

Czech University of Life Sciences Prague

Faculty of Economics and Management

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Bachelor Thesis

Economic Analysis of One Child Policy

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

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BACHELOR THESIS ASSIGNMENT

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Economics and Management

Thesis title

Economic analysis of one child policy

Objectives of thesis

The thesis is focused on analyzing economic aspects of one child policy in China. The main goal is to compare economic situation before, during and after implementing the policy. Partial goals of this work are assessing the impacts on population and environment and identifying potential threats.

Methodology

Methodology of the thesis issues is based on study and analysis of specialized information resources. Synthesis of information obtained from different sources and examining relations among individual aspects through correlation will provide a base for formulating reasonable conclusion.

The proposed extent of the thesis

40 pages

Keywords

One Child Policy, Two Child Policy, China, Population Control, Chinese Communist Party (CPC), Gender Imbalance, Population Growth, Birth Rate

Recommended information sources

Fong, M. (2016). One child : the past and future of China's most radical experiment. Houghton Mifflin Harcourt.

Haugen, D. (2006). China. Detroit: Greenhaven Press.

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Declaration

I declare that I have worked on my bachelor thesis titled "Economic Analysis of One Child Policy" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 8.3.2017

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Ekonomická analýza politiky jednoho dítěte

Souhrn

Tato bakalářská práce se zabývá tématem „Finanční analýza politiky jednoho dítěte“. Cílem práce je analýza faktorů, které vedly k zavedení této politiky v Číně a vyhodnocení dopadů, které měla na společnost.

Práce je rozdělena na dvě hlavní části – teoretickou a praktickou. Teoretická část popisuje politické a historické události, které pomáhaly zformovat Čínu do současné podoby na základě syntézy a extrakce odborných textů.

Praktická část se zabývá ekonomickým vývojem v minulém století, ekonomickými reformami a zhodnocením zavedení a následků politiky jednoho dítěte pro ekonomiku a demografickou strukturu. Závěry jsou vyvozeny pomocí korelací a analýz časových řad.

Klíčová slova: Politika jednoho dítěte, Politika dvou dětí, Čína, Kontrola porodnosti, Nevyváženost pohlaví, Porodnost, Nárůst populace, Čínská lidová republika, Komunistická strana Číny, Ekonomická reforma

Economic Analysis of One Child Policy

Summary

This bachelor thesis examines the topic „Economic analysis of one child policy". The goal of this paper is to analyze factors which led to implementing the policy in China and evaluate impacts it had on the society.

The thesis is divided into two main parts – theoretical and practical. Theoretical part describes political and historical events which shaped China's society into a current form based on synthesis and extraction of texts.

The practical part is looking into the economic development of the past century, economic reforms and assessment of execution and consequences of one child policy for the economy and demographic structure. Conclusions are based on correlations and time series analysis.

Keywords: One Child Policy, Two Child Policy, China, Population Control, Chinese Communist Party (CCP), People’s Republic of China, Gender Imbalance, Population Growth, Birth Rate, Economic Reform

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1 Introduction

Over four thousand years ago Chinese civilization rose and spread over the vast land laying the foundation of one of the longest lasting cultures in the history. Made of an amount of separate kingdoms which battled each other for power and control, China was in constant turmoil for centuries. Strong oppression leads to revolts, those lead to chaos and eventually back into oppression. This environment created the basic idea of Chinese culture that monumental hard work in obedience to authority pays off. This is the first time in history when it seems like China broke off the cycle and could become a powerhouse - economic power which needs to be accounted for and maybe finally a free country.

World's population is increasing rapidly and that leads to many countries attempting to curb the numbers. For China, at the time of implementation of one child policy inhabited by roughly one-fifth of the world's population, this was a more actual issue than for others. Dedication to finally rise from poverty called for extreme measures and that is how the most radical experiment, which lasted over thirty-five years, was created.

Fundamental policies like this one never affect just one sphere but society as a whole. Economic impacts as well as sociological ones are notable and need to be taken into account while designing an experiment. Fewer children mean less spreading of resources but at the same time, fewer people to obtain those resources in the first place. It is difficult to find the line, where the policy is beneficial and does not cause aging of the population or diminishing of the workforce. Was China successful or the policy was too harsh and hurt the economy instead of making it better?

2 Objectives and Methodology

2.1 Objectives

The main goal of this thesis is to explore the economic and social situation in China before and after implementing the one-child policy. The first objective is to examine the theoretical foundation and features of population control. The second objective is to evaluate positive and negative effects of the policy on the economy and the last objective is assessing the impacts on population and environment as well as identifying potential threats.

2.2 Methodology

The methodology used for this thesis is built on study and analysis of specialized information sources. Synthesis of information obtained from different sources and examining relations among individual aspects through correlation provides a base for formulating reasonable conclusions. Graphs, figures and statistical tables were used to simplify understanding and improve visualization of results.

3 Theoretical part

3.1 Literature review

Theoretical knowledge for this bachelor thesis is based on information obtained from several sources, physical as well as electronic, and when possible cross-referenced. Unfortunately, because China is still relatively isolated and secure about its internal activities, data for the practical part come mostly from one source, National Bureau of Statistics of China. And even though it provides an extensive amount of data for many sectors of Chinese activity, its credibility and accuracy are often questioned. Rawski (2001) published a study about the untrustworthiness of data published by the Chinese government. He claimed among other things that their GDP and industrial production growth does not correspond to the non-increasing level of power usage. His claims were fiercely rejected by China and several specialists who claimed the cause of low power usage is technological development and shift from heavy industry to light industry and hi-tech. Klein (2002) conducted a study with 15 major economic indicators and concluded the China's official numbers to be consistent. Only cross-referenceable data are those of Chinese interactions with other states, in which case the World Bank served as a counter source.

There is not a unified opinion on One Child Policy. Some people claim that state has no right to regulate number of children people have (Nee, 2015) and that no level of GDP can substitute for security and mental benefits of having two children for some couples (Lovely, 2005) as well as those supporting the idea because of its benefits to environment (Francis, 2009) and even comparing increasing population to cancer (Erlich, 1968). However, majority of people agrees that the enforcement of the policy is a violation of basic human rights (Fong, 2016) and that the diminishing amount of manpower will be a serious problem for China in an imminent future (Kroeber, 2016).

3.2 China in 20th century

The twentieth century was a breakthrough period for China in many ways. It was a time of rising from poverty, switching from colonized agricultural country to industrial powerhouse and entering the global trade as well as an era of the great famine and massive human costs caused by revolutions and war.

As a result of The Age of Imperialism in the beginning of the 20th century, China found itself struggling with Western nations. With its weak economy, non-functioning government and lack of industry it seemed like a perfect colony material and there was more than one European power more than ready to carve a piece. China isolated itself from the world in the 17th century and managed to keep it that way until the First Opium War in 1839. This conflict eventually led to concluding The Treaty of Nanking (1842) which forced China to not just hand over the island of Hong Kong to the United Kingdom and open five ports for foreign trade but also pay a large indemnity. The foreign influence rose steeply after that. In 1858 eleven more ports were open and China was stripped of the authority to supervise its own customs. Furthermore, the Western states installed their own courts in the territory to preserve their sovereignty.

In 1870 Second Industrial Revolution broke out in Europe and lasted until 1914 intensifying already existing pressure on the colonies. China was divided into several areas of influence. Each of the invading Western states claimed part of the country and established special trading privileges - France took southwestern China, Germany the Shandong Peninsula in northern China, Russia got Manchuria and a leasehold over Port Arthur and the British took control over Yantzi Valley. USA did not get involved in this because of fear of damaging U.S. Commerce and promoted Open Door Policy with equal rights for foreign traders and respecting China's integrity instead.

Foreign oppression caused aggressive mood among many Chinese citizens. Nationalists movements got into motion and eventually formed Society of Right and Harmonious Fists which started so-called Boxer Rebellion (1899-1901). Their main goal of this group was isolating China from the world again and reinstall its sovereignty. Their conflicts with foreigners and Chinese Christians escalated in series of attacks on Western embassies and that prompted Imperial forces to send 25 000 troopers to crush the rebellion in one swift stroke. Even though Boxers did not stand a chance and were defeated in less

than two weeks, their effort was not in vain. The government, as well as common people, realized the necessity of reforms and after a decade of building up resistance in 1911 revolutions broke all across the country and led to overthrowing the Manchu emperor. In 1912 the Republic of China was founded and Sun Yat-Sen was named its first president.

Sun Yat-Sen promoted three-point program – deliberating China from Imperial control, adapting western agricultural and industrial methods and installing democratic election of the government officials. All these events were a big step forward for China but it did not prevent next 40 years of struggle.

In March 1912 Sun Yat-Sen resigned and Yuan Shih-Kai assumed his place. After he tried to reinstall the former system with him as the new emperor, Sun Yat-Sen founded one of the firsts Chinese political parties of – Kuomintang (KMT), became its chairman and maintained his effort to create democratic China.

In 1921 Chinese Communist Party (CCP) was founded and at first, all of the founders agreed to join the forces with KMT against local warlords to unite the country under the government's power. Mao Tse-Tung, who later became one of the biggest figures of the Modern China's history, was one of them. By 1927 the campaign against the warlords started to be successful but unfortunately caused a clash between CCP and KMT. Most of the CCP leaders were killed and the rest retreated to their few remaining strongholds. Pressure against CCP increased in 1928 when Chiang Kai-Shek was named the new chairman. Even though China was at the time in escalating conflict with Japan, Chiang Kai-Shek who considered Japan „the disease of the skin" and communists „the disease of a heart", selected defeat of communist as a priority. After being surrounded in Kiangsi, Mao Tse-Tung, who was in the lead of the surviving communist decided to retreat. This over 9 000 kilometers long, more than a year lasting journey was later called The Long March. Although many died, communist were able to recuperate in the northern mountains.

In 1937 Japan started a full attack on China. CCP suggested united front but was met with the rejection from KMT. Eventually, after eight years, Japan was defeated and USA with Great Britain who supported KMT forced Chiang Kai-Shek to accept its surrender and create a coalition with CCP. Unfortunately, this attempt was not successful and parties started a civil war. KMT controlled the majority of urban areas while CCP was supported by the countryside.

In the beginning, KMT has the advantage of numbers and weaponry but over the time CCP started prevailing. In 1948 KMT was defeated and retreated to the island of Taiwan. In the following year, Mao Tse-Tung officially founded the People's Republic of China and became its first chairman. He then started implementing five-year plans involving land reform, social reform, cultural reform and economic planning.

China wasn't the only Asian state experiencing internal struggle. Korean war started in 1950 and Mao Tse-Tung's involvement created a conflict between China and United Nations who supported South Korea against communist North Korea.

While causing a drift with Western states, Mao Tse-Tung started building a relationship with the Soviet Union and Joseph Stalin. Even though he was slightly disappointed in Stalin himself, their cooperation was highly beneficial for China. Apart from sharing advanced plans and methods, Russia promised alliance against Japan for the next thirty years. This alliance preserved even Stalin's death in 1955.

In 1958 Mao implemented a program called the Great Leap Forward – extension of his second five-year plan which was supposed to improve the industrial and agricultural situation of China and quicken its industrialization. It was a bold and unfortunately unsuccessful plan. Because Soviet Union industrialization model - focused on selling products of agriculture and turning capital gained this way into heavy machinery- was not applicable to China, because of the large population and therefore no significant surplus, it was decided that China will not focus on machinery but on the labor force. The program sustained from several points, one of them being building steel furnaces in every village or urban area and second creating communes from collective farms. Communes caused decentralization of the decision-making process and since ideology was valued and rewarded over actual expertise, the loss of production was massive. Overall the improvements were applied so poorly that after adding costs from natural disasters ruining the harvest for three consecutive years, they caused famine during which over 20 000 000 people is estimated to die from starvation in 1959 to 1962.

After the failure of the Great Leap Forward which left China weakened, Mao Tse-Tung was gradually stripped of his power. For the few following years, there was a power struggle between other party leaders divided by the opinion on the reasons of previous failures. In 1966 Mao grew concerned over the development of the Soviet Union. Especially after Nikita Khrushchev denounced Joseph Stalin and his policies he started to

worry about his legacy and that among other reasons prompted him to start the Cultural Revolution.

Cultural revolution had three periods. The first one, lasting from 1966 to 1968, was an era of chaos. During this two years, Mao unleashed common people against in his opinion faulty communist party and violent incidents followed. Schools were closed, students recruited into Red Guards everyone suspected from not-revolutionary opinions was punished. From 1966 to 1971 the military was in lead and China was practically turned into a garrison state. In the last five years, from 1971 to 1976, China was already severely weakened and people started rebelling against the Cultural Revolution. The Army was sent back to barracks, the black market got prominent and illegal deals with local officials broke out all across the rural areas as well as unofficial land redistribution. Last attempts of maintaining the Cultural revolution laws died with Mao Tse-Tung in 1976.

After the death of Mao Tse-Tung several party leaders, including Mao's wife, unsuccessfully tried to maintain power using his words and ideas but more adepts with more pragmatic opinions gained the favor of people. Deng Xiaoping managed to take the lead and in 1977 launched so-called Beijing Spring where he openly criticized previous events and regretted the excessive suffering of Chinese people. In the following years, he implemented several economic reforms opening China to the world market and several social reforms in an attempt to curb the steeply increasing population. Although his power was weakened by the event of 1989 demonstration on Tiananmen Square he kept promoting the necessity of economic reforms until his death in 1997.

4 Practical Part

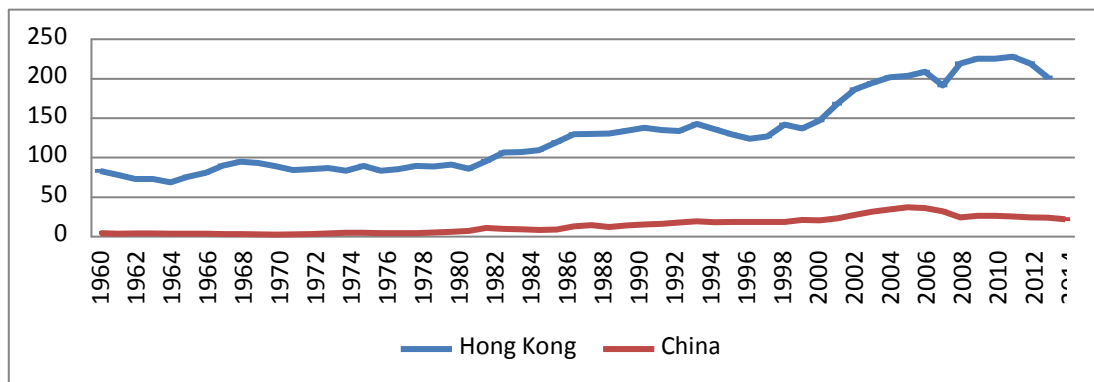
4.1 Economic development of 20th century

There are over 1.3 billion people in China and that makes it the second largest economy in the whole world with remarkable influence on the global market. In the past 70 years, Chinese economy switched from agrarian to industry and technology focused, the government started acknowledging „favorable elements of capitalism" in order to promote growth and reducing poverty and GDP started to increase.

4.1.1 Global market

Since 1980's China is more open to global market because of several economic reforms implemented in an attempt to repair damage caused by cultural revolution. Because China is a huge continental economy, the pillar of growth is domestic demand. That means that China's development is not dependent on external demand and instead depends on internal dynamics for long-term growth. In early and mid 90's domestic demand was responsible for over 90% of the total demand and even nowadays domestic demand is around 80% of the total demand even though export is getting bigger. As illustrated on the graph amount of exported goods is increasing steeply and, except for a few hitches, continuously.

Figure 1 Export as a % of GDP



Source: own representation, Worldbank data, 2017

Opposite situation is with Hong Kong and Singapore which are very open and strongly dependent on the external demands.

The final step to completely penetrate the global market was gaining membership in World Trade Organisation (WTO). After 15 years of negotiations, China succeeded in 2001. The condition of the acceptance was making required changes in China's economic system in three years since the official acceptance. Among other requirements were: non-discriminatory treatment of all WTO members without considering their investment in China, eliminating dual pricing and different treatments of goods sold in China or abroad, abolishment of protecting domestic providers with price controls and enabling WTO members to freely trade goods through customs with limited exceptions (cereals, tobacco, fuels minerals, etc.). Another improvement is China implementing TRIPS (Trade-related intellectual property rights). In the following 12 years, this process will be secured by Transitional Safeguard Mechanism which will monitor potential disruptions caused by export and import.

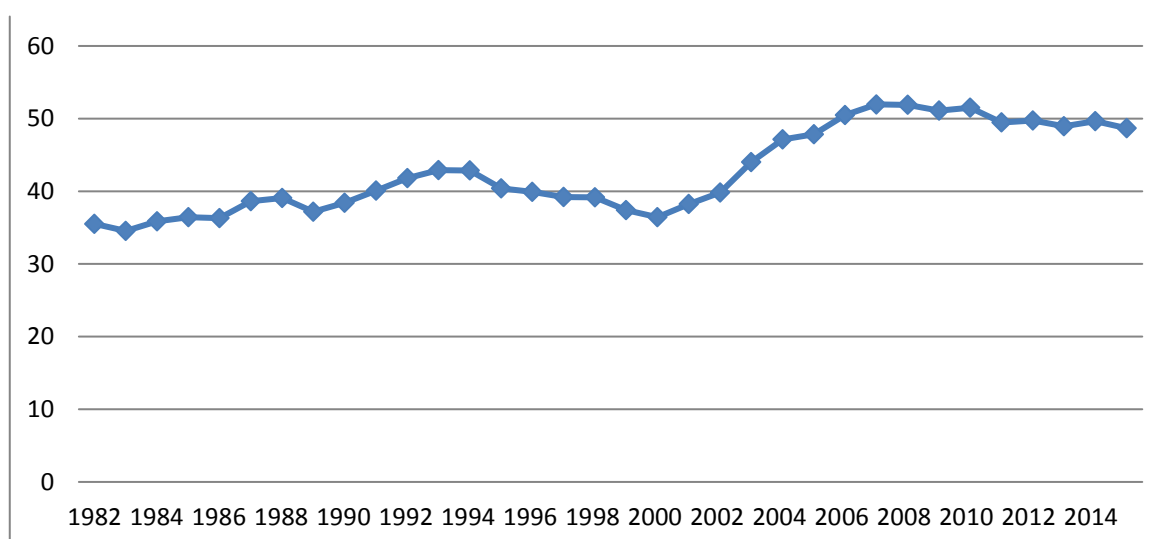
China was one of the original signers of Global Agreement on tariffs and trade (GATT) in 1948. After KMT retreat, Taiwan announced leaving in 1949 while the government in Beijing never commented on its status until 1986 when requesting a renewal. However, Taiwan was granted observer status for six years until in 1971 United Nations General Assembly (UNGA) officially decided that the only legitimate government of China is that one in Beijing.

In 2015 China was appreciated for its contribution to achieving Millenium Development Goals (MDG). MDGs is a set of eight global goals attempting to build a better world. Those eight goals aim to eliminate poverty and hunger, achieve universal primary education, reduce the child mortality, provide gender equality and empower women, improving maternal health, disease control and prevention, ensure environmental sustainability and create a global partnership for development. Since China has such a large population, their changes translate into the global results. Even though achievement of some of the goals was not influenced by China, on most of them, it had a major impact.

4.1.2 Gross savings

Because of preceding events, Chinese grew cautious and forward-looking which led to extra high household savings rate. Before the 1970s and 1980s reforms, urban residents enjoyed social welfare coverage during their whole life but since the 1990s, market-oriented reform gradually abolished these public services, leaving households responsible for providing for their own needs. Household savings in cities increased dramatically providing another potential mean of development since high savings usually mean high domestic investments. In 1980's China had around 30% of the GDP and in the 1990's above 40%. Between 1997 and 2000 as a result of the Asian Financial Crisis the value decreased almost to the 1980's level but since then was continuously increasing.

Figure 2 Gross savings as % of GDP



Source: own representation, National Bureau of Statistics of China, 2017

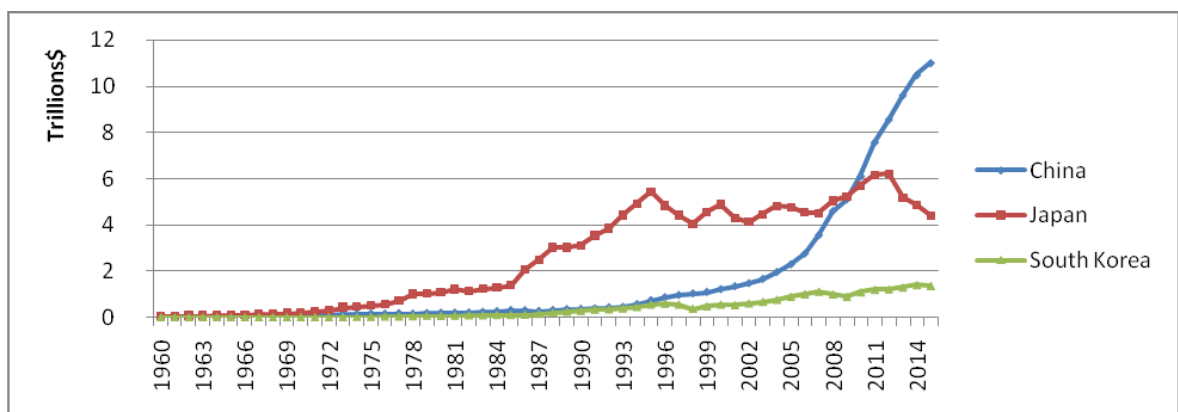
4.1.3 Gross domestic product

Since 1978 economy grew on average 9,5% per year because of inexpensive labor and practically non-diminishable manpower. Since 1998 economy is growing 8% per year on average. 1997 was a year of Asian financial crisis. It began with the government of Thailand deciding not to peg local currency to US dollar anymore. What followed was series of currency devaluations and other events which eventually led to global issues. The

crisis spread through southern Asia causing declines, reduced import revenues, and government upheaval. Even though International Monetary Fund (IMF) and the World bank intervened, Asian currencies fell as much as 38%, international stocks 60% and negative impact showed even in the USA, European and Russian economies. This crisis led to many countries performing safety measures like buying practically risk-free U.S. Treasuries and implementing much-needed reforms. Although economies of most of the countries were badly damaged, China remained practically unaffected and that gave it another boost in growth.

World markets fluctuated in 2015 – 2016 and that led to fear of second Asian crisis. China's devaluation of yuan in relation to USD slowed Chinese economy and lowered domestic interest rate which in turn decreased the rates of other Asian countries and forced them to borrow money in order to invest in the global equities market.

Figure 3 GDP of East Asian countries



Source: own representation, National Bureau of Statistics of China, 2017

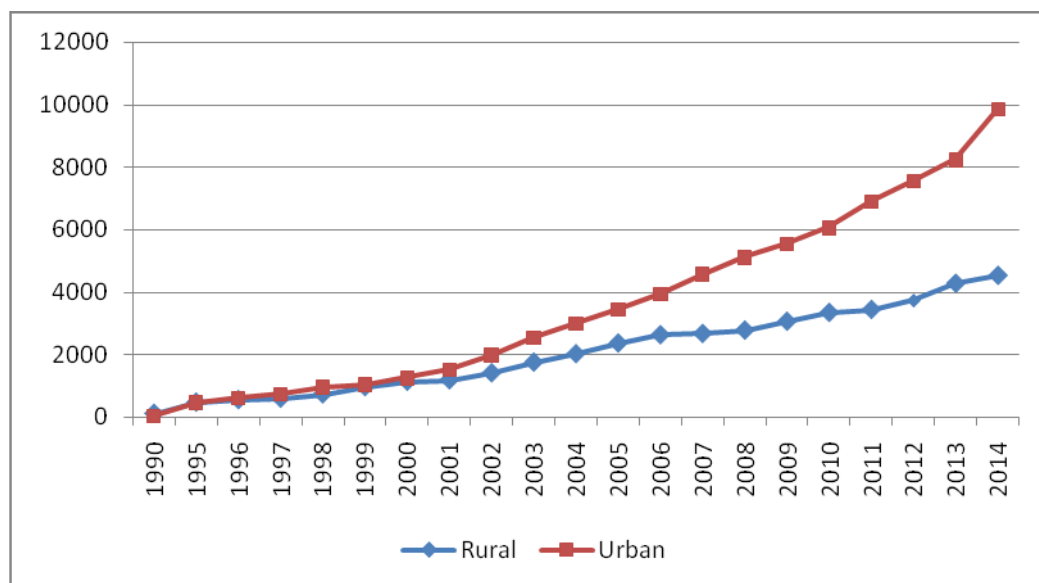
4.1.4 Privatization of state-owned enterprises

One of the major issues of the Chinese economy is situation around state-owned companies (SOA). With no motivation for growth and innovation they turn into so called „zombie enterprises" and a lot of them decrease in value so much they face a bankrupt. China, for almost hundred years a led by a communist party, of course, has a majority of SOA. Privatization on a significant scale has not started until 1993. By then the situation became so bad in some areas that not only companies but the whole cities faced bankrupt.

Cities Zhucheng and Schunde, by that time on its way to inevitable doom, managed to come to a silent agreement with the government and were allowed to ignore the usual system and started privatization. It was the first step in China's attempts to change its relationship with enterprises.

Zhucheng and Schunde at first turned the companies and in 1997 started selling them to already existing managements. Both cities thrived and seeing their success, the government started endorsing a policy "retain the large, release the small" and the privatization process started for real. Between 1995 and 2001 the number of state-owned and state-controlled enterprises fell from 1.2m to 468,000, the number of jobs in the urban state sector fell by 36m—or from 59% to 32% of total urban employment and especially in urban areas privatization is still continuing. Although privatization does not solve problems with corruption and favoritism in China, it certainly helps in increasing of its economic growth.

Figure 4 Number of private companies



Source: own representation, National Bureau of Statistics of China, 2017

4.1.5 Income and consumption

In 2011, the per capita net income of rural residents was 6,977 yuan which is 17,9% over the previous year. The real growth rate, after deducting the price factors, was 11,4%. Rural residents wage contributed to the overall number by 42,5%. The increase in the level of wage income was mainly due to accelerated wages of migrant workers.

Cash income mainly coming from production and operations of rural residents increased 12.9% to 2520 yuan. Accelerated growth was achieved thanks to a good harvest and high prices of products. Out of income increase from selling agricultural products 40% came from increased number of sold products and 60% from increasing the price. Higher price for livestock increased the growth rate to 30,1% after a decline in 2009 and 2010. Secondary and tertiary industries rose by 16,7% and increased from 601 to 702 yuan. Income from properties went up by 13% to 229 yuan.

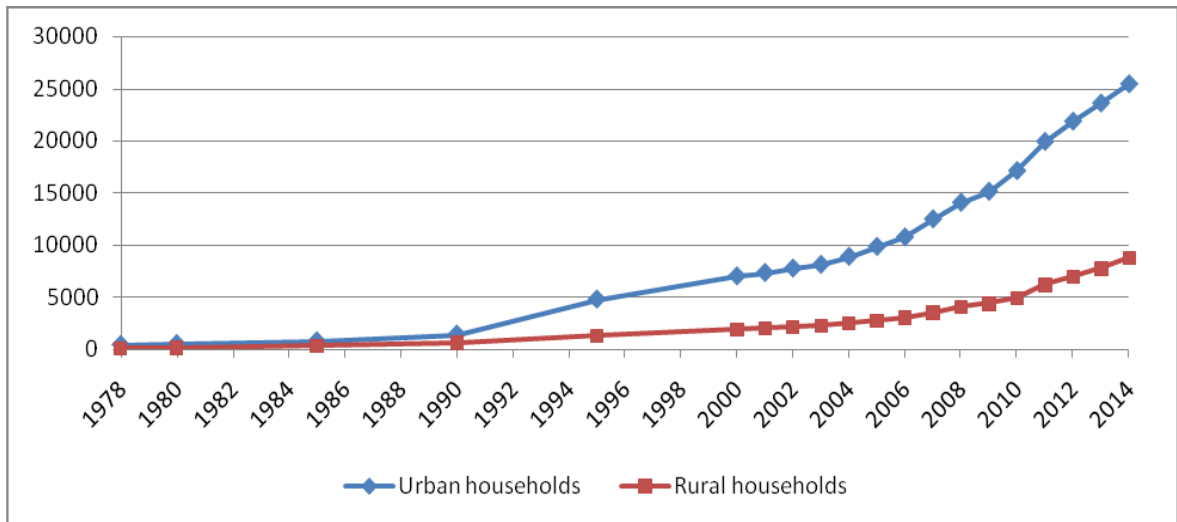
In 2011 urban residents per capita income stood at 23 979 yuan, surpassing previous year by 2 701 yuan, rising 14,1%. Per capita wage income stood at 15,412 yuan, rose by 12.4 percent. The reason for the increase in urban areas was among others privatization which thrived especially in urban areas. The economy was successful during the year, the number of individual operators increased and the threshold of self-employed increased.

Per capita income from properties increased 24.7 percent to 649 yuan. The main reason was due to the impacts of the large increases in housing rent and per capita income growth of housing rent of urban residents.

Per capita transfer income rose to 5,709 yuan, increased 12.1 percent. Minimum living standard improved as basic pension for retirees increased. In 2011, the median of per capita disposable income of urban residents stood at 19,118 yuan, increased 2,279 yuan over the previous year, rose by 13.5 percent. Disposable income of urban residents was 2,692 yuan lower than the per capita disposable income, and 0.6 percentage points lower of the growth rate. This was an effect of low-income residents maintaining a rapid growth same as high- income residents making the middle-income residence growth seemingly slow.

In 2011, the ratio of per capita disposable income of urban residents and per capita net income of rural residents was 3.13:1, the ratio in 2010 was 3.23:1.

Figure 5 Income

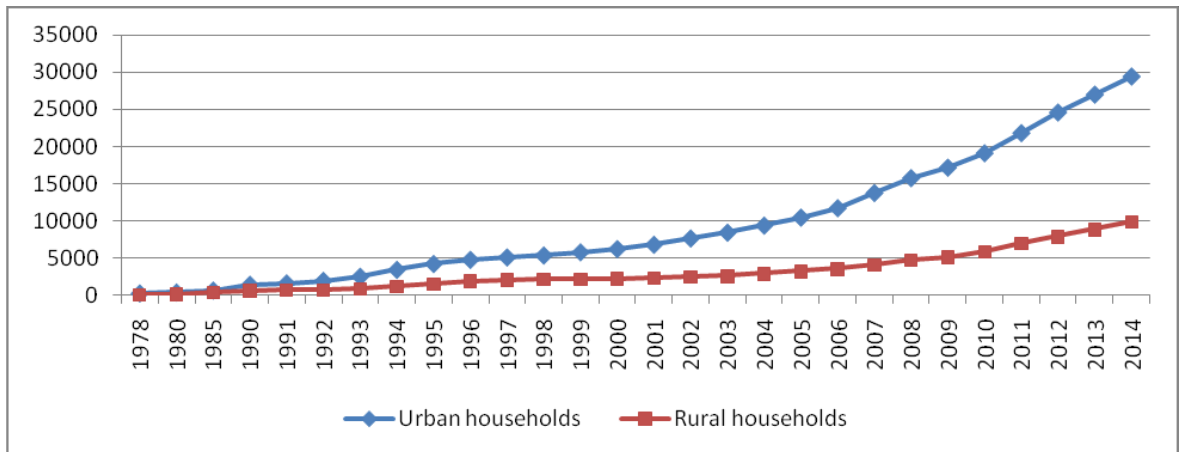


Source: own representation, National Bureau of Statistics of China, 2017

In the past thirty years, China's growth was mostly created by investment and export which caused rapid acceleration but it is not sustainable in the long-term. China took advantage of its extremely low-cost production to lure companies looking trying to decrease its production costs as well as flooded the global market with cheap products. China's GDP growth has dipped to approximately 7.5%, slow-down necessary in shifting China's growth to rely more on private enterprise and domestic consumption. In China, consumption's share of GDP is a just around 35% which is not even half of that of U.S.

With rapid urbanization, the middle class comes forward as a very important consumer group currently representing approximately 50% of urban population. As more people get solid work and start feeling safer about their finances, their spending increases contributing to the sustainable domestic consumption.

Figure 6 Consumption

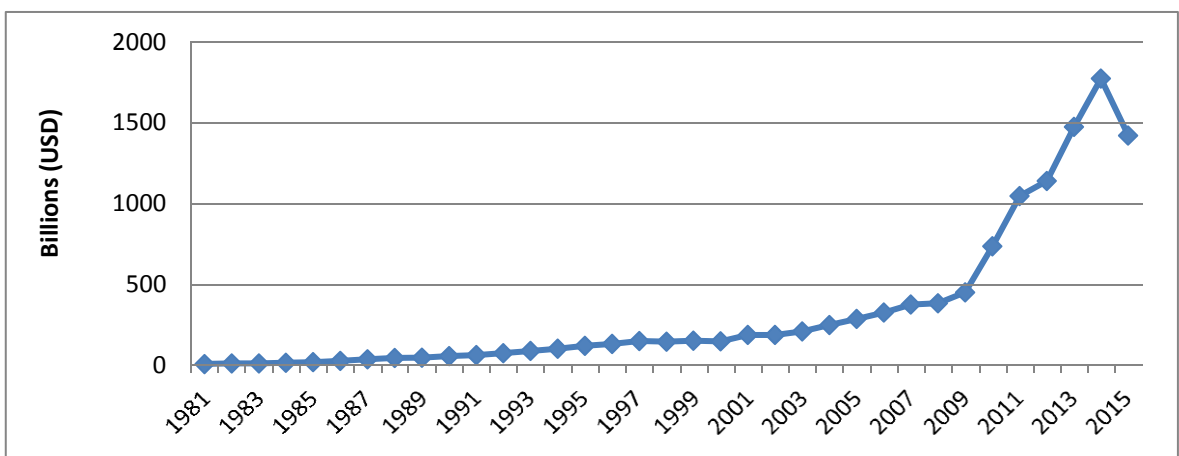


Source: own representation, National Bureau of Statistics of China 2017

4.1.6 Shadow banking and debt situation

China's debt is more than 250% of GDP - higher than U.S. and lower than Japan's. Global financial crisis in 2008/2009 led to a collapse of global trade and lowering of China's export. As a result, 20 million people lost their jobs and the government decided for investment in the infrastructure. In order to create sufficient amount of job positions, the government borrowed 600 billion USD from the state banking system effectively enabling local governments to use the system too. That left them depending on shadow banking system.

Figure 7 External debt stock



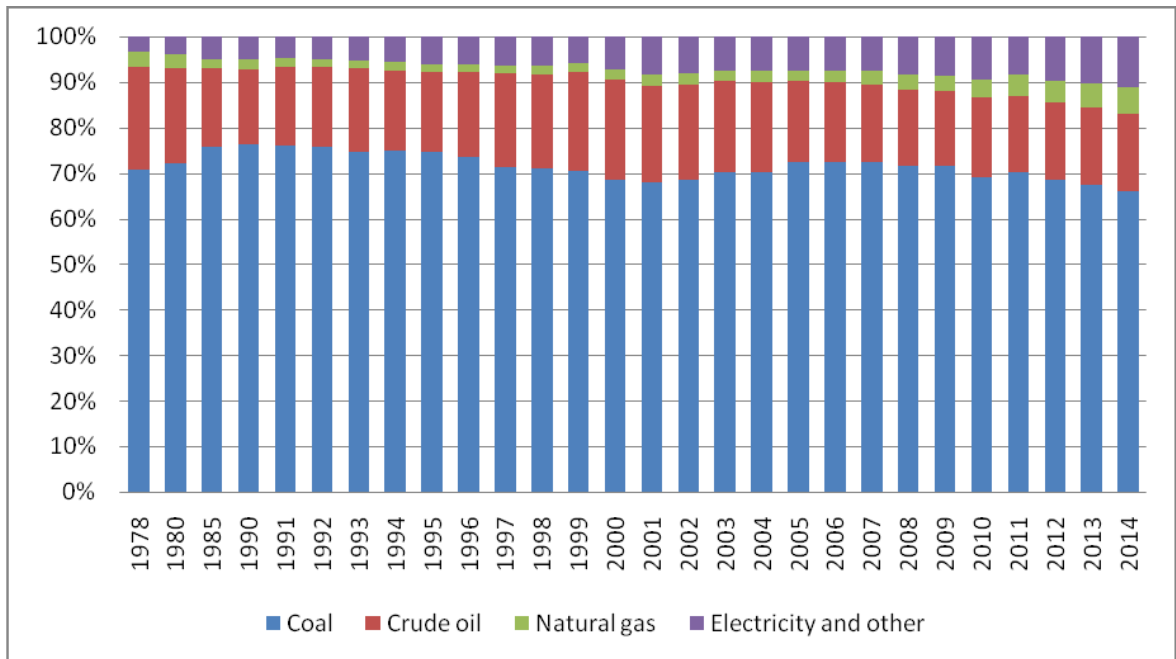
Source: own representation, National Bureau of Statistics of China 2017

Shadow banking is another issue of China's economy. Because of unrealistic conditions in banks, more than 67% of loaned capital belongs to shadow banking system. That makes China, not in the control of its future, forced to keep interest rates too low and limits the activities of private and foreign enterprises. Estimates claim that half of the loans will never be repaid. A lot of money is involved in illegal investments schemes (100 billion dollars) and a lot of capital leaves the country (25 billion dollars). State uses 1300 listed companies to support local cadres and that causes unstable official policy as well as fiscal conditions.

4.1.7 Pollution

One of the major issues for China as well as for the whole world is pollution. Apart from many other unquantifiable consequences, pollution can be to an extent represented as a financial cost. In China damage to agriculture, industry, health and buildings cost 4-8% of GDP every year while ecological damage is another 5-15%. These costs are not unavoidable effects of the growth but rather losses caused by lack of political pressure and open society. Thanks to corruption, bureaucracy and the fact that most of the energy sector is state-owned, China has 16 out of 20 cities with the most polluted air in the world. While reducing the increase of the already massive population might have helped with this issue, it is not nearly enough to suffice. China's most frequent source of fuel is still coal which produces a large amount of carbon emissions and often is not even mined efficiently. The state-owned energy sector is not incentivized to invest in improvement nor giving adequate signals to consumers in order to curb the consumption. Another huge issue is waste pollution. Often poisons from landmines kill economies of the whole villages because polluted water ruins all the crops in the area.

Figure 8 Fuel consumption



Source: own representation, National Bureau of Statistics of China 2017

Until mid-1990's energy sector practically owned by few big state-owned companies which reported to State planning commission (SPC) and State economic and trade commission (SETC). In 1998 China significantly changed the structure and created state Development Planning Commission (SDPC) and Ministry of Land and Resources which focused on competition to gain control more than actually governing the sector. This eventually led to the abolishment of SETC and founding National and Development and Reform Commission (NDRC) to govern the energy sector. Currently, environmental issues are addressed by State Environmental Protection Administration (SEPA) which unfortunately has no effective tools for enforcing the law. The most severe punishments are fines too small to motivate companies to be more sustainable.

4.2 One child policy

After the baby boom which followed World War II some scientists became worried of potential incoming famine. When China came out of its isolation created by cultural revolution most of the countries already promoted campaigns for population control but apart from the forceful situation in India none of them undertake extreme measures. Chinese people, who remembered The Great Famine, without any deep rooted religious beliefs concerning abortion or birth control were in favor of fewer mouths to feed.

Since population rose from 540 mil. in 1949 to 800 mil. in 1969 because of improvement of healthcare and living conditions, in 1970's China started a campaign „Later, longer, fewer". It suggested having fewer children, later marriage and spacing out childbearings. Through slogans like „One child isn't too few, two is just enough, three is too much." and benefiting people who accommodated to that, eventually it caused an average woman to have 3 children instead of 6. It might have stayed on this trajectory and lessen the population growth on its own without one child policy like it was for other Asian nations.

Mao's death in 1976 caused a power struggle. New leaders (Hu Yaobang, Hua Guofeng, and Deng Xiaoping) were desperate to prove they are able to lead the country towards economically positive future and „later, longer, fewer" seemed too slow for that. The plan was to increase production and lower the population in order to increase GDP per capita. Deng set quadrupling of the GDP per capita to 1000 dollars by 2000 and population planners calculated that with two children policy it can't be achieved. By 2000 population was planned to be 1.2billion and was, in reality, more just by 60 million which is not much since the GDP tripled.

After purges of intellectuals and abolishment of education during the cultural revolution, China was left with very little specialists. Demography was removed from the education system at the beginning of the cultural revolution and was not brought back until after China's reinstatement to UNGC. Practically the only field allowed to keep its scientists was military and their specialization was not even close to demographic planning. The presumed father of the policy, Song Jian, was a rocket scientist and his opinions on real life population planning were naïve. He proceeded from study co-written

by Dutch mathematician Geert Jan Olsder discussing hypothetical population as well as from work of Club of Rome, both of these sources not including several social aspects in planning. Song Jian in his 1980's article he claims that problems caused by OCHP are in the distant future and can be easily fixed by adjusting female fertility rate and medicine to prevent aging.

4.2.1 Implementation

The final step in the decision-making process regarding the population control was a conference in 1980 held in Chengdu. After that CCP formally asked its members to reduce the size of their families to 1 child. This request was, in reality, an order and those who didn't comply were severely punished. Chinese, who had a sense that China is drowning in people and would never stop being poor unless doing something radical, did not protest at first. Fewer births seemed to make investments more efficient by lessening the spread out of the resources and majority of people who lived through the great famine supported the idea of fewer mouths to feed. Although the majority of people was not opposed to the idea there still were those who predicted negative consequences. One of the biggest opponents of one child policy was Liang Zhongtang. Although he was robbed of an opportunity of a proper education by cultural revolution which cost him necessary creditability at the conference in Chengdu conference, his estimates were more accurate than those of the government officials. Among other issues, he pointed out the „4:2:1 problem” – two parents caring for four grandparents and a one child

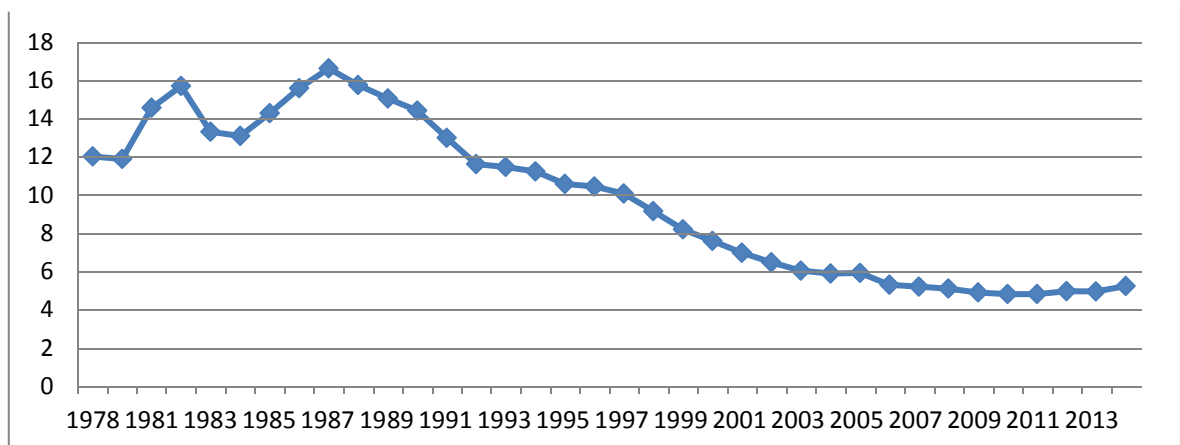
Although he was not able to convince the government to adapt to his plan of two child policy, he was able to persuade reform-minded party elders Hu Yaobang and Zhao Zhiyang to create experimental zones. In 1985 there were four areas allowed to have two children instead of one and their results were good. Not such an extensive sex selection, birth and sex ratios closer to normal and much higher morale. Since a majority of people was satisfied with having two children, no extreme measures were necessary so local officials mostly just oversaw. The only enforcement involved five years between childbirths and sterilization performed after the second child. Fine for disobedience of the rules was 5-10x annual disposable income. Unfortunately, this experiment affected roughly just 8% of the population and did not translate into the overall statistics.

4.2.2 Population

In the period between 2011 and 2015 China implemented its 12th five-year plan. Part of that plan was to achieve a growth rate of 7,2%. However, in 2015 the actual number fell short by almost 15 million. That adds to rising concerns that China's population may be aging more quickly than the Chinese government had predicted. At first, Chinese officials estimated the population would reach its peak around 2030, but now, it seems clear that population decline will continue much longer. China's famous one-child policy may have worked too well, leading to rock-bottom fertility levels that will be hard to overcome. Chinese fertility rate is now one of the lowest in the world.

In 2013 China loosened the policy and allowed every couple in which at least one partner is a single child to apply for more children, but just approximately a third of eligible couples applied. As depicted on the graph, this action slowed down the decrease but did not stop it completely much less turn it into increase.

Figure 9 Population growth



Source: own representation, National Bureau of Statistics of China 2017

China in the past century needed to be accounted for because of its massive population. Until 2000's one fifth of all the people in the world lived in China. Until 1980's the number was increasing rapidly, reaching almost the fourth of the world population. However, since implementation of OCHP the number is decreasing and in 2017 started nearing one sixth.

Figure 10 China's share of world population

Year	Share of World Population
2017	18.47 %
2016	18.60 %
2015	18.72 %
2010	19.35 %
2005	20.03 %
2000	20.73 %
1995	21.41 %
1990	21.75 %
1985	21.69 %
1980	22.03 %
1975	22.3 %
1970	21.96 %
1965	21.27 %
1960	21.35 %
1955	21.7 %

Source: own representation, Worldbank data , 2017

4.2.3 Gender imbalance

As in many Asian countries, average Chinese family is not considered successful when it does not have at least one male offspring. Having a boy is a cultural and a pragmatic choice: it is expected for him to continue a family lineage and support his parents in old age. When no more than one child is allowed it rapidly leads to the gender imbalance. While that might not have seemed like an issue in the beginning of the policy

implementation, currently there are millions of men across China facing a future as bachelors.

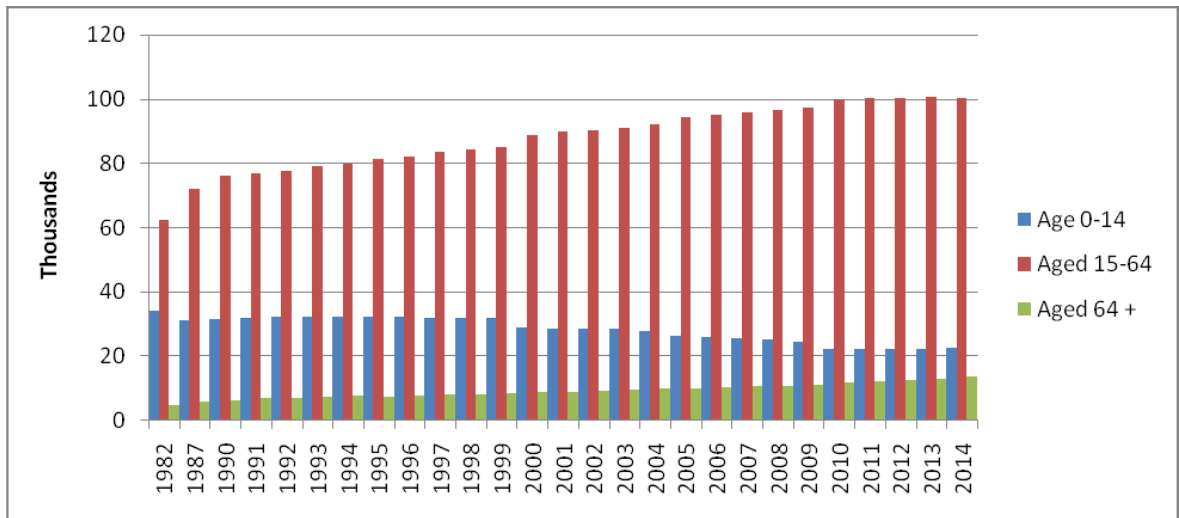
It is predicted that by 2020, the number of men unable to find wives will reach the population of Texas. The first generation born under OCHP is now in their thirties and starting to feel the impacts of not having any eligible females in their proximity. Even though the OCHP was canceled in 2015 it will take decades until it translates into fixing the gender imbalance if ever. Until then frustration in society grows leading to unprecedented levels of sexual violence and human trafficking. Marriages with foreign citizens doubled.

4.2.4 Dependency

Out-of-plan born children have barely any rights. They are not assigned a „hukou“, household registration without which they are not able to legally get married, attend school, have a job, get a proper medical health care or even something so trivial as setting up a library card. A person without a hukou becomes a nonentity, so called black children. According to estimates around 13 million people belong to this permanent underclass and their children will be treated the same way. Without a legal job it is hard to earn enough money to support oneself, much less elderly parents. And with China aging so fast this issue is becoming more and more acute.

In 1982 the composition of the Chinese population was still seemingly balanced. Elderly over 64 years were a minority and excessive amount of their children aged between 15 and 64 years was more than capable of providing for them. Number of children under 14 was sufficient for their parents not to worry about their own retirement. However, in 2014 the situation is quite different. The number of people in the 15 to 64 group increased to over 100 and the elderly 64+ group numbers almost doubled while the amount of children under 15 significantly decreased.

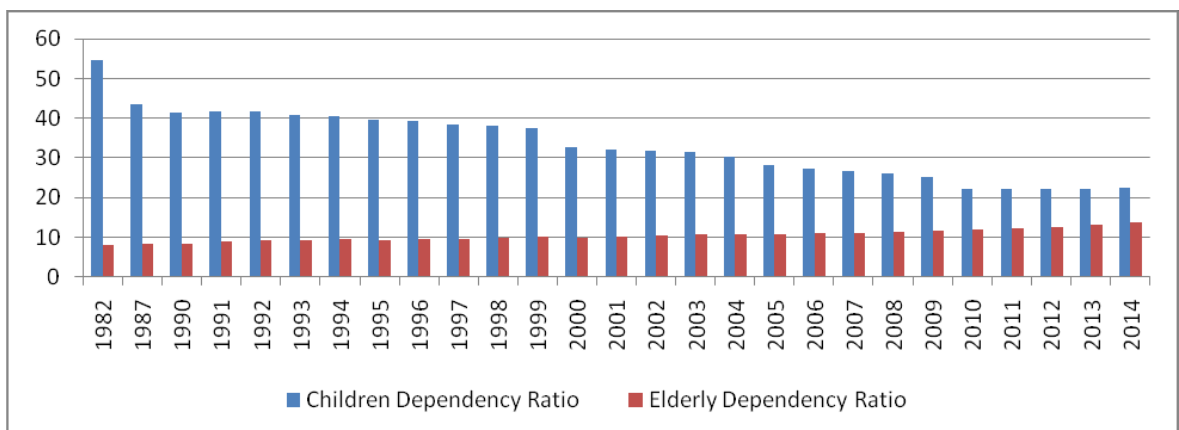
Figure 11 Age composition



Source: own representation, National Bureau of Statistics of China 2017

In 1982 there was almost six times more children dependent on their parents than elderly dependent on their children. The first option is sustainable in the long-term since children grow up, became self-sufficient and later on help to provide for their parents. The other option though might result in a situation when parents are in need of support from their children but as their parents are still alive, the children have to provide for all of them. In case that the allowed number of offsprings is one, the solution often does not exist. In 2014 number of dependent elderly is more than half of the number of dependent children.

Figure 12 Dependency ratio



Source: own representation, National Bureau of Statistics of China 2017

4.2.5 Cancellation of the policy

In 2013 Chinese government loosened the OCHP to an extent where every couple in which at least one of the parents is a singleton can apply for a second child. During the following year only 35% of suitable couples applied which shows people's reluctance for more children caused but the government propaganda lasting for more than 35 years. In 2015 China canceled one child policy completely and resorted to two children policy. The announcement followed a four-day CCP summit in Beijing where China's top leaders debated financial reforms and ways to maintain growth at a time of heightened concerns about the economy. More than a year after that it seems like it is still not enough.

One child policy changed people's mind about family planning. Many believe now that having more than one child is too stressful and costly. In 2017 discussions started about motivating people financially by paying couples for having a second child. And rightly so, because if the government won't make people inclined to multiple offsprings, by 2100 their population will be as low as it was in 1950.

Results and Discussion

4.3 Correlation

4.3.1 Correlation coefficient

Correlation is one of the most basic statistics methods. It is a process of assessing the linear relationships between variables through calculating correlation coefficient. Correlation coefficient is a single number that describes the degree of relationship between two variables. Its value can range from -1 to 1. The closer the coefficient is to the absolute value of 1 the stronger the relationship is. If the correlation coefficient is a negative number it means that the relationship between variables is an inverse proportion and decrease in value of one variable signifies increase of the other. If the coefficient is a positive number the discovered relationship is a direct proportion and decrease or increase in value appears for both variables. If the value of the coefficient is close to 0 it means that there is no significant relationship between variables.

Correlation coefficient formula

$$r = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{n}}{\sqrt{\left(\sum X^2 - \frac{(\sum X)^2}{n}\right) \left(\sum Y^2 - \frac{(\sum Y)^2}{n}\right)}}$$

4.3.2 Correlation matrix of selected factors

Correlation matrix

	<i>Energy consumption</i>	<i>Health exp.</i>	<i>CO2</i>	<i>GDP</i>	<i>Consumption</i>	<i>Population</i>	<i>Income</i>
Energy consumption	1	0,952003002	0,992535	0,945451	0,963655877	0,831657846	0,97639714
Health exp.	0,952003002	1	0,974869	0,998262	0,99511257	0,741922898	0,991963894
CO2	0,992535105	0,974869016	1	0,94173	0,981794588	0,812962669	0,98588238
GDP	0,94545094	0,998261924	0,94173	1	0,990585643	0,649269257	0,986779594
Consumption	0,963655877	0,99511257	0,981795	0,990586	1	0,772881635	0,999123484
Population	0,831657846	0,741922898	0,812963	0,649269	0,772881635	1	0,790027384
Income	0,97639714	0,991963894	0,985882	0,98678	0,999123484	0,790027384	1

Source: own representation, National Bureau of Statistics of China, Worldbank data 2017

Population size affects a majority of society statistics. As apparent from the table it has a significant impact on carbon emissions. The more people there are in China the more emissions they produce. What affects a number of emissions, even more, is energy consumption which in China consists mainly of burning fossil fuels. The size of the population has a significantly weaker relationship with the level of GDP than it has on emissions but it still does have a positive relationship. Another variable with a strong positive relationship with population size is health expenditure. Even though the assessment of the relationship of health expenditure with population size might be influenced by the composition of the population strongly affected by one child policy rather than the number of people itself. Consumption and income has a very strong relationship with population size but their relationship with each other and GDP is even stronger. All of the depicted relationships are positive and none of them is weak.

5 Conclusion

In China everything is about scale and speed. Never ending internal power struggle results in the government demanding quick and significant results with little consideration of people's needs. With the absence of hesitation and firm hand, it is manageable to achieve even the most extreme of goals, but is it worth it?

Although some claim that it is a stratagem in preventing global warming, it might not necessarily be true. While the USA has 5% of world population and causes 15% carbon emissions, China, even with lowering its population is not ceasing to be the worst polluter in several areas. Even though it cost them almost 15% of GDP in damage caused by pollution, this issue is overlooked because the changes would not translate fast enough to be actually motivating.

One of the pillars of development is innovation and that can prosper only in a democratic environment. Without open debates, public sources of information, guaranteed rights, and secured contracts development of any kind inevitably languishes. China's current political situation forces many entrepreneurs and scientists to leave their country and register their companies or patents abroad. While added to another major issue in form of a non-effective regulation system which lays the foundation for smuggling, fraud and criminal organizations, this situation might be fatal for the Chinese economy.

In 2013 Chinese government loosened the OHP to an extent where every couple in which at least one of the parents was a singleton can apply for a second child. However, during the following year only 35% of suitable couples applied which shows people's reluctance for more children which is a result of the government propaganda lasting more than 35 years. In 2015, after a four-day CCP summit in Beijing where China's top leaders debated financial reforms and ways to maintain growth at a time of heightened economic concerns, China canceled one child policy completely and resorted to Two children policy. Will that be enough? Because One child policy changed people's mind about family planning and many believe now that having more than one child is too stressful and costly and it is hard to change people's minds back, in 2017 discussions started about motivating people financially by paying couples for having a second child. This might be an opposite extreme but maybe necessary, because if the government won't make people inclined to multiple offsprings, by 2100 their population will be as low as it was in 1950.

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Appendix

Appendix 1 Population

Year	Total population	Aged 0-14		Aged 15-64		Aged 64 and over		Gross Dependency ratio (%)	Children Dependency ratio (%)	Old Dependency ratio (%)
		Population	Proportion	Population	Proportion	Population	Proportion			
1982	101654	34146	33,6	62517	61,5	4991	4,9	62,6	54,6	8
1987	109300	31347	28,7	71985	65,9	5968	5,4	51,8	43,5	8,3
1990	114333	31659	27,7	76306	66,7	6368	5,6	49,8	41,5	8,3
1991	115823	32095	27,7	76791	66,3	6938	6	50,8	41,8	9
1992	117171	32339	27,6	77614	66,2	7218	6,2	51	41,7	9,3
1993	118517	32177	27,2	79051	66,7	7298	6,2	49,9	40,7	9,2
1994	119850	32360	27	79868	66,6	7622	6,4	50,1	40,5	9,5
1995	121121	32218	26,6	81393	67,2	7510	6,2	48,8	39,6	9,2
1996	122389	32311	26,4	82245	67,2	7833	6,4	48,8	39,3	9,5
1997	123626	32093	26	83448	67,5	8085	6,5	48,1	38,5	9,7
1998	124761	32064	25,7	84338	67,6	8359	6,7	47,9	38	9,9
1999	125786	31950	25,4	85157	67,7	8679	6,9	47,7	37,5	10,2
2000	126743	29012	22,9	88910	70,1	8821	7	42,6	32,6	9,9
2001	127627	28716	22,5	89849	70,4	9062	7,1	42	32	10,1
2002	128453	28774	22,4	90302	70,3	9377	7,3	42,2	31,9	10,4
2003	129227	28559	22,1	90976	70,4	9692	7,5	42	31,4	10,7
2004	129988	27947	21,5	92184	70,9	9857	7,6	21	30,3	10,7
2005	130756	26504	20,3	94197	72	10055	7,7	38,8	28,1	10,7
2006	131448	25961	19,8	95068	72,3	10419	7,9	38,3	27,3	11
2007	132129	25660	19,4	95833	72,5	10636	8,1	37,9	26,8	11,1
2008	132802	25166	19	96680	72,7	10956	8,3	37,4	26	11,3
2009	133450	24659	18,5	97484	73	11307	8,5	36,9	25,3	11,6
2010	134091	22259	16,6	99938	74,5	11894	8,9	34,2	22,3	11,9
2011	134735	22164	16,5	100283	74,4	12288	9,1	34,4	22,1	12,3
2012	135404	22287	16,5	100403	74,1	12714	9,4	34,9	22,2	12,7
2013	136072	22329	16,4	100582	73,9	13161	9,7	35,3	22,2	13,1
2014	136782	22558	16,5	100469	73,4	13755	10,1	36,2	22,5	13,7

Source: National Bureau of Statistics of China, 2017

Appendix 2 Three strata industry contribution

Year	GDP	Primary industry	Secondary industry	Tertiary industry	Industry	Wholesale and retail sales	Financial intermediation
1990	3,9	1,6	1,6	0,8	1,5	-0,3	0,1
1991	9,3	0,6	5,7	3	5,2	0,3	0,2
1992	14,3	1,2	9	4,1	8,1	0,7	0,4
1993	13,9	1,1	9	3,9	8,1	0,5	0,6
1994	13,1	0,8	8,7	3,6	8,1	0,5	0,5
1995	11	1	6,9	3,1	6,3	0,5	0,4
1996	9,9	0,9	6,2	2,8	5,8	0,4	0,4
1997	9,2	0,6	5,4	3,2	5,3	0,5	0,4
1998	7,8	0,6	4,7	2,6	4,3	0,4	0,2
1999	7,6	0,4	4,3	2,9	4,1	0,5	0,3
2000	8,4	0,4	5	3,1	4,8	0,5	0,3
2001	8,3	0,4	3,8	4,1	3,5	0,7	0,3
2002	9,1	0,4	4,5	4,2	4	0,7	0,4
2003	10	0,3	5,8	3,9	5,2	0,8	0,4
2004	10,1	0,7	5,2	4,1	4,8	0,5	0,2
2005	11,3	0,6	2,7	5	4,9	1	0,6
2006	12,7	0,6	6,3	5,8	5,3	1,5	1
2007	14,2	0,4	7,1	6,7	6,2	1,6	1,1
2008	9,6	0,5	4,7	4,5	4,1	1,3	0,6
2009	9,2	0,4	4,8	4,1	3,7	1,1	0,8
2010	10,6	0,4	6,1	4,2	5,2	1,3	0,5
2011	9,5	0,4	4,9	4,2	4,3	1,1	0,5
2012	7,7	0,4	3,8	3,5	3,2	0,9	0,6
2013	7,7	0,3	3,7	3,7	3,1	1	0,7
2014	7,3	0,3	3,4	3,5	2,8	0,9	0,6

Source: National Bureau of Statistics of China, 2017

Appendix 3 Population rates

Year	Bith rate	Death rate	Natural growth rate
1978	18,25	6,25	12
1980	18,21	6,34	11,87
1981	20,91	6,36	14,55
1982	22,28	6,6	15,68
1983	20,19	6,9	13,29
1984	19,9	6,82	13,08
1985	21,04	6,78	14,26
1986	22,43	6,86	15,57
1987	23,33	6,72	16,61
1988	22,37	6,64	15,73
1989	21,58	6,54	15,04
1990	21,06	6,67	14,39
1991	19,68	6,7	12,98
1992	18,24	6,64	11,6
1993	18,09	6,64	11,45
1994	17,7	6,49	11,21
1995	17,12	6,57	10,55
1996	16,98	6,56	10,42
1997	16,57	6,51	10,06
1998	15,64	6,5	9,14
1999	14,64	6,46	8,18
2000	14,03	6,45	7,58
2001	13,38	6,43	6,95
2002	12,86	6,41	6,45
2003	12,41	6,4	6,01
2004	12,29	6,42	5,87
2005	12,4	6,51	5,89
2006	12,09	6,81	5,28
2007	12,1	6,93	5,17
2008	12,14	7,06	5,08
2009	11,95	7,08	4,87
2010	11,9	7,11	4,79
2011	11,93	7,14	4,79
2012	12,1	7,15	4,95
2013	12,08	7,16	4,92
2014	12,37	7,16	5,21

Source: National Bureau of Statistics of China, 2017

Appendix 4 Marital status

Year	Total number of registered marriages	Marriages in mainland	First marriage	Re-marriages	Marriages with foreign citizens	Divorces	Crude divorce rate (%)
1985	831,3	829,06	1607,63	50,48	2,22	45,79	0,44
1990	951,1	948,69	1819,13	78,24	2,38	80	0,69
1995	934,1	929,71	1776,07	83,35	4,4	105,6	0,88
2000	848,5	842	1581,39	102,62	6,49	121,29	0,96
2005	823,1	816,6	1483	163,1	6,43	178,5	1,37
2006	945	938,2	1705,6	184,4	6,82	191,3	1,46
2007	991,4	986,3	1779,7	203,1	5,11	209,8	1,59
2008	1098,3	1093,2	1972,5	224,1	5,1	226,9	1,71
2009	1212,4	1207,5	2168,8	256	4,92	246,8	1,85
2010	1241	1236,1	2200,9	281,1	4,9	267,8	2
2011	1302,36	1297,48	2309,88	294,85	4,88	287,4	2,13
2012	1323,59	1318,27	2361,17	286,02	4,33	310,38	2,29
2013	1346,93	1341,43	2385,96	307,89	5,5	350,01	2,57
2014	1306,74	1302,04	2286,81	326,68	4,7	295,73	5,67

Source: National Bureau of Statistics of China, 2017

Year	Tot. health expenditure	Government health e.		Social health e.		Out-of-pocket h.e.		Total	Urban	Rural	Health exp. as GDP %
		Level	Percentage	Level	Percentage	Level	Percentage				
1978	110,21	35,44	32,18	52,25	47,41	22,52	20,43	11,45			3,02
1979	126,19	40,64	32,21	59,88	47,45	25,67	20,34	12,94			3,1
1980	143,23	51,91	36,24	60,97	42,57	30,35	21,19	14,51			3,15
1981	160,12	59,67	37,27	62,43	38,99	38,02	23,74	16			3,27
1982	177,53	68,99	38,86	70,11	39,49	38,43	21,65	17,46			3,33
1983	207,42	77,63	37,43	64,55	31,12	65,24	31,45	20,14			3,47
1984	242,07	89,46	36,96	73,61	30,41	79	32,64	23,2			3,35
1985	279	107,65	38,58	91,96	32,96	79,39	28,46	26,36			3,09
1986	315,9	122,23	38,69	110,35	34,93	83,32	26,38	29,38			3,06
1987	379,58	127,28	33,53	137,25	36,16	115,05	30,31	34,73			3,14
1988	488,04	145,39	29,73	189,99	38,93	152,66	31,28	43,96			3,23
1989	615,5	167,83	27,27	237,64	38,64	209,83	34,09	54,61			3,6
1990	747,39	187,28	25,06	293,1	39,22	267,01	35,73	65,37	158,82	39,31	3,98
1991	893,49	204,05	22,84	354,41	39,67	335,03	37,5	77,14	187,56	45,61	4,08
1992	1096,86	228,61	20,84	431,55	39,34	436,7	39,81	93,61	222,01	55,34	4,05
1993	1377,78	272,06	19,75	524,75	38,09	580,97	42,17	116,25	268,58	68,45	3,88
1994	1761,24	342,28	19,43	644,91	36,62	774,05	43,95	146,95	332,56	85,49	3,63
1995	2155,13	387,34	17,97	767,81	35,63	999,98	46,4	177,93	401,28	101,48	3,53
1996	2709,42	461,61	17,04	875,66	32,32	1372,15	50,64	221,38	467,43	134,34	3,79
1997	3196,71	523,56	16,38	984,06	30,78	1689,09	52,84	258,58	537,85	157,16	4,02
1998	3678,72	590,06	16,04	1071,03	29,11	2017,63	54,85	294,86	625,94	194,63	4,33
1999	4047,5	640,96	15,84	1145,99	28,31	2260,55	55,85	321,78	701,98	203,22	4,49
2000	4586,63	709,52	15,47	1171,94	25,55	2705,17	58,98	361,88	812,96	214,93	4,6
2001	5025,93	800,61	15,93	1211,43	24,1	3013,89	59,97	393,8	841,2	244,77	4,56
2002	5790,03	908,51	15,69	1539,38	26,59	3342,14	57,72	450,75	987,07	259,33	4,79
2003	6584,1	1116,94	16,96	1788,5	27,16	3678	55,87	509,5	1108,91	274,67	4,82
2004	7590,29	1293,58	17,04	2225,35	29,32	4071,35	53,64	583,92	1261,93	301,61	4,72
2005	8659,91	1552,53	17,93	2586,41	29,87	4520,98	52,21	662,3	1126,36	315,83	4,66
2006	9843,34	1778,86	18,07	3210,92	32,62	4853,56	49,31	748,84	1248,3	361,89	4,52
2007	11573,97	2581,56	22,31	3893,72	33,64	5098,66	44,05	875,96	1516,29	358,11	4,32
2008	14535,4	3593,94	24,73	5065,6	34,85	5875,86	40,42	1094,52	1861,76	455,19	4,59
2009	17541,92	4816,26	27,46	6154,49	35,08	6571,16	37,46	1314,26	2176,63	561,99	5,08
2010	19980,39	5732,49	28,69	7196,61	36,02	7051,29	35,29	1490,06	2315,46	666,3	4,89
2011	24345,91	7646,18	30,66	8416,45	34,57	8465,28	34,77	1806,95	2697,48	879,44	5,03
2012	28119	8341,96	29,99	10030,7	35,67	9656,32	34,34	2076,67	2999,28	1064,83	5,26
2013	31668,95	9545,81	30,14	11393,79	35,98	10729,34	33,88	2327,37	3234,12	1274,44	5,39
2014	35312,4	10579,23	29,96	13437,75	38,05	11295,41	31,99	2581,66			5,55

Source: National Bureau of Statistics of China, 2017

Appendix 5 Import and export

Year	Imports and exports	Exports	Imports	Balance
1982	44	25	19	6
1983	43	25	18	7
1984	54	28	26	2
1985	52	29	23	6
1986	56	36	20	16
1987	65	42	23	19
1988	80	47	33	14
1989	81	45	36	9
1990	98	57	41	16
1991	108	69	39	30
1992	183	91	92	-1
1993	226	110	116	-6
1994	322	164	158	6
1995	430	184	246	-62
1996	430	206	224	-18
1997	522	245	277	-32
1998	504	239	265	-26
1999	572	262	310	-48
2000	660	301	359	-58
2001	719	329	390	-61
2002	855	394	461	-67
2003	1013	464	549	-85
2004	1337	621	716	-95
2005	1571	739	832	-93
2006	1917	914	1003	-89
2007	2509	1216	1293	-77
2008	3045	1465	1580	-115
2009	2867	1286	1581	-295
2010	3624	1702	1922	-219
2011	4191	1821	2370	-549
2012	4706	1905	2801	-897
2013	5396	2106	3291	-1185
2014	6043	2222	3821	-1599

Source: National Bureau of Statistics of China, 2017

Appendix 6 Population composition

Year	Total population	Male		Female		Urban		Rural	
		Population	Proportion	Population	Proportion	Population	Proportion	Population	Proportion
1949	54167	28145	51,96	26022	48,04	5765	10,64	48402	89,36
1950	55196	28669	51,94	26527	48,06	6169	11,18	49027	88,82
1951	56300	29231	51,92	27069	48,08	6632	11,78	49668	88,22
1955	61465	31809	51,75	29656	48,25	8285	13,48	53180	86,52
1960	66207	34283	51,78	31924	48,22	13073	19,75	53134	80,25
1965	72538	37128	51,18	35410	48,82	13045	17,98	59493	82,02
1970	82992	42686	51,43	40306	48,57	14424	17,38	68568	82,62
1971	85229	43819	51,41	41410	48,59	14711	17,26	70518	82,74
1972	87177	44813	51,4	42364	48,6	14935	17,13	72242	82,87
1973	89211	45876	51,42	43335	48,58	15345	17,2	73866	82,8
1974	90859	46727	51,43	44132	48,57	15595	17,16	75264	82,84
1975	92420	47564	51,47	44856	48,53	16030	17,34	76390	82,66
1976	93717	48257	51,49	45460	48,51	16341	17,44	77376	82,56
1977	94974	48908	51,5	46066	48,5	16669	17,55	78305	82,45
1978	96259	49567	51,49	46692	48,51	17245	17,92	79014	82,08
1979	97542	50192	51,46	47350	48,54	18495	18,96	79047	81,04
1980	98705	50785	51,45	47920	48,55	17140	19,39	79565	80,61
1981	100072	51519	51,48	48553	48,52	20171	20,16	79901	79,84
1982	101654	52352	51,5	49302	48,5	21480	21,13	80174	78,87
1983	103008	53152	51,6	49856	48,4	22274	21,62	80734	78,38
1984	104357	53848	51,6	50509	48,4	24017	23,01	80340	76,99
1985	105851	54725	51,7	51126	48,3	25094	23,71	80757	76,29
1986	107507	55581	51,7	51926	48,3	26366	24,52	81141	75,48
1987	109300	56290	51,5	53010	48,5	27674	25,32	81626	74,68
1988	111026	57201	51,52	53825	48,48	28661	25,81	82365	74,19
1989	112704	58099	51,55	54605	48,45	29540	26,21	83164	73,79
1990	114333	58904	51,52	55429	48,48	30195	26,41	84138	73,59
1991	115823	59466	51,34	56357	48,66	31203	26,94	84620	73,06
1992	117171	59811	51,05	57360	48,95	32175	27,46	84996	72,54
1993	118517	60472	51,02	58045	48,98	33173	27,99	85344	72,01
1994	119850	61246	51,1	58604	48,9	34169	28,51	85681	71,49
1995	121121	61808	51,03	59313	48,97	35174	29,04	85947	70,96
1996	122389	62200	50,82	60189	49,18	37304	30,48	85085	69,52
1997	123626	63131	51,07	60495	48,93	39449	31,91	84177	68,09
1998	124761	63940	51,25	60821	48,75	41608	33,35	83153	66,65
1999	125876	64692	51,43	61094	48,57	43748	34,78	82038	65,22
2000	126743	65437	51,63	61306	48,37	45906	36,22	80837	63,78
2001	127627	65672	51,46	61955	48,54	48064	37,66	79563	62,34
2002	128453	66115	51,47	62338	48,53	50212	39,09	78241	60,91
2003	129227	66556	51,5	62671	48,5	52376	40,53	76851	59,47
2004	129988	66976	51,52	63012	48,48	54283	41,76	75705	58,24
2005	130756	67375	51,53	63381	48,47	56212	42,99	74544	57,01
2006	131448	67728	51,52	63720	48,48	58288	44,34	73160	55,66
2007	132129	68048	51,5	64081	48,5	60633	45,89	71496	54,11
2008	132802	68357	51,47	64445	48,53	62403	46,99	70399	53,01
2009	133450	68647	51,44	64803	48,56	64512	48,34	68938	51,66
2010	134091	68748	51,27	65343	48,73	66978	49,95	67113	50,05
2011	134735	69068	51,26	65667	48,74	69079	51,27	65656	48,73
2012	135404	69395	51,25	66009	48,75	71182	52,57	64222	47,43
2013	136072	69728	51,24	66344	48,76	73111	53,73	62961	46,27
2014	136782	70079	51,23	66703	48,77	74916	54,77	61866	45,23

Source: National Bureau of Statistics of China, 2017