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**China's Economic Restructuring:
Role of Agriculture**

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Abstract

While China has achieved extraordinary economic success in the past decades, its economic structural risks have increased significantly as well. As Chinese top leaders have repeatedly emphasized, economic restructuring is a critical task facing China's economy. To restructure China's economy, the country needs to find a new engine for growth to replace the export and investment led growth model, address social inequality and protect the environment. The key approaches identified by the Chinese government include urbanization, upgrading the manufacturing sector and developing strategic industries. However, through in-depth analysis, this paper finds that the effectiveness of these measures remains in question as they fail to target at all the root causes of China's economic problems.

One of the root causes of China's current economic structural problems is the low domestic consumption, particularly of the rural residents. Another root cause is environmental degradation as the agricultural sector is a top polluter. Finally, a deep rooted problem China faces is income inequality, predominantly, rural-urban income inequality. This paper posits that in order to address China's economic structural problems, promoting farmers' income growth and developing an eco-friendly agricultural sector should be prioritized. It argues that agriculture has a key role to play as it has great potential in contributing to economic growth, sustainable environment as well as harmonious society.

However, in order to release this potential China's agricultural sector has to be reformed. China should further liberalize its agricultural sector in the following three aspects. First, China needs to move away from grain farming and capitalize on China's huge comparative advantages in the production of labour - and - capital intensive products such as fruits, vegetables and aquatic products. Second, China should promote regional specialization of agricultural production according to comparative advantages of different regions. Third, both domestic and cross border agricultural trades have to be further liberalized to encourage agricultural structural shift and regional concentration.

Agriculture is one of the most important industries in China. It plays multiple roles of promoting farmer's income growth, ensuring the country's food security, and protecting natural environment. For a long time, due to overwhelming concern for the country's food security, China's agricultural sector failed to meet the other roles of promoting farmer's income growth and protecting the natural environment, which are among the root causes of China's current economic structural problems. With a right mix of policies, China's agricultural sector can effectively meet its multiple goals and thus contribute to China's on-going economic restructuring.

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China's Economic Restructuring: Role of Agriculture¹

Introduction

China's Annual Central Economic Work Conference (CEWC) which analysed economic situation of 2011 and deployed economic work for 2012 was held in Beijing, from 12 December to 14 December 2011. Chinese policymakers at the CEWC vowed to continue to carry out economic restructuring,² which marks the eleventh year that economic restructuring was prioritized by the CEWC.³ Furthermore, early in 2011, China's National People's Congress (NPC) approved the country's 12th Five-Year Plan (2011-2015). One of the key targets of the 12th Five-Year-Plan is "Economic Restructuring".⁴ Economic restructuring has been a government priority for many years, and it will continue to be one of the central themes of China's economic development for years to come.

Although economic restructuring has been prioritized by the central government for many years, China has not been able to overcome the structural problems in the domestic economy. China's economy is highly dependent on investment and trade, and there are serious environmental and social problems brought by current economic development model. To restructure the country's domestic economy, China needs to find a new engine for growth and tackle the increasingly severe environmental and social problems. While searching for potential solutions, it is worth noting that China has a large agricultural sector. The agricultural sector is one of the most important sectors of China's economy, representing nearly 10 per cent of the country's annual GDP and employing over 40% of the total labour force in 2011.⁵ How China's agricultural sector will perform and what kind of role it will play is of great significance to China's on-going economic restructuring and it will also have great impact on actions of policy makers globally.

¹ The author wish to thank Dr. Li Mingjiang, Assistant Professor and Coordinator of the China Program at S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University, for his guidance and comments.

² Hu, Yue. "The Plan for 2012." *Beijing Review*, no. 51 (2011): 1.

³ <http://jjw.voc.com.cn/view.php?tid=41715&cid=68>

⁴ APCO Worldwide. *China's 12th Five-Year Plan: How it actually works and what's in store for the next five years*. Policy Report, BEIJING: APCO Worldwide, 2010; and

http://news.xinhuanet.com/english2010/china/2011-03/05/c_13762230.htm, accessed 03 January 2012

⁵ <http://finance.people.com.cn/GB/16820277.html>, accessed 02 February 2012

The overall goal of this paper is to explore the potential role of the agricultural sector in China's on-going economic restructuring. The paper is organized as follows. The first section reviews China's economic development in the past 30 years, and identifies the economic structural problems facing China. Then, the paper briefly analyses the effectiveness of government measures to restructure the country's economy. Following that, the paper revisits the role of agriculture in economic development, and explores how the agricultural sector can contribute to China's on-going economic restructuring. Next, the paper outlines how the agricultural sector should be reformed to contribute to China's economic restructuring and discusses whether proposed agricultural reforms will undermine China's food security. Finally, the paper concludes with concrete policy recommendations.

Review of Economic Development: Past Successes and Current Challenges

In the last two decades, China has followed the export oriented economic development model, adopted by the newly industrialized East Asian countries, such as South Korea and Singapore. China's near double-digit annual growth rate of the past two decades, to a large extent, has been credited to the explosive expansion of China's foreign trade, particularly after China's accession to WTO. Relying on a huge cheap labour supply, China's manufacturing industry has surged, and made the Chinese economy a great success. China followed a similar path of export oriented development growth as its neighbours, but the sheer scale of China's growth has been unique. Simply because of its huge scale, internationally, intensive use of natural resources by Chinese manufacturing industry put heavy pressure on global commodity prices; the rapid expansion of Chinese exports caused serious international trade imbalances and hurt the degree of harmony in international trade relations; domestically, investment and trade driven growth model led to severe environmental pollution, and rapid economic growth driven by export and investment resulted in increasingly grave income inequality between rural and urban sectors and among regions, which threatened social stability. As Premier Wen Jiabao said in 2007, *"the biggest problem with China's economy is that the growth is unstable, unbalanced, uncoordinated, and unattainable"*.⁶

⁶http://usa.chinadaily.com.cn/opinion/2011-03/22/content_12207694.htm, accessed 01 January 2012

The most notable feature of China's current structural problems is that the country's economic growth is heavily dependent on investment and trade, and the share of domestic consumption in the country's GDP is too low. On the one hand, thanks to large amount of cheap rural labour, low input costs, land and raw materials; China's manufacturing sector has expanded at phenomenal pace in the past three decades, making China the factory of the world. The government's huge investment in infrastructure also makes up a large share of the country's GDP. On the other hand, due to relatively low income growth and high saving rate of Chinese consumers, particularly the rural residents, the share of domestic consumption in China's GDP is too low. Households have not sufficiently received the benefit from China's rapid economic growth over the past decades. As observed by Zhou Xiaochuan, the governor of the People's Bank of China, the vast majority of the Chinese workers have not shared the rising profits of the cooperate sector.⁷ For the rural residents, slow income growth, high living cost and lack of social security net prevent farmers from spending; whereas for the urban residents, particularly the younger generation, high housing cost is one of the main factors for low consumption. Other features of China's economic structural problems include intensive and inefficient use of resources, and growing income inequalities. Intensive and inefficient use of resources has resulted in severe environmental pollution in China. Growing income inequalities, particularly income inequality between rural and urban residents,⁸ are causing high societal tensions, which threaten social stability. This has become a major political as well as economic concern. If these problems persist, China's strong economic growth will be unsustainable.

The Government's Solutions May Not Work

The Chinese government has identified several key measures to restructure the country's economy, which mainly includes rapid urbanization, upgrading the manufacturing sector and developing strategic industries and promoting the service

⁷Fukumoto, Tomoyuki, and Ichiro Muto. *Rebalancing China's Economic Growth: Some Insights from Japan's Experience*. Bank of Japan Working Paper, Tokyo: Bank of Japan, 2011.

⁸In 2011, net annual income of the urban residents is 3.13 times higher than that of the rural residents, according to official statistics, available at http://www.stats.gov.cn/tjfx/jdfx/t20120120_402780174.htm, however, when taking into consideration of the differences in social welfare and other benefits, the gaps is much higher than the official figure.

sector.⁹ The big question remains as whether the government's measures can effectively address China's economic structural problems. While Chinese policy makers seems to believe that these measures can work effectively, a small but growing group insists that government measures are likely to fail.¹⁰

The latest economic figures seem to indicate that China's economy is undergoing a healthy transition from a trade and investment driven economy to consumption propelled growth. China's national economy grew over 9% in the first half of 2011 and its trade surplus decreased somewhat; more importantly, its retail sale of consumer goods grew by 17% in the first three quarters of 2011. However, a closer look at these economic figures tells a different story. First, it should be noted that 17% growth in retail sales of consumer goods is not exceptional as the average annual growth rate of China's retail sales of consumer goods since 2001 is over 15%. Second, a significant part of the increase in retail sales can be attributed to growth in government spending. Third, China's annual fixed investment is expected to increase by a higher rate of 24% in 2011.¹¹

More importantly, a systematic examination of government's prescriptions for China's economic structural problems shows that these measures cannot address all the root causes of China's economic problems. Urbanization has been identified as a key measure to address China's domestic consumption and narrow rural-urban income gaps. As Chinese vice Premier Li Keqiang stated, urbanization is an important engine for expanding domestic demand and stimulating economic and social development.¹² The rationale is as follows: higher urbanization means more people will migrate from rural areas to urban areas. As argued by Chinese government and

⁹China Daily, *Nation 'at key point' in growth*. 07 January 2012. http://www.chinadaily.com.cn/cndy/2012-01/07/content_14397302.htm (accessed 08 January, 2012); and People's Daily, *Full Report on the Work of the Government 2012*, available at <http://english.peopledaily.com.cn/90785/7759779.html>

¹⁰Lardy, N.R.(2011). *Sustaining China's Economic Growth After the Global Financial Crisis*. Washington: Peterson Institute for International Economics; and Pettis, M.(2011). *The Contentious Debate over China's Economic Transition*. Vol. March 25, Carnegie Endowment for International Peace.

¹¹http://www.chinareform.org.cn/Economy/trade/Forward/201112/t20111231_131645.htm, accessed 01 January 2012, More importantly, retail sales is not equivalent to residents' domestic consumption as it includes government's spending.

¹²China Daily, *Nation 'at key point' in growth*. 07 January 2012. http://www.chinadaily.com.cn/cndy/2012-01/07/content_14397302.htm (accessed 08 January, 2012); the same approach was also proposed by Wu Bangguo, available at <http://lianghui.people.com.cn/2012npc/GB/239293/17341614.html>

many scholars, working and living in cities means that the life style and consumption pattern of the new urban dwellers will change, and they will consume more than they used to, which will drive up the domestic consumption. With regard to the rural-urban income gap, as China's agricultural sector employs over 40% of Chinese labour, but only contributes 10% of the nation's GDP, and is still declining, the huge rural-urban income gap is unavoidable. Hence, it is critical to move more people out of the agricultural sector to address rural urban income inequality.

Certainly, after migrating to the cities, peasant workers will have to buy food instead of relying on their farm produce, pay for rent instead of sleeping in their own houses and pay for all kinds of services which they do not have to pay for their rural homes. This change will boost the domestic consumption statistically, contributing to China's GDP growth in numbers, but it does not necessarily imply improvement in the living standard of the peasant workers. Despite gaining higher salaries through working in the cities, the living cost is much higher. Most of the peasant workers receive minimum wages that are barely sufficient for their basic life needs. Furthermore, urbanization tends not to narrow the rural-urban income inequality. Peasant workers earn minimum wages and receive no social welfare, they cannot be considered as urban residents. As those who migrate to the cities are mostly young, and relatively well educated, the rest of the rural labour forces are mostly the aged, women and children. This hinders the economic growth of the rural areas and it certainly contributes little to poverty reduction. Fan et al, using data for 1985 to 1996 for China, found that urban growth contributed only to urban poverty reduction while its effect on rural poverty was neither positive nor statistically significant; instead, higher growth in agriculture reduced both rural and urban poverty, though the pro-poor effect was largest for rural areas.¹³ Therefore, urbanization will not solve the rural-urban income inequality; in fact, if not well managed it will tend to exacerbate the income disparities. In addition, with more people moving into the big cities, living cost, particularly the housing cost increases dramatically, which, in turn, depresses domestic consumption as people have to save more in order to buy flats in the cities.

¹³Fan, Shenggen, Connie Chan-Kang, and Anit Mukherjee. *Rural and Urban dynamics and poverty evidence from china and India*. FCND Discussion Paper, Washington, DC: IFPRI, 2005.

Definitely, urbanization should not be feared and restricted, instead it should be promoted. As the *World Development Report 2009* stated: “*Developing countries are sailing in waters charted by developed nations, which experienced a similar rush to towns and cities. The speed is similar, and the routes are the same.*”¹⁴ While it is certainly true that China should further promote urbanization so that more farmers will be able to benefit from its economic success, the short to medium term focus should be on how to truly urbanize the 250 million peasant workers who stay and work in the cities but do not enjoy the same benefits as that of the urban residents.¹⁵ Otherwise, as warned by China’s Academy of Social Sciences in its latest *Blue Book of Urban-Rural Integration*, excessive and unhealthy urbanization may cause a series of social, economic and environmental problems, which will exacerbate social tensions.¹⁶

Furthermore, urbanization is not simply about relocating people from rural to urban areas, but it has to start with creating jobs in the urban areas for the migrant workers. Considering the fact that most of the rural labour is poorly educated with little skills, most of the job creation has to come from construction and low value added processing manufacturing industry, just as in the past.¹⁷ However, the problem is that this is in conflict with the government’s policy to boost domestic consumption through upgrading manufacturing sector and developing strategic industries. Upgrading the manufacturing sector means China will have to discard the low value added but labour-intensive processing manufacturing to promote the technological progress of enterprises. Consequently, a large proportion of existing factory workers will need to find employment opportunities in other industries. According to official statistics, close to 80% of China’s second generation of peasant workers (born after 1980s)¹⁸ do not have stable jobs in the cities.¹⁹ And according to the State Council, during the 12th 5 year plan (2011-2015), 45 million rural labour forces will migrate

¹⁴World Bank. *World Development Report 2009: Reshaping Economic Geography*. Washington DC: World Bank, 2009.

¹⁵ http://news.xinhuanet.com/politics/2011-12/20/c_122451330.htm

¹⁶China Academy of Social Science."China report on Coordinated Urban and rural development." In *Blue Book of Urban-Rural Integration*, by XinRu, Chonglan Fu, Wenming Cao and Mingjun Wang, 01-22. Beijing: Social Sciences Academic Press, 2011.

¹⁷ Jobs creation and social welfare have already lagged behind the development of urbanization, Jin, Hua. "The main characteristics and trend analysis on urbanization development." In *Blue Book of Urban-Rural Integration*, by XinRu, Chonglan Fu, Wenming Cao and Mingjun Wang, 49. Beijing: Social Sciences Academic Press, 2011.

¹⁸There are currently over 100 million of second generation of peasant workers working in the cities

¹⁹ http://www.agri.gov.cn/V20/ZX/nyyw/201203/t20120318_2511693.htm

from rural areas to cities, to work in the non-agricultural sectors.²⁰ This means that China will be facing huge challenges to keep unemployment down while upgrading its manufacturing sector.²¹

Another potential area identified by the government to create job opportunities is the labour intensive service sector. According to the nation's 12th 5 year plan, China will promote its service sector and the value-added output of the sector will account for 47 per cent of GDP, up 4 percent from 2010. Doubtless, expansion of the service sector will create more job opportunities for the Chinese and contribute to China's economic restructuring, but the problem remains as the expansion of the service sector should be based on higher income growth. The basic economic theory holds that people will begin to demand more services - in health, education, entertainment and many other services as people's needs become less material with higher incomes. This is called the post-industrialization phase in economic development. Although China is now the second largest economy in the world, on per capita basis China is still very poor, especially considering that most of the Chinese people have not received their fair share from China's rapid economic development. According to the official survey conducted by Zhejiang Province, even the second generation of peasant workers spends very little in education, entertainment and other services.²² The fundamental reasons are that their salaries can barely meet their basic material needs. Therefore, without significant increase in the income of the people, expansion of the service sector could be unrealistic.

The effectiveness of government's measures remains in question as these measures fail to address all the root causes of China's economic problems. One of the root causes of China's economic problems is the low domestic consumption, and low domestic consumption is primarily due to low consumption of the rural residents, which fundamentally resulted from the low income level of the farmers.

In the year 2010, the consumption of Chinese rural residents - over 50% of China's total population, only comprised 23% of the country's total consumption, which

²⁰China News. (2011, September 16). *Research indicates in next five years, 45 million rural labour forces will be transferred into non-agricultural sectors*. Retrieved October 24, 2011, from <http://www.chinanews.com/cj/2011/09-16/3330951.shtml>

²¹<http://www.chinanews.com/cj/2011/07-29/3219828.shtml>

²²<http://www.chinanews.com/sh/2012/01-18/3612799.shtml>, accessed 23 January 2012

dropped from 32% in 2001 (Table 1). Furthermore, after the upward revision in the official poverty line in late 2011, over 128 million Chinese in rural areas qualified as poor. Therefore, one of the root causes of China's economic structural problem is the low consumption level of the rural residents, which is fundamentally attributed to the low income of the farmers. The key to addressing China's economic restructuring is to promote income growth of the farmers.

Table 1 Total Annual Consumption of Rural and Urban Residents (RMB100 millions)

Year	Total Consumption	Consumption of rural Residents	Share of Total	Consumption of Urban Residents	Share of Total
2001	49435.9	15791	32%	33644.9	68%
2002	53056.6	16271.7	31%	36784.9	69%
2003	57649.8	16305.7	28%	41344.1	72%
2004	65218.5	17689.9	27%	47528.6	73%
2005	72652.5	19371.7	27%	53280.8	73%
2006	82103.5	21261.3	26%	60842.2	74%
2007	95609.8	24122	25%	71487.8	75%
2008	110594.5	27495	25%	83099.5	75%
2009	121129.9	28833.6	24%	92296.3	76%
2010	133290.9	30897	23%	102393.9	77%

Source: (National Bureau of Statistics of China, multiple years)

The Agricultural Sector can be the potential solution

In recent years, promoting income growth for farmers has been one of the top priorities of the Chinese government. On the one hand, after decades of extracting agricultural surplus to support the country's industrialization, now China is implementing a wide range of measures to subsidize and support the agricultural sector. In 2004, the central government decided to eliminate all agricultural taxes. Meanwhile, the Chinese government has significantly increased subsidies and support for the agricultural sector. Total governmental spending in the agricultural sector, (rural areas and farmers) reached 1 trillion yuan in 2011. The increase in government support for the agricultural sector indicates that China is placing a renewed emphasis on the rural economy. On the other hand, the Chinese government, particularly at the

local level, put in a lot of effort on extracting surplus labour from rural to urban areas to improve farmers' income. To a certain extent, this approach has been quite successful because over the years, wage income has gradually taken over farming income as the number one source of income for farmers, and hundreds of thousands of poor farmers have got out of poverty. However, as previously discussed, although faster urbanization can contribute to the country's GDP growth, it cannot improve the living standard of the peasant workers and the rural left-behind. The effectiveness of urbanization approach is limited as real life quality of both migrate workers and rural left-behind have not seen remarkable improvement in spite of the increase of income in monetary terms. While seeking solutions to China's economic problems, particularly new drivers for China's economic growth, agricultural sector could have a big role to play.

Role of Agriculture Revisited

The views on the role of agricultural sector in economic development have changed dramatically over the past several decades. For a long time past, agriculture has been considered an inferior partner in economic growth as the size and the contribution of the sector falls during economic advancement. Following this logic, it is understandable that the policy makers have showed little interest in investing in the shrinking agricultural sector.²³ Some scholars even urged the governments to treat the agricultural sector as a black box from which resources could be ceaselessly extracted.²⁴ Many countries have taken this approach and investment was largely, if not entirely, directed to industries and materials while labour were extracted at very low price from the agricultural sector.

However, as Peter Timmer observed, many countries, such as Argentina, Mexico, Nigeria, China and former Soviet Union to some extent, which followed that path, ended up in serious trouble.²⁵ Although the strategy of focusing on industries and extracting the agricultural products fosters a country's industrialization in the early

²³Huang, Jikun, KeijiroOtsuka, and Scott Rozelle. *The Role of Agriculture in China's Development: Past Failures; Present Successes and Future Challenges*. Working Paper, Stanford: Stanford University, 2007.

²⁴ Lewis, W.Arthur. "Economic Development with Unlimited Supplies of Labour." *The Manchester School* 22, no. 2 (May 1954): 131-191.

²⁵Timmer, C.Peter. "The Agricultural Transformation", In *International Agricultural Development*, by Carl Eicher and John Staatz, 113-135. Baltimore: Hopkins University Press, 1988.

years, lack of investment in agriculture sector results in a fall in the country's food production which then leads to rise in food prices and the rural population being left out of the development process. Among these countries' failing stories, China's experience from 1949 to 1978 was the most devastating. Since the founding of the People's Republic in 1949, after quickly stabilizing the country's agricultural production, China followed the strategy of realizing industrialization through extracting agricultural surpluses. This policy worked pretty well in the initial years until the late 1950s when the Great Chinese Famine took the lives of around 30 million Chinese, which was primarily due to overemphasis on industrial development and neglect of the agricultural sector. Till the eve of *China's Reform and Opening-up*, China was on the brink of economic collapse. Due to the failure of China's agricultural policy, food was in short supply, the majority of the Chinese did not have enough to eat and 250 million out of the 800 million rural residents were impoverished.²⁶

In contrast, the experiences of Japan and the newly industrialized East Asian economies, particularly Korea and Taiwan, showed that agriculture is an integral part of the country's economic development and investment in agricultural sector is highly important and beneficial to overall economic growth. The achievements of the agricultural sector in recent decades have generated a kind of optimism towards the agricultural sector. Today, a consensus has been largely achieved among modern development economists that agricultural sector plays a very important role in the process of nation building and healthy economic development. In general, modern economists argue agriculture plays five important roles in the development of an economy, namely supplying high quality labour to industries; producing low cost food to the consumers; supplying raw materials as input for industrial production; supplying commodities for export to earn foreign exchange; and raising rural incomes.²⁷ Thanks to the global food crisis in 2008, the fundamental role of agriculture in supplying low cost food to consumers is being reemphasized by policy makers and scholars.

²⁶Qun Wang, *China's Practice of Poverty Alleviation in Rural Areas*, Working Paper, University of Copenhagen 2004.

²⁷Huang, Jikun, Keijiro Otsuka, and Scott Rozelle. *The Role of Agriculture in China's Development: Past Failures; Present Successes and Future Challenges*. Working Paper, Stanford: Stanford University, 2007.

This has been particularly true for China, the country with the world's biggest agricultural sector. Since the *Reform and Opening-up* in 1978, China has focused much of its attention on its long neglected agricultural sector in the early years of reform. While significantly raising the grain purchase prices, it introduced the *Household Responsibility System* and gradually liberalized its agricultural sector. From 1978 till the early 2000s, a series of agricultural reform policies implemented by the Chinese authorities have successfully transformed China's agricultural sector. China's agricultural production increased remarkably and supplied cheap raw materials for industrial processing; that enabled China to export its agricultural products abroad in exchange for foreign reserves that China desperately needed to import foreign technology and equipment, in addition to supply sufficient and cheap food for the consumption of the Chinese consumers. Furthermore, the dramatic increase in the productivity of China's agricultural sector has released millions of rural labour from farming areas. They then migrated to the cities and have played a critical role in the rise of China's construction and manufacturing sectors. As concluded by Huang, Otsuka and Rozelle, China's agricultural sector has successfully fulfilled four of the five roles (the supply of labour, food, raw materials and exports) except one - raising farmers' incomes.²⁸ Facing widening rural-urban income gap and noticeable drop in grain production in the early 2000s, the Chinese government has dramatically changed its agricultural policy to enhance the role of agriculture in raising farmer's income and providing cheap food for consumers. In 2004, instead of taxing the agricultural sector, China has taken decisive action to eliminate all agricultural taxes and fees and has begun to subsidize the agriculture sector. From 2004 to 2012, for 9 consecutive years, China's Number 1 central document focused on rural problems, in particular, farmer's income growth and grain production.²⁹ In 2011, it was reported that China has invested over 1 trillion yuan of fiscal revenue on rural issues.³⁰ In addition, Chinese leaders repeatedly claimed that promoting income growth of the farmers and safeguarding grain production is the long term priority of the government.

²⁸Huang, Jikun, Keijiro Otsuka, and Scott Rozelle. *The Role of Agriculture in China's Development: Past Failures; Present Successes and Future Challenges*. Working Paper, Stanford: Stanford University, 2007.

²⁹<http://big5.xinhuanet.com/gate/big5/forum.home.news.cn/detail/93806809/1.html>

³⁰ http://www.chinadaily.com.cn/hqgj/jryw/2011-12-28/content_4811900.html

Clearly, the importance of the agricultural sector has been recognized by the Chinese government. As claimed by the Chinese policy makers and scholars, agriculture is the fundamental sector of the nation's economy which must be supported and strengthened. Facing the historical task of restructuring China's economy, the role of the agriculture sector is being emphasized. While stressing the fundamental role of agriculture sector in providing food security and the need to increase farmer's incomes, agriculture sector is considered as a declining industry which will continue to diminish if left alone. Therefore, a large amount of financial investment is needed to support the agricultural sector. However, the possibility of agriculture as a significant contributor to China's on-going economic restructuring has not been explored. In the contemporary context of China, it should be recognized that agriculture is capable of making several contributions to China's economic restructuring and does so if appropriate policies and conditions prevail. These contributions include factors which will be elaborated in the following sections.

Agriculture: Driver for Economic Growth

The key to restructuring China's economy is to find new engines for growth. The consensus is that domestic consumption must be boosted, but increasing the share of domestic consumption in the country's GDP is an uphill task for China. As previously discussed, the solution prescribed by the Chinese government and academic scholars may not be as effective as it is believed. The main reason for China's low domestic consumption is the low consumption level of the rural residents, which is fundamentally attributed to the low income of the farmers, in particular, hundreds of millions of impoverished rural residents. Based on the newly introduced poverty line-2,300 yuan (362 US dollars), there are currently over 128 million rural residents earning below the line.³¹ Therefore, the key to boosting domestic consumption is to reduce rural poverty and increase farmer's income, for which agriculture can play a very important role. From a historical perspective, evidence consistently shows that is highly effective in reducing poverty.³² Based on a study conducted by John Luke Gallup et al, every 1% increase in per capita agricultural output led to a 1.61%

³¹Xinhuanet. *China raises poverty line by 80 pct to benefit over 100 mln*, available at : http://news.xinhuanet.com/english2010/china/2011-11/29/c_131277041.htm

³²DFID. *Growth and Poverty Reduction: the role of agriculture*. Policy Paper, London: DFID, 2005.

increase in the incomes of the poorest 20% of the population.³³ Thirtle et al concluded “Agricultural productivity growth, however it is measured, does appear to have a consistent, robust and substantial impact on poverty.³⁴ The poverty reduction elasticity was always between 0.62 and 1.3.” Also, according to *World Development Report 2008: Agriculture for Development*, growth in agricultural sector contributes proportionally more to poverty reduction than growth in any other economic sectors. China’s experience of poverty reduction is by no means an exception to the above findings. Aggregate growth originating in agriculture is estimated to have been 3.5 times more effective in reducing poverty than growth outside of agriculture.³⁵ And as concluded in the report published by International Poverty Reduction Centre in China, since 1978 China’s agricultural revolution has provided the basis for China’s dramatic economic transformation and poverty reduction in the last 30 years.³⁶

After 30 years of rapid economic development, China has made remarkable achievements in poverty reduction and it has moved up along the development ladder from an agriculture-based economy to a transforming economy. The question remains, despite the historical successes, whether the agricultural sector can still play an effective role in poverty alleviation in China. Again, both theoretical and empirical evidence prove that agriculture is still, and will be, playing a very constructive role in reducing poverty and increasing farmer’s income in China. On the one hand, though China is now a transforming economy as characterized in the *World Development Report 2008*, agriculture can still be an effective instrument for development as long as political will can be mustered and appropriate policies are introduced.³⁷ On the other hand, successful stories are constantly reported in China that numerous poor villages or counties became rich thanks to the growth in the agricultural sector. The

³³Gallup, John Luke, Steven Radelet, Andrew, and Warner. *Economic Growth and the Income of the Poor*. CAER II Discussion Paper No. 36, Boston MA: Harvard University, 1998.

³⁴Thirtle, Colin, Xavier Irz, Lin Lin, Victoria McKenzie-Hill, and Steve Wiggins. *Relationship Between Changes In Agricultural Productivity And The Incidence of Poverty in Developing Countries*. DFID Report, London: Department for International Development, 2001.

³⁵World Bank. *World Development Report 2008: Agriculture for Development*. Washington, DC: The World Bank, 2008.

³⁶International Poverty Reduction Center in China. *Agricultural Transformation, Growth and Poverty Reduction*. Mali: IPRCC, 2010.

³⁷World Bank. *World Development Report 2008: Agriculture for Development*. Washington, DC: The World Bank, 2008.

rapid development of One Village One Production (OVOP) is proven to be a sustainable path to prosperity.³⁸

Furthermore, it has been well evidenced that growth in the agricultural sector can lead to strong multiplier effects in the non-farm economy.³⁹ For instance, Haggblade et al showed that growth in agricultural sector in Malaysia in 1972 had 1.83 multiplier effect in the non-farm economy⁴⁰ and a study conducted by Hazell and Ramasamy in Tamil Nadu, India, concluded the agricultural sector's multiplier effect on the region's non-farm economy from 1983 to 1983 was as high as 1.87.⁴¹ The linkage between agricultural and non-farm economy in the rural areas is even stronger. A profitable and productive agriculture is the main stimulus to rural nonfarm growth.⁴² China's experience in the 1980s and 1990s was an excellent example. Rapid development of China's agricultural sector in the early years after *the Reform and Opening-up* has laid solid foundations for the explosive growth of the townships and village enterprises (TVEs), which provided millions of employment opportunities in the rural nonfarm sectors for the farmers.⁴³ Today, after experiencing some hard times since the later 1990s, the declining trend has been reversed and TVEs are playing an increasingly important role in the country's economic development, particularly in the rural areas.⁴⁴ Given the great potentials in China's food processing industry and agro-tourism,⁴⁵ as well as huge public interest in the agricultural related sectors,⁴⁶ once more, a thriving agricultural sector can become the catalyzer for the revitalization of China's

³⁸ See for instance, <http://finance.people.com.cn/nc/GB/61156/61915/10131390.html>; <http://wuxi.people.com.cn/GB/16960001.html>; <http://unn.people.com.cn/GB/22220/74456/86072/86074/5896581.html>; <http://www.zgsnzx.cn/bencandy.php?fid=55&id=31842>, accessed 23 January 2012

³⁹ DFID. *Growth and Poverty Reduction: the role of agriculture. Policy Paper*, London: DFID, 2005.

⁴⁰ Haggblade, Steven, Peter Hazell, and James Brown. "Farm-nonfarm linkages in rural sub-Saharan Africa." *World Development*, 1989: 1173-1201.

⁴¹ Hazell, Peter B.R., and C Ramasamy. *The Green Revolution reconsidered: the impact of high-yielding rice varieties in South India*. London: Johns Hopkins University Press, 1991.

⁴² Byerlee, Derek, Xinshen Diao, and Chris Jackson. *Agriculture, Rural Development, and Pro-poor Growth: Country Experiences in the Post-Reform Era*. Agriculture and Rural Development Discussion Paper, Washington, DC: The World Bank, 2005.

⁴³ FAO. "Rapid growth of selected Asian economies Lessons and implications for agriculture and food security ." In *China's rapid economic growth and Its implications for agriculture and food security in China and the rest of the world*, by Jikun Huang, Jun Yang and Scott Rozelle. Bangkok: FAO, 2006.

⁴⁴ http://www.agri.gov.cn/V20/ZX/nyyw/201109/t20110901_2196345.htm, accessed 01 January 2012

⁴⁵ China's agro-tourism, locally known as Nongjiale, is developing at a very rapid rate in recent years and it offers huge returns to the farmers, for instance, in Xi'an, farmers in the agro-tourism areas earn net incomes over RMB 20, 000 on average, for more information, refer

to <http://www.crr.gov.cn/CRR/Front/YHYStar/YHYStarDetails.aspx?ArticleID=692&ArticleTypeID=1>

⁴⁶ The Economic Observer. *The temptation of 7 trillion, investors are keen to "farming"*. November 23, 2011. <http://www.eeo.com.cn/2011/1123/216288.shtml> (accessed January 23, 2012).

TVEs, which could then drive China's economy forward. In addition, the agricultural sector can play an important buffer role in the economy to cope with shocks such as the financial crisis. Agriculture has played an important buffer during the economic fluctuations in the context of China.⁴⁷ During the global financial crisis, China's agricultural sector has played a critical role in stabilizing China's national economy and social order through providing support and absorbing the laid off peasant workers. A strong and healthy agricultural sector will also help to contain inflation. In recent years, inflation has become a major concern for China's economic stability. Price hikes in foodstuffs, particularly non-grain foodstuffs, such as meat and vegetables, have been a major contributor to high inflation.

Agriculture: Contributor to Sustainable Environment

China's phenomenal economic success has been achieved at huge expenses of its environment. Rapid economic development has transformed huge swathes of the country into environmental wastelands. China's environmental problems are at a critical level and they are getting worse. Therefore, one of the key tasks of China's economic restructuring is to go "Green". Towards this goal, the country's agricultural sector has a big role to play.

First of all, agriculture is a top polluter in China. In February of 2010, it was revealed in China's first national pollution census, agriculture which is heavily relying on irrigation, fertilizers and pesticides today is a bigger source of water pollution in China than industry.⁴⁸ Researchers found that farming was responsible for 44 percent of chemical oxygen demand, 67 percent of phosphorus discharges, and 57 percent of nitrogen discharges into bodies of water.⁴⁹ In addition, according to China's Ministry of Land and Resources, around 10% of the total arable land was contaminated or destroyed, based on a study led by Zhang Fusuo at China Agricultural University in Beijing. Significant acidification of soils in China's major croplands since the 1980s

⁴⁷Zhang, Linxiu, Chengfang Liu, and Qiang Li. *The Buffer Role of Agriculture in China's Economic Transition*. Conference Paper, Italy: FAO, 2003.

⁴⁸China Daily. *China says water pollution double official figure*. 10 February 2010. http://www.chinadaily.com.cn/opinion/2010-02/10/content_9457182.htm (accessed January 29, 2012).

⁴⁹Mindi Schneider. *Feeding China's Pigs: Implications for the Environment, Smallholder Farmers in China and Food Security*, Minneapolis: IATP, 2011

is the result of the overuse of nitrogen fertilizers.⁵⁰Hence, for China to go green, its agricultural sector must be transformed first. Second, agriculture does not only produce food, it also provides us with a wide range of materials, including fibres for clothing, wood for construction and biomass for fuel, to satisfy basic needs of human beings. While China is searching for clean energy to reduce carbon emissions, the agricultural sector can be a potential saviour as it can produce an abundant and readily available source of bioenergy without undermining the country's food production. According to Dr. Mae-Wan Ho, director of the Institute of Science in Society, UK, a combination of organic agriculture and anaerobic digestion in China has the potential to reduce at least 23 per cent of China's greenhouse gas emission and save 11.3 per cent of energy consumption. Furthermore, agriculture in itself is a very big ecosystem.⁵¹ A healthy agricultural sector can increase biodiversity and prevent pollution of the environment.

For China's economy to go green, the role of the country's big agricultural sector is vital. As argued by Dr. Ho, "*Sustainable, low pollution agriculture is the heart of the green economy for China as for the rest of the world, and it is urgently needed if we are to survive the global multiple crises of food, fuel, and finance as extreme weather associated with climate change is already exacting its terrible toll in lives and lost property, and predicted to slash agricultural production.*"⁵²

Agriculture: Contributor to Harmonious Society

Apart from environmental pollutions, serious social problems are also the side-effects of China's headlong economic growth. Widening social inequality, corruption, moral decline and social injustices are threatening the country's long term stability and future economic development. For China's on-going economic restructuring to be successful, a favourable social environment is both a guarantor and goal. In 2005, concerned with such social problems, Chinese President Hu Jintao instructed the country's top officials and Party members to place "building a harmonious society" as top priority in their work agenda.⁵³ Two of key tasks⁵⁴ to build a "harmonious society"

⁵⁰Ho, Mae-Wan. *Sustainable Agriculture, Green Energies and the Circular Economy*. London: The Institute of Science in Society, 2010.

⁵¹Ho, Mae-Wan. *Sustainable agriculture and the green energy economy*. Geneva: UNCTAD, 2010.

⁵²Ibid

⁵³http://english.people.com.cn/200506/27/eng20050627_192495.html

are promoting well-being of the country's rural population and reviving the Confucian philosophy which emphasizes personal and governmental morality, justice, and social correctness.⁵⁵The country's agricultural sector can play a big role in achieving these two tasks. First, as discussed in the previous section, growth in the agricultural sector contributes proportionally more to income growth of the farmers than growth in any other economic sectors. Second, a thriving agricultural sector is critical to the restoration of the Confucian philosophy. For thousands of years, China had been an agrarian society dominated by small farming, in which agriculture is the foundation for the Chinese culture, in particular, the Confucian philosophy.⁵⁶ Confucian philosophy centers on family ethics with filial piety as its foundation. In Confucian culture, proper family relationship is more important than anything for good government and stable social order as the family is the framework for establishing graceful interactions with others.⁵⁷Unfortunately, in recent decades, the decline of the agricultural sector has, to a certain extent, contributed to break-up of families in the rural area. As China's agricultural sector was unable to generate enough economic benefits for the farmers, hundreds of millions of families were driven apart as family members had to migrate to cities to seek employment opportunities, which severely weakened the family relationship. Conversely, a thriving agricultural sector, which is able to provide more job opportunities in the rural areas, would help to prevent more families from breaking up, and even reunite the broken families. This would serve as the bedrock for re-strengthening of China's traditional Confucian values.

China's agricultural sector has great potentials in contributing to China's on-going economic restructuring through becoming a new driver for economic growth, and creating both favourable economic, natural and social environments which are conducive for sustainable economic development. The precondition for releasing above potential of the agricultural sector is that agriculture has to be a thriving

⁵⁴Other tasks identified by Hu Jingtiao, include: develop socialist democracy, advance rule of law, establish a fine-tuned social management system and beef up environmental protection, http://english.people.com.cn/200506/27/eng20050627_192495.html

⁵⁵John Pomfret, *Chinese Lessons: Five Classmates and the Story of the New China* (New York: Henry Holt Publishing, 2006), 128.

⁵⁶<http://www.cet.com.cn/20110407/k2.htm>;

http://big5.qstheory.cn/wz/shp/201110/t20111008_114683.htm,

http://szb.farmer.com.cn/nmr/htm/2011-11/23/nw.D110000nmrb_20111123_1-01.htm?div=-1

⁵⁷Ko, Nai-Hua. *Familism in Confucianism*. Conference Paper, San Antonio: Women's Global Connection, 2004.

economic sector which is an important cash earner for the farmers and contributor to national economic growth.

Gloomy Reality of China’s Agricultural Sector

In recent years, China’s agriculture sector has made remarkable achievements. From 2003 to 2010, China has realized 8 consecutive years of increase in the country’s grain production. With record grain production amounting to 570 million tonnes in 2011, some say that enough grain has been produced to meet the country’s targeted output for 2020. Meanwhile, the production of vegetables, fruits and poultry also increased significantly. Notwithstanding these achievements, China’s agriculture is heading towards a gloomy future. As described by Dean of Hubei Academy of Social Sciences Song Yaping, the reality facing China’s agricultural sector is that no matter how hard Central Government’s Number 1 Documents highlight the critical role and extreme importance of the agricultural sector and regardless of how much financial support the central government directs to it, China’s agriculture sector is like a dying old man, helplessly heading into the dusk.⁵⁸

Table 2: Composition of Farmers’ Income

Year	Wages Income	Farming Income	Others *
1998	26.53%	44.53%	28.94%
1999	28.52%	41.55%	29.94%
2000	31.17%	37.01%	31.83%
2001	32.62%	36.49%	30.89%
2002	33.94%	35.01%	31.05%
2003	35.02%	33.78%	31.20%
2004	34.00%	35.98%	30.02%
2005	36.08%	33.72%	30.19%
2006	38.33%	32.33%	29.34%
2007	38.55%	31.49%	29.96%
2008	38.94%	29.98%	31.09%
2009	40.00%	29.07%	30.93%

*include animal husbandry income, property income, transfer income and others

Source: (National Bureau of Statistics of China 2010)

⁵⁸ Song, Y. (2011, December 16). *Agriculture: it is hard to say 'I like you'*. Retrieved December 18, 2011, from Qiushi: http://www.qstheory.cn/jj/jsshzyxnc/201112/t20111216_130331.htm

There are several reasons for this gloomy picture. First, farming, particularly grain farming, generates very low returns for the farmers. As Table 2 shows, the share of the farming income in farmer's total income is dropping year by year. Furthermore, although China has a comparative advantage in production of labour-intensive agricultural products, such as fruits and vegetables (Table 3), the Chinese government is committed to promote grain production to safeguard the country's grain security. This comes at huge opportunity costs for farmers as grain cultivation offers very low returns to them, which discourages farmers from continue farming. According to official survey, farmer's willingness to farm dropped to a record low, with over 60% of the farmers who wish their land would be taken over by the government. The government would then use this land for commercial uses and the farmers will be provided reasonable compensation. Most farmers do not want their children to continuing farming in the future.

Table 3 Costs and Returns of Different Crops 2009 (Yuan/Hectare)

	Rice	Wheat	Corn	Soybeans	Sugar cane	Apple	Vegetable
Labour Cost	3402.3	2184.6	2889.2	1553.0	7697.7	22334.6	15101.3
Capital Cost	5832.3	4876.1	3965.4	2599.2	11604.9	40435.1	19547.7
Pure Profit	3768.0	2257.7	2630.6	1612.8	5231.1	44119.2	31317.5
Cash Return	8182.5	5886.6	6931.7	4686.5	11156.7	56499.0	46426.7

Source: (National Development and Reform Commission of China 2010)

Second, agriculture contributes very little to economic growth and offers little employment opportunities. While the central government is committed to promote the development of the agricultural sector, the local governments show little interest in it. In China, promotion of local government officials is strongly based on merit, especially their contribution to economic growth.

Table 4 China's Trade of Agricultural Products, UDS Billions

	Total	Export	Import	Net Export
2011	155.62	60.75	94.87	-34.12
2010	120.80	48.88	71.92	-23.04
2009	91.38	39.21	52.17	-12.96
2008	98.55	40.22	58.33	-18.11
2007	77.59	36.62	40.97	-4.35
2006	63.02	31.03	31.99	-0.96
2005	55.83	27.18	28.65	-1.47
2004	51.12	23.09	28.03	-4.94
2003	40.17	21.24	18.93	2.31
2002	30.47	18.02	12.45	5.57
2001	27.90	16.07	11.83	4.24
2000	25.79	15.26	10.53	4.73
1999	22.13	13.87	8.26	5.61
1998	22.86	14.15	8.71	5.44
1997	24.58	14.73	9.85	4.88
1996	25.00	14.41	10.59	3.82
1995	25.42	14.58	10.84	3.74

Source: (Ministry of Commerce of China, Multiple Years)

Agriculture, particularly the grain sector, generates little employment for the local economy and its contribution to GDP growth is negligible. In addition, the local government officials' economic welfare is tightly linked to the total amount of fiscal revenue they can collect. After the *Agricultural Tax Reforms* in 2004, agriculture no longer contributes to local governments' fiscal revenue; instead, the local governments are required to contribute a large of portion of their fiscal revenue to support the agricultural sector, especially local grain production. Furthermore, at the national level, though China enjoys huge trade surplus with other countries in the world, its agricultural trade deficit is increasing. As Table 4 shows, China had been a net exporter of agricultural products. Since 2003, it has become a net importer of agricultural products, with agricultural trade deficit reaching 34.12 trillion in 2011.

This is because China's emphasis on grain farming has prevented China's agricultural sector from capitalizing on its huge comparative advantage in the production of labor and capital intensive agricultural products.⁵⁹ Furthermore, increasingly, China's comparative advantages in the production of labor and capital intensive crops and agricultural products such as meat and poultry are weakened due to China's current agricultural policies. For instance, due to mass migration of rural labor force and inadequate food logistics, China is gradually losing its comparative advantage in meat and poultry at the international market.⁶⁰

Third, current farming practice is unsustainable. It results in water pollution and land degradation. As agriculture offers little returns to the farmers, hundreds of millions of farmers, particularly the rural youth, migrated to the cities. As a result, rural labor force is rapidly shrinking and aging. Given the rising labor cost, farmers tend to adopt 'lazy farming' practice, relying more on fertilizers and pesticides, adopting flood irrigation, shallow and other unscientific way of cultivation.⁶¹ This leads to the severe land degradation and water pollution, in addition to growing food safety problems.

Revitalizing China's Agricultural Sector

The gloomy reality facing China's agricultural sector has been, to a very large extent, due to China's overemphasis on grain farming. Profound agricultural reforms must be undertaken to revitalize China's agriculture so that its potential in contributing to China's on-going economic restructuring can be fully released.

Protecting Agriculture Will Not Work

Based on Engel's law, as there is a limit to the amount of food that any person can possibly eat, from a certain level of income onwards, demand for food increases by less than income. This means that at the individual level the share of food expenditure

⁵⁹Fang, Cheng, and John C Beghin. *Food Self-Sufficiency, Comparative Advantage and Agricultural Trade: A Policy Analysis Matrix for Chinese Agriculture*. Working Paper, Ames: Iowa State University, 2000.; Carter, Colin A., and Scott Rozelle. "Will China's Agricultural Trade Reflect its Comparative Advantage?" In *China's Food and Agriculture: Issues for the 21st Century*, by Rred Gale. Washington DC: USDA, 2002.; U.S. International Trade Commission. *China's Agricultural Trade: Competitive Conditions and Effects on U.S. Exports*. Washington, DC: USITC, 2011.

⁶⁰ For more information, refer to http://www.gdct.gov.cn/politics/headline/201203/t20120313_669104.html; and <http://animal.aweb.com.cn/2011/1109/3114091905430.shtml>

⁶¹ http://news.xinhuanet.com/mrdx/2011-08/16/c_131050998.htm

in a person's total consumption decreases, and at national level, the share of agriculture in a country's GDP shrinks.⁶² Furthermore, with productivity increase, prices of the agricultural products fall faster than the yield rises. So farmer's income tends to fall despite increase in agricultural productivity. Consequently, in order to support the agricultural sector and promote farmer's income growth, all developed countries have opted to protect and subsidize their agricultural sectors. It seems that China has been following a similar path. Since 2004, China has entered the phase of protecting and subsidizing its agricultural sector.

This approach may not work as effectively as expected for three main reasons. First, in contrast to the experiences of industrialized countries such as the United States and Japan, China is facing a much more globalized world where free trade is the norm. China's commitments under WTO prevent it from introducing as much agricultural supporting and protecting policies as the past. Second, China's agricultural sector is dominated by small farming practice. With hundreds of millions of farmers, governmental subsidy per capita will be too small to make a difference. Third, support and protection of the agricultural sector tends to undermine the competitiveness of the agricultural sector in the long run, which is evident through the experiences of Japan and Korea. Heavy government protections as well as high fiscal support have severely undermined the competitiveness of the agricultural sector of Japan and South Korea. Agricultural sectors of both countries increasingly become an obstacle for the countries' economic development.⁶³

Moving away From Grain Farming to Revitalize China's Agriculture

However, this does not mean that China's agricultural sector is facing a deadlock. New challenges also mean new opportunities. First, countries are no longer developing in isolation. In this globalized world, countries trade with each other for all kinds of goods. What it means is that increase in agricultural yield may not necessarily lead to fall in prices as country can now export the surplus to other countries, as long as the agricultural products are competitive in the international

⁶²Chakrabarty, M &Hildenbrand, W (2010), "Engel's Law Reconsidered,"*Journal of Mathematical Economics* (May 2011), 47 (3), pg. 289-299

⁶³ Lin, Tingting. "South Korea: the fading of Agricultural Miracle." *Country Agriculture Farmer*, 2011: 48-49.;
The Economist. "Japan and its unfree trade: Paddies vs Prius." *The Economist*, 2011.

market. Second, although the quantity of the food demand remains limited with per capita income growth, the diet compositions change significantly. With increase in incomes, consumers will consume less inexpensive staple food, but more highly valued non-staple food, such as, fruits, vegetables, aquatic products and poultry. This means that expenditures on food will increase as consumer's diet shifts from staple food to meat, dairy, fruits, vegetable and other non-grain foodstuffs, which are more expensive. Third, with rising income, people are more concerned with the quality and safety of the food, which leads to higher demand for high quality processed food and organic food. To meet this demand, a country's food processing industry will experience rapid growth and more investment will be directed to support the development organic farming. Fourth, increasingly, social and cultural roles of the agricultural sector are being emphasized. For example, agro-tourism is expected to grow rapidly as more and more urban dwellers consider rural areas as a choice for leisure, which has become a big cash earner for the local farmers.⁶⁴Therefore, whether China's agriculture can become a thriving industry which plays a big role in China's on-going economic restructuring depends on how well the country's agricultural sectors can be adjusted to capture these opportunities.

With incomes of the Chinese consumers continuing to increase, the demand and consumption patterns for food have changed significantly, which create an impetus for structural change in the country's agricultural sector. Since China's WTO accession in 2001, China's agricultural sector has become an integral part of the international agricultural system, which has given China a huge comparative advantage in labour and capital intensive agricultural products.⁶⁵The future success of China's agricultural sector is determined by its ability to meet the changing food demand and preference of the Chinese and to participate in international competition and share the benefits from international trade. This means that the structure of China agricultural production should be adjusted in accordance with the country's comparative advantage. Furthermore, as supported by the *World Development Report*

⁶⁴For instance, in Xian, farmers received over 20, 000 Yuan from agro-tourism, for more information at http://www.farmer.com.cn/news/nyxw/201202/t20120213_697349.htm

⁶⁵Carter, C. A., & Rozelle, S. (2001). *Will China's Agricultural Trade Reflect Its Comparative Advantage?* Washington DC: USDA; Chen, C. (2006). *China's Agricultural Trade After WTO Accession*. Canberra: The Australian National University.; Fang, C., & Beghin, J. C. (2000). *Food Self-Sufficiency, Comparative Advantage and Agricultural Trade: A Policy Analysis Matrix for Chinese Agriculture*. Ames: Iowa State University.

2008, for China which is a transforming country that is facing rapidly expanding markets for high-value products—especially horticulture, poultry, fish, and dairy—offer an opportunity to diversify farming systems and develop a competitive and labour-intensive smallholder sector.⁶⁶ Therefore, based on China’s production factor endowments, more resources should be allocated for the cultivation of labour-and-capital intensive non-grain crops, such as fruits, vegetables and aquatic products, and fewer resources are to be allocated for grain cultivation. Moving away from grain will spur the growth of China’s agricultural sector.⁶⁷

Moving away from grain farming is nothing new. It has been a general trend for China’s agricultural development over the past 30 years.⁶⁸ In 1980, grains accounted for 80 percent of total production area, whereas vegetables made up 2 percent and fruits 1 percent. By 2008, grain-sown area had fallen to 68 percent, while vegetables had risen to 11 percent and fruits to 7 percent.⁶⁹ The dramatic shift has generated huge economic benefits for the Chinese farmers in the past. According to Huang et al, many of the rises in welfare were generated by farmers (more than 200 million of them) that have been able to move out of grain into high-valued crops; escape cropping and move into livestock and fisheries production.⁷⁰ Since the opening and reform in 1978, while gaining autonomy in making agricultural plantation decisions, the Chinese farmers has opted for more non-grain crops cultivation. During the 1980s and 1990s, this shift had been tolerated, and to some extent supported by the Chinese governments, in particular. However, despite the dramatic shift away from grain farming, the share of non-grain crops in China’s agricultural sector is still too low as the huge comparative advantages of the sector is far from being fully exploited. What is worse, since the early 2000s, concerned with China’s grain production, the Chinese government has implemented a range of policies such as direct grain subsidy to boost China’s grain production. China’s grain supporting policies, while contributing to the

⁶⁶World Bank. *World Development Report 2008: Agriculture for Development*. Washington, DC: The World Bank, 2008.

⁶⁷Moving away from grain farming does not mean China should give up grain farming; instead, it is more about relaxing its policy of grain self-sufficiency and allows different regions to cultivate agricultural crops that best suit local conditions.

⁶⁸Huang and Rozelle, “China’s Agricultural,” August 2009, 2; EIU, *Country Profile 2008: China*, 2008, 39; Rozelle, *Vegetables in China*, March 2006, 2.

⁶⁹U.S. International Trade Commission. *China’s Agricultural Trade: Competitive Conditions and Effects on U.S. Exports*. Washington, DC: USITC, 2011.

⁷⁰Huang, Jikun, Keijiro Otsuka, and Scott Rozelle. *The Role of Agriculture in China’s Development: Past Failures; Present Successes and Future Challenges*. Working Paper, Stanford: Stanford University, 2007.

country's grain production, hinders the healthy shift for the agricultural production structure (Figure 1&2). Therefore, in order to revitalize the agricultural sector, China needs to initiate agricultural reforms to encourage China's agriculture to move away from grain farming.

Figure 1. Share of Sown Area of grain in China's total sown area

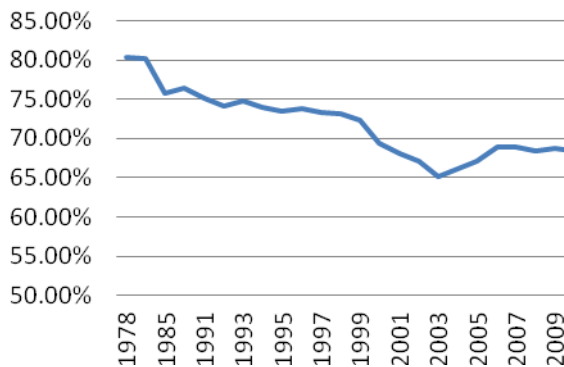
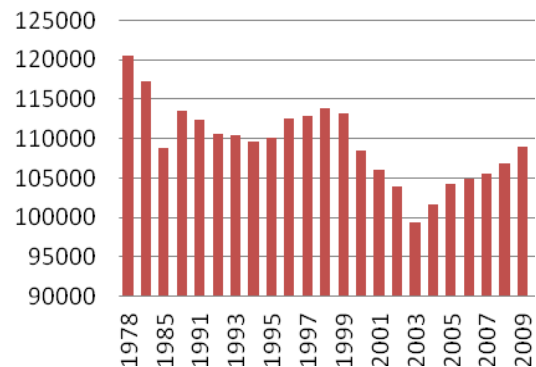


Figure 2. Sown Area of Grain, (,000 hectares)



Source: (National Bureau of Statistics of China 2011)

Both theoretical and empirical evidences support that with China shifting away from grain-farming, enormous economic benefits will be brought to its agricultural sector and the Chinese farmers. Yet, it does not mean that all regions in China have to move away from grain farming. Instead, the key to the liberalization of China's agricultural production structure is to promote regional specialization.

There are huge differences in agricultural production factors across regions in China. Geographically, China is a very big country with vast territory. Its terrain runs across five climate zones from the south to the north and gradually ascends from the east to the west like a three-step staircase, which creates unique topographic features and diversified climatic conditions. Demographically, the population density varies drastically across regions. The population is concentrated in the east and South near the coast, and in the central region. In contrast, the western and northern regions, including provinces such as Xinjiang, Inner Mongolia, and Tibet, are huge in size but with very low population density. This disparity is being exacerbated by China's rapid but uneven urbanization. Economically, the regional disparity is even bigger. Access to capital is much easier in the eastern developed provinces where labor cost is also much higher than the inland provinces. Therefore, different regions have different

comparative advantages across China, and China's agricultural production should be geographically concentrated to capitalize on the comparative advantages of each region.

In the last three decades, agricultural market liberalization has fostered the regional specialization in agricultural production. In some regions, leading agricultural products stand out, becoming the pillars for local economy. For instance, Shandong province has become the country's leading vegetables producing region, cotton has become a key agricultural product produced in Xinjiang Uygur Autonomous Region and Shaanxi is top in apples production, to name just a few.⁷¹ Furthermore, a regional division of sectors has emerged in terms of agricultural production. In the coastal regions and outskirts of big and middle-sized cities in the east, export oriented farming has been growing rapidly, which offers high returns to the local farmers.⁷² While tapping its potential of grain production, the central part of China has turned into a livestock and processing base. In western and ecologically vulnerable regions, eco-farming or farming with local characteristics are progressing by large stride.⁷³ However, despite the remarkable progress in regional specialization of China's agricultural production, the degree of concentration in agricultural production is still very low as compared with the developed countries. For example, in the United States, the top four producing states accounted for about 80% of the total U.S. value of production of fruits and nuts, and the top four producing states accounted for just over half of the total U.S. value of production of vegetables. Additionally, a big concern with regards to the regional specialization of agricultural production in China is the reintroduction of *Rice Bag Governor Responsibility System* and *Vegetable Basket Mayor Responsibility System*, which requires the local government to ensure self-sufficiency in the production of grain, and other foodstuffs. This severely hinders the restructuring of China's agricultural production across regions. To revitalize the agricultural sector, China should implement policies to promote regional specialization of agricultural production.

⁷¹http://www.chinadaily.com.cn/cndy/2011-08/29/content_13206425.htm, accessed 23 January 2012

⁷²In Shandong province, value of agricultural products exports reached \$12.7 billion in 2010, contributing 25% to local farmers' income growth and creating jobs opportunities for 16 million people. For more information, refer to <http://theory.people.com.cn/GB/16722618.html>

⁷³<http://www.caas.net.cn/glast/english/china.html>, accessed 23 January 2012

Moving away from grain farming and regional specialization means the collapse of the self-sufficiency of the rural economy. In order to fully capitalize on China's agricultural comparative advantages in labour and capital intensive crops farming and safeguard the country's grain security, domestic and international trade liberalization is very important. Farmers should be provided with easy access to the markets where they sell what they produce and buy what they need. Objectively, China has made incredible process in building an integral domestic agricultural market. Interprovincial agricultural trade has been bolstered by a liberalization of the domestic market. Furthermore, with its accession to WTO, cross border agricultural trade barriers, particularly tariff barriers, have been significantly reduced, which has led to phenomenal growth of China's international agricultural trade. However in recent years, the trend of trade liberalization has been slowed or even reversed

Nonetheless, China's domestic and international trade liberalization is still lagging behind, which obstructs the development of China's agricultural sector and threatens the county's food security. In China, though non-grain agricultural products trade has been largely free from government intervention,⁷⁴ moving vegetables, fruits, meats and other agricultural products across regions, not to mention across borders, is still difficult and costly, mainly due to inadequate transportation infrastructure, ill-coordinated logistics, out-dated transportation technology as well as local protection. Based on official estimates, China's total logistics costs made up 18% of China's GDP in 2010, which was two times higher than that of the developed countries.⁷⁵ Also, according to government officials, the direct annual loss of vegetables and fruits during transportation and storage are over 100 billion Yuan.⁷⁶ The lack of an efficient, nationwide cold storage transportation network not only leads to high rates of spoilage, but also lowers the average quality of goods that find their way to market.⁷⁷ In addition, this has prevented the farmers and traders from responding promptly to market price changes. In recent years, sudden and sharp drops and rises in prices of

⁷⁴Local government officials do occasionally intervene the non-grain agricultural trades. With the reintroduction of vegetable basket mayor responsibility system, this intervention will be more frequent.

⁷⁵KMPG. *Logistics in China*. Industry Report, Hong Kong: KMPG International, 2008.

⁷⁶China's Agricultural Products Processing Net. *China's annual cost of rotten fruits and vegetables exceeds 100 billion yuan, the main reason is the under-developed logistics*. October 7, 2011. http://www.csh.gov.cn/xxlr1_362230.html (accessed October 23, 2011).

⁷⁷Bolton, Jamie M., and Wenbo Liu. *Creating an effective China "cold supply chain" Current status, challenges and implementation considerations*. Industry Report, Accenture, 2006.

non-grain agricultural products, such as vegetables and pork, have been, to a large extent, attributed to insufficient domestic and international trade liberalization.

In the case of grain trade, both domestic and international grain trade are heavily controlled by the government. Due to the strategic contribution of grain to China's food security, the liberalization of agricultural trade lags behind other agricultural sectors. Although China is determined to liberalize China's domestic grain trade, the grain policies introduced by the Chinese government often tend to impede the liberalization process of the grain sector. For instance, the *Minimum Grain Purchase Price Policy* as well as the *Rice Bag Governor Responsibility System* had resulted in distortions in market prices and creation of regional blocs. Furthermore, in order to achieve 95% of grain self-sufficiency rate, the volume of China cross-border grain trade is very limited, and it is tightly controlled by the government through quota and grain import and export licensing.

The comparative advantage of the agriculture will not be fully exploited unless limited land and other resources are released from the grain sector. This is possible only if and when agricultural trade, both domestic and cross-border, is liberalized. Liberalization of the grain trade is of utmost importance to the revitalization of China's agricultural sector. China should allow a greater role for the market to determine trade patterns in order to reap comparative advantage gains. This would probably mean increased overall agricultural trade and a shift towards importing more land-intensive agricultural products and exporting more labour-intensive agricultural products. Policy steps to achieve comparative advantage gains might include removing implicit taxes on farmers and reforming domestic grain pricing and marketing system.

Moving Away from Grain Farming Will Not Undermine China's Food Security

Agriculture has a critical role in ensuring food security for a nation. This is particular true for China, the most populous country in the world. Grain self-sufficiency has been a long standing political promise made by the Chinese authority to its people, and it is one of the key goals of China's agricultural sector. Therefore, understandably, any attempt to move away from grain farming will immediately raise serious concerns about China's food security. Hence, it is important to re-evaluate whether

revitalization of the agricultural sector through moving away from grain farming and China's food security can be realized at the same time.

Dynamic Food Self-sufficiency

Although till now no clear definition of food security has been given by the Chinese authorities, in the Chinese context, food security is equivalent to grain security, with a central focus on grain self-sufficiency. Ensuring self-sufficiency of grain in domestic consumption has been a political promise made by the Chinese government to its people, and it has been highly prioritized in the central government's work. For a big country like China, the importance of grain can never be overemphasized; but rigidly promoting domestic grain production to ensure self-sufficiency will be counterproductive as well. As Shunli Yao noted, the 'grain self-sufficiency' policy was the product of the Cold War Era which was punctuated by embargo and famine for China.⁷⁸ Now China has a whole new international environment, and with rising income, Chinese direct consumption of grain has dropped remarkably while the consumption need for other food stuffs have increased significantly. The demand for safer and better food is rapidly increasing.

Furthermore, despite what the Chinese government has repeatedly claimed, China's grain self-sufficiency rate is already below 90% (Some even claimed China's grain self-sufficiency rate has already fallen below 70%), as grain in China includes not only cereals such as rice, wheat and corn, but also tubers and beans.⁷⁹ In 2010, China imported over 54.8 million tons of soybeans, which alone was greater than 10% of China's total grain production in 2010, which was 546.4 million tons.⁸⁰ In addition to the huge import of soybeans, China imported 1.57 million tons of corn in 2010.⁸¹ In the future, as domestic soybeans production continues to decrease and with steady increase of demand for edible oils and feed grain, China will have to import more

⁷⁸ Yao, Shunli. *Chinese Agricultural Reform, the WTO and FTA Negotiations*. Asia-Pacific Research and Training Network on Trade Working Paper, Bangkok : Asia-Pacific Research and Training Network on Trade, 2011.

⁷⁹http://epaper.21cbh.com/html/2011-09/05/content_6595.htm?div=-1,
http://www.zaobao.com.sg/forum/pages4/forum_lx110715.shtml

⁸⁰ China Daily, *China will increase US soybean imports*. 23 June 2011.
http://www.chinadaily.com.cn/business/2011-06/23/content_12758591.htm (accessed October 23, 2011); Xinhuanet. 03 December 2010. <http://news.xhby.net/system/2010/12/03/010859262.shtml> (accessed December 05, 2010).

⁸¹http://usa.chinadaily.com.cn/epaper/2011-06/14/content_12690791.htm

soybeans from the international market. Very likely, they will start importing significant amount of corn from the international market. Also, severe depletion of natural resources as well as rapidly shrinking and aging rural labour force threatens future grain production, which may lead to further decline in China's grain self-sufficiency. This means that China eventually may not be able to maintain a high degree of grain self-sufficiency, even with strong official commitment.

The dramatic change in the diet and food preferences of the Chinese consumers and declining grain self-sufficiency indicate that there is a need to redefine China's food security. China should replace its increasing obsolete food security concept of ensuring self-sufficiency in grain production with a grand food security policy which centers on dynamic food sufficiency and does not require China to be self-sufficient in all foodstuffs, but generally produce enough food to satisfy the nutrition needs of its people. The essence of dynamic food self-sufficiency concept lies in enhancing a country's food security producing foodstuff in accordance with China's factor endowments, participating actively in international trade while maintaining self-sufficiency in domestic food production, and exporting surplus foodstuffs for deficient foodstuff imports. In the Chinese context, it is to allocate more resources to cultivate the labour-and-capital intensive foodstuff, such as vegetables, fruits and aquatic products, and actively liberalize its agricultural trade, promoting export of non-grain foodstuff in exchange for grain imports.

The idea of relying on international market for grain has been put forward by scholars and grain experts such as Mao Yushi & Zhao Nong, Xu Dianqing & Li Xi, Lu Xiongying and Li Xiaoli.⁸² However, this idea was rejected by the Chinese leaders due to concerns over China's grain security. This paper holds that importing grains from international market will not undermine China's food security based on the following aspects.

⁸²Mao, Yushi, and Nong Zhao. *ZhongGuoLiangshianquanKaoshenme*. Beijing: IPPH, 2011; Xu, Dianqing, and Xi Li. *JingjiMingmai Xi Sannong*. Beijing: China Machine Press, 2010; Lu, Xiongying. "Relying on International Market to Safeguard Grain Security." *Market Modernization*, no. 541 (June 2008): 310-311; and Li, Xiaoli. "Virtual Land Import is the approach to safeguard current and future China grain security." *Agricultural Outlook* 10 (2011): 28-31.

Importing Grain Will Not Jeopardize China National Security

Grain is considered an important strategic resource, especially for China. The 1959-1961 famine is a painful reminder to the Chinese of how disastrous things could be if the grain issue is not well managed. Many Chinese policy makers and scholars who advocate a strict 95% grain self-sufficiency rate argue that currently grain market is controlled by developed countries, the United States in particular. Relying on the international grain market will inevitably compromise Chinese national security, and there will be disastrous consequences if the United States and others impose grain sanction on China when Sino-US relations worsen. Certainly, importing grain from abroad brings uncertainty to a country's national security, but it does not necessarily lead to compromises to national security.

In the late 1970s, when China decided to attract foreign investment and trade with the outside world, people were concerned that foreign investment and foreign imports would harm China's national security. The past 30 years of phenomenal economic development has proven that China has not only managed the risk, but also has greatly enhanced national security through international trade. Currently, China is importing huge amounts of raw materials, ranging from oil to iron ore, and exporting all kinds of manufactured goods to the rest of the world. This created high level of economic and financial interdependence between China and the rest of the world, the United States in particular. This kind of interdependence has tremendously strengthened China's foreign relation with other countries, thus contributing to China's national security. Similarly, if China chooses to import grain from the international market, its national security may not necessarily be at a loss as China can create a high level of interdependence on food. If China chooses to import more grains from the international market, for instance, wheat and corn from the United States, and rice from Thailand (there are also other grain exporters in the international market), it will be able to produce more agricultural products in which it has comparative advantage, such as fruits, vegetables, aquatic products and poultry. It can then export more of these products to other countries, including the United States and Thailand (China has already been one of the major suppliers of fruits, vegetables and other agricultural products for the United States and Thailand). Therefore, given the high level of interdependence on food, China's food security and national security

may not be at a loss, even if China chooses to import grains from the international market. Furthermore, in this increasing globalized world, it will be disastrous to all the countries, if famine strikes China again.

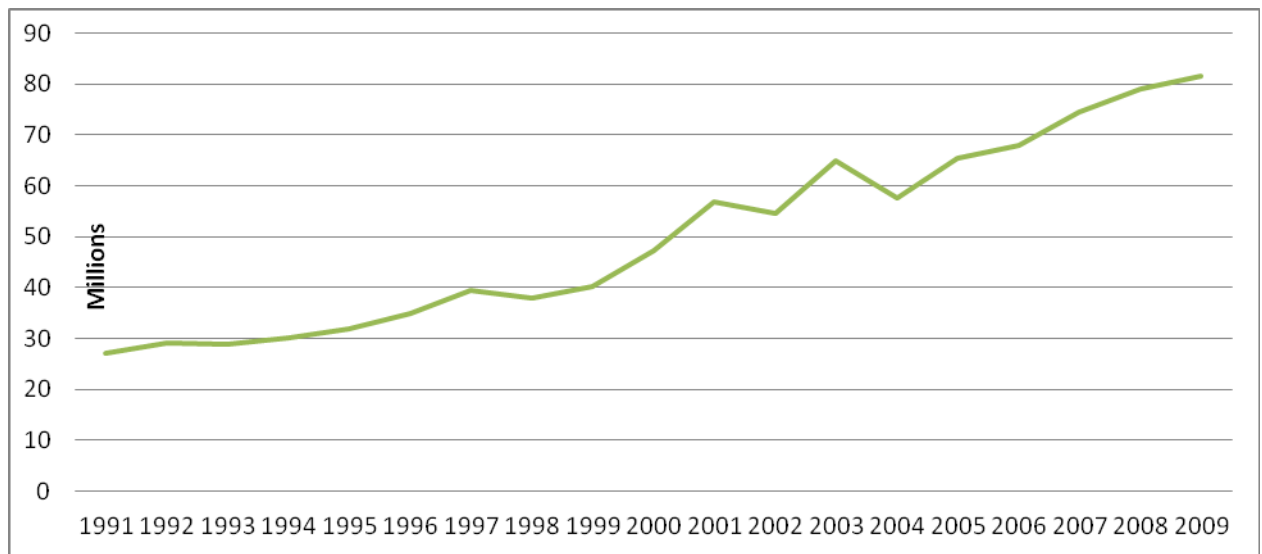
The World Grain Supply Is Adequate and Sufficient

The other strong argument which justifies China's 95% grain self-sufficiency policy is that even if China chooses to import grain from the international market, the world grain supply is inadequate to meet China's demand. The total volume of grain traded per year is about 250 million tons, less than half of China's annual grain consumption. This argument is not as valid as it appears. Global grain trade volume is driven by global demand for grain. Thus, current global trade volume is limited for the simple reason that global demand for grain is small. When China begins to import grain from the international market, driven by greater demand, global grain trade volume will surely increase to accommodate the extra demand. This is evident from China's soybean import. Before 1996, China domestic soybean production was able to meet the demand and at that time, the global trade volume of soybeans was quite low (Figure 3). However, after China began to import soybeans from international market from 1996, the volume of China's import of soybean has increased exponentially. Driven by huge demand from China, the global trade volume for soybeans has also experienced very rapid increase since 1996. In 2010, China imported 54.8 million tons of soybeans from the international market, accounting for over 75% of China's annual demand.⁸³ Additionally, China accounted over 50% of global soybeans imports in 2010.⁸⁴

⁸³Ministry of Agriculture. *Feed Industry: 12th 5 Year Plan*. Government Policy, Beijing: Ministry of Agriculture, 2011.

⁸⁴Gordon, Kim Hunter. *Chinese pork – capturing the value from bean to lean*. 21 October 2011. <http://www.worldcrops.com/8951-chinese-pork-%E2%80%93-capturing-the-value-from-bean-to-lean/> (accessed October 23, 2011).

Figure 3 Global Soybeans Export (Tons)



Source: (FAO 2011)

Therefore, the key to whether global grain market can meet China’s huge demand is not the current market volume, but the global food producing capacity. With regards to global food production capacity, there is ample room for future expansion. China is always proud of the fact that it is able to feed over 20% of the world population with only 7.9% of world’s arable land, and 6% of the world’s water resources.⁸⁵ What it also implies is that the rest of the world with over 92% of global arable land, 94% of the world water resources, is only feeding less than 80% of the global population. In other words, there is sufficient space for increasing global grain production. A typical example is Africa, as shown in Table 5. With larger grain cultivation area; Africa’s annual grain production is much lower than China’s, mainly due to low yield. Hence, there are huge potentials for grain production increase in Africa. Furthermore, if China chooses to import more grains from the international market, it means more resources will be available for the production of non-grain foodstuff, such as fruits and vegetables and more non-grain foodstuff will be exported to other countries. Consequently, with more import of non-grain foodstuff from China, countries such as the United States and Thailand can devote more resources for grain production for export.

⁸⁵China State Council. *White Paper on China's Peaceful Development*. White Paper, Beijing: State Council, 2011.

Table 5 Grain (Cereal) production in China and Africa, 2008

	China	Africa
Area Harvested (Ha)	88678224	104898556
Total Production (Tons)	480053075	152464020
Yield (Kg/Ha)	55484	14534

Source: (FAO 2011)

The Large Country Effect Can Be Reduced

Given the size of China, Chinese policy makers as well as the international community are concerned that once China starts importing grain from the international market, grain prices will be pushed sky-high. This means that, on the one hand, China has to pay more to import grains. On the other hand, high grain prices threaten the food security in many countries, particularly those in South Asia and Africa. It is doubtless that, in the short term, with China importing more grains from the international market, grain prices will be higher. However, as long as China enters the global grain market in a gradual and gentle manner, it will not drive the grain prices sky-high nor cause panic in the international grain market. In the medium to long term, supply in the international grain market will increase, which will then drive down the grain prices. This is exactly what happened after China entered the global soybeans market since 1996. Moreover, as previously discussed, once China imports grains from the international market, more resources will be devoted for the production of non-grain crops. With increase in the supply of non-grain foodstuff from China, prices of non-grain food stuff such as vegetable, fruits, aquatic products may decrease, which could compensate for the increase in the prices of grain. Lastly, given China's huge foreign reserves, China has the purchasing power to purchase grains even at higher prices. With rapid income growth and dramatic change of food preferences, the Chinese are spending less of their income on grain, which makes China more tolerant of price increase.

Risks in the International Grain Market Can Be Managed

The dramatic rise of grain prices since 2008 has revealed the weaknesses of the international grain market, which are instability, vulnerability and uncertainty.

Regardless of whether the recent grain price volatility is anomalous, it is definite that relying on international market for grain will bring risks to China's grain security. However, it does not mean these risks cannot be managed. Domestically, with national grain reserve reaching 40% of annual consumption and huge grain stock held by the rural residents, China is well positioned to cope with possible shocks in the international grain market. Furthermore, its reduction of domestic grain production and import from the international grain market does not mean China has lost its grain producing capability. If the international grain market collapses (which is very unlikely), China still has the capacity to reproduce enough grains to satisfy its domestic demand. Internationally, thanks to the 2008 global food crisis, the international community has realized the weakness of the international grain market. Numerous studies have been undertaken in the interest of improving the international grain market. Additionally, a series of steps are being taken, particularly by the G20, to strengthen the international grain market.⁸⁶ With better international cooperation and coordination, the uncertainty, instability and vulnerability of the international grain market could be reduced.

Therefore, if China eventually decides to move away from grain farming, the government's food security will not be undermined. A thriving agriculture with broad and deep agricultural market is the best guarantor for China's food security. Agriculture's multiple roles in driving economic growth, ensuring food security, protecting environment and enriching culture can be realized at the same time, provided with the right set of policies to encourage agricultural structural reform and facilitate agricultural trade.

Conclusion

Despite its extraordinary economic success achieved during the past decades, China's economic structural risks have also increased significantly. As Chinese top leaders have repeatedly emphasized, economic restructuring is a critical task facing China's economy. To restructure China's economy, the country needs to find a new engine to replace the export and investment led growth model, address social inequality and

⁸⁶ Murphy, Peter. *G20 to monitor world grain supply*. 16 June 2011. <http://uk.reuters.com/article/2011/06/16/uk-g20-agriculture-draft-idUKTRE75F4VF20110616> (accessed October 23, 2011).

protect the environment. The key approaches identified by the Chinese government include urbanization, upgrading the manufacturing sector and developing strategic industries. However, as seen through in-depth analysis, the effectiveness of government's measures remains in question as these measures fail to address all the root causes of China's economic problems.

The root causes of China's current economic structural problems include the low domestic consumption, particularly consumption of the rural residents, environment degradation, of which the agricultural sector is a top polluter, and income inequality, where rural-urban income inequality is paramount. Hence, in order to address China's economic structural problems, promoting farmers' income growth and developing eco-friendly agricultural sector should be prioritized. Towards the goal of promoting income growth of the farmers, this paper argues that agriculture sector has a key role to play as the sector has great potential in contributing to economic growth, sustainable natural environment as well as harmonious social environment.

In order to release the above potential of China's agriculture, the sector needs to be substantially reformed. China should further liberalize its agricultural sector in the following three aspects. First, China needs to move away from grain farming to capitalize on China's huge comparative advantages in the production of labour and capital intensive products such as fruits, vegetables and aquatic products. Second, China should promote regional specialization of agricultural production according to comparative advantages of different regions and encourage regional concentration of agricultural production. Third, both domestic and cross border agricultural trades have to be further liberalized to promote agricultural structural shift and regional concentration.

Any attempt to reform China's agricultural sector will not be politically feasible if it cannot guarantee the country's food security. It may be obvious that moving away from farming is unacceptable as it will break China's grain-self-sufficiency, which has been the cornerstone for China's food security. With rising income, Chinese direct consumption of grain has dropped remarkably while the consumption need for other food stuffs has increased significantly and the demand for safer and better foods is rapidly increasing. This means that ensuring grain self-sufficiency is far from enough to guarantee China's food security. Also, grain self-sufficiency policy was the product

of the Cold War Era which was punctuated by embargo and famine. However, China is facing a whole new international environment now. Based on thorough analysis and with ample evidence, this paper argues that China will be able to rely on international market for grain should the country decide to move away from grain farming. For above reasons, this paper finds that China needs to replace the increasingly obsolete political promise of ensuring grain self-sufficiency with a grand food security concept that focuses on dynamic food self-sufficiency. China's food security can be achieved through exporting of non-grain foodstuff in exchange for grain imports.

Agriculture is one of the most important industries in China. It plays multiple roles of promoting farmer's income growth, ensuring the country's food security, and protecting natural environment. For a long time, overwhelmed by concerns on the country's food security, the country's agricultural sector failed to meet the other roles—promoting farmer's income growth and protecting the natural environment, which are among the root causes of China's current economic structural problems. With right mix of policies, China's agricultural sector can effectively meet above goals and thus contribute to China's on-going economic restructuring.

Policy Recommendations

With the right set of policies, the agricultural sector can become a new engine for economic growth and play a constructive role in creating both favourable economic, natural and social environments that are inductive for sustainable economic development, without compromising the country's food security.

Replace the Grain Self-Sufficiency Policy with Dynamic Food Self-sufficiency Policy

Considering the changing diet and food preference of the Chinese as well as the new international environment facing China, it is necessary and beneficial for China to replace the obsolete grain self-sufficiency policy with dynamic self-sufficiency, which means that China can suffer deficit in grain production, enjoy surplus in the production of non-grain foodstuff, and rely on the world market for balancing. As China's policy that emphasizes grain self-sufficiency and impedes the agricultural production shifts toward agricultural products in which China has comparative

advantage, abandoning grain self-sufficiency policy will boost the comparative advantages of China's agricultural products in the international market. This will reverse the trend of increasing agricultural trade deficit for the country, and create enormous economic benefit for the farmers.

Abandon the "Responsibility Systems"

Rice Bag Governor Responsibility System and *Vegetable Basket Mayor Responsibility System* that stressed local food self-sufficiency consigned farmers to poverty by depriving them of the rights to grow crops and engage in other productive agricultural activities suited to local conditions. Hence, the *Rice Bag Governor Responsibility System* and *Vegetable Basket Mayor Responsibility System* have to be abandoned in order to fully release the potential of regional comparative advantage of domestic agricultural production, given that the production conditions differ greatly in different regions in China. This is vital for the liberalization of domestic agricultural market. A well-functioning domestic agricultural market is critical to reduce price volatility and safeguard food security at the local levels.

Initiate Land Reform

In order to encourage farmers to move away from grain farming, land reform needs to be undertaken. The title of the land has to be given to the individual farmers. Production of non-grain agricultural products, such as fruits and vegetables, is long term and very capital intensive investment. Farmers will be reluctant to make such investment if they do not own the land. Also, with land property rights, farmers will be able to take loans from banks with land as collateral. Furthermore, the uncertainty in land ownership has become the biggest obstacle for investors seeking to invest, despite the huge interest of the investors in China's agricultural sector.⁸⁷ Thus land ownership reform will attract huge amounts of domestic and foreign investment, which is urgently needed to revitalize China's agricultural sector.

⁸⁷The Economic Observer. *The temptation of 7 trillion, investors are keen to "farming"*. November 23, 2011. <http://www.eeo.com.cn/2011/1123/216288.shtml> (accessed January 23, 2012).

Facilitate Domestic and Cross Border Agricultural Trade

It is crucial to facilitate domestic and cross border agricultural trade to achieve comparative advantage gains in China's agricultural sector. Policies should be implemented to effectively link the local agricultural production to broader markets by investing in infrastructure, reducing transaction costs, providing business services and market intelligence. China should also make efforts to cooperate with the international community to address the stringent sanitary and phytosanitary standards in global markets to facilitate agricultural trade.

Popularize Agricultural Insurance

The production of non-grain agricultural products, such as fruits, vegetables and pigs, are very capital intensive and face higher risks. It includes production and market risks as compared to grain production. Therefore, to encourage the shift towards the production of non-grain agricultural products, such risk has to be reduced. Towards this goal, agricultural insurance can play a key role. The government needs to step up policy and financial support to popularize agricultural insurance throughout the country.

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