure	634	47701.08	39084.36	1680	422040
household income	634	78470.86	13147.11	60000	105880.4
rural	213	33.6			
urban	421	66.4			
distance to city centre	634	32.38486	31.68641	0	300
no school education	20	3.15			
primary school	84	13.25			
junior high	197	31.07			
high school	116	18.3			
secondary/vocational school	55	8.68			
college	74	11.67			
undergraduate	83	13.09			
master	5	0.79			
savings	73	11.51			
child support	131	20.66			
social welfare	164	25.87			
retirement pay	257	40.54			
commercial insurance	2	0.32			
spouse or relative	3	0.47			
other	4	0.63			
having a social health insurance	606	95.58			
no social health insurance	28	4.42			
having a job	418	65.93			
no job	216	34.07			
male	477	75.24			
female	157	24.76			
age	634	56.3959	11.26092	41	91
age2	634	3307.106	1360.249	1681	8281
familymembers	634	3.640379	1.522867	1	12

Table 7: Descriptive statistics of the poor income group as used for the regression

poor	Observations	Mean / Percent	Std. Dev.	Min.	Max.
household expenditure	3657	25892.37	34366.66	216	695654
household income	3657	24470.37	16179.92	6.339996	59948.29
rural	2386	65.24			
urban	1271	34.76			
distance to city centre	3657	45.96855	43.36988	0	660
no school education	362	9.9			
primary school	1,142	31.23			
junior high	1,296	35.44			
high school	520	14.22			
secondary/vocational school	127	3.47			
college	132	3.61			
undergraduate	77	2.11			
master	1	0.03			
savings	624	41.73			
child support	1,526	17.06			
social welfare	631	17.25			
retirement pay	694	18.98			
commercial insurance	18	0.49			
spouse or relative	27	0.74			
other	137	3.75			
having a social health insurance	3,371	92.18			
no social health insurance	286	7.82			
having a job	2945	80.53			
no job	712	19.47			
male	2,860	78.21			
female	797	21.79			
age	3657	56.2595	10.50498	41	93
age2	3657	3275.456	1246.739	1681	8649
familymembers	3657	3.493027	1.61317	1	18

Table 8: VIF-Test for the all-including model

Variable	VIF	1/VIF
(ln) household income	1.38	0.727143
urban	2.62	0.381348
distance to city centre	1.15	0.871347
primary school	3.27	0.306271
junior high	3.94	0.25363
high school	2.9	0.34532
secondary/vocational	1.74	0.575499
college	2.06	0.485074
undergraduate	1.97	0.507557
master	1.09	0.921108
child support	2.12	0.47148
social welfare	2.04	0.491332
retirement pay	3.08	0.324319
commercial insurance	1.03	0.968707
spouse or relative	1.04	0.960148
other	1.17	0.855497
no social health insurance	1.02	0.983988
no job	2.33	0.428811
female	1.13	0.881481
age	95.25	0.010499
age2	95.84	0.010434
familymembers	1.22	0.817735