Economic Development, Population Ageing and Sustainability in China

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EXTENDED ABSTRACT

The most populous country in the world, China is enjoying unprecedented economic growth. However this growth is accompanied with population ageing and serious environmental degradation which has attracted global attention. The impact of China's environmental problems on the rest of world in the future will be as important as that of the country's rapid economic growth.

Without a balanced development strategy, China will face serious economic consequences due to increasing environmental deterioration and an ageing population triggered by the government's one-child policy. The young and working-age people of this country will have the double burden of restoring and maintaining the deteriorating ecosystems and looking after an increasing number of elderly.

This paper analyses China's demographic profile and examines some of the country's environmental issues in their relationship with economic development. It also addresses China's environmental protection policies and their implications for economic, social and ecological sustainability. It also discusses the government's role in shaping population policies, environmental protection, education and knowledge diffusion. The findings have implications for the development of better policies for China to deal with its ageing crisis and prevent environmental damage while economic growth is sustained, including a national sustainability strategy.

1. INTRODUCTION

The Chinese economy has been growing at an average rate of 10% per annum since 1978 when the economic reform program was originally initiated (Chinability, 2006). Not only the country's fast expanding economy has become more powerful (with GDP raising from 362 billion yuan in 1978 to 14 trillion yaun in 2004), but also individuals on average have become richer (with GDP a per capita increasing from 379 yuan in 1978 to 10,502 in 2004). The structure of China's economy changed dramatically to much less reliance on agriculture, manufacturing booming expansion in the 2000s and substantial increase in the services sector (National Bureau of Statistics, 2004).

China is currently the most populous country on earth. Although the rate of its population growth currently at 0.6% (International Data Base, 2007) is close to being arrested, the population growth momentum continues contributing to the overall global population increase. Accounting for one sixth of the world's population, China welcomed its 1.3 billionth baby at the beginning of the year 2005 and has added 20 million more (the size of Australia's population) since. Because of the one-child policy introduced in the 1980s to curb population growth, 25 years later China's population is ageing faster than those of developed countries. China will soon be facing an array of problems related to population ageing, such as ensuring financial security for the elderly and adjusting its health and social security systems to cater for increasing numbers of older people.

The most serious problem however that China is already experiencing is the recent deterioration of the country's natural environment. There is ample evidence of severe air pollution in major cities, including the 2008 Olympics capital Beijing. Problems with access to clean water and eutrophication of major water basins such as Chao Lake are attracting increasing attention (Shang and Shang, 2007). Land erosion, degradation and overgrazing are widespread in the country's north and northwest. The sprawling cities and the infrastructure they require are impacting on natural habitats causing loss of biodiversity. Depleted fisheries and contaminated food production as well the coal based economy are causing increases in health related problems, including respiratory diseases. All these problems have led the vice minister of China's State Environmental Protection Administration (SEPA) to warn in 2005 that the country's natural environment can no longer keep pace with the economic miracle and may soon put an end to it (in Economy, 2007). With its raising CO_2 emissions China is also contributing significantly to the global problems related to climate change. This is likely to continue unless there is a change in policies and strategies to arrest the current negative trends. China desperately needs to adopt a sustainability course which will allow for a holistic view of its development with the right balance between economic prosperity, quality of life, social justice and environmental protection. It is important for such a change to happen now, before the constantly decreasing numbers of young and working-age people in this country start experiencing the double burden of restoring and maintaining the deteriorating ecosystems and looking after the increasing numbers of elderly within an economy that lacks well-developed social support systems.

The remaining of the paper firstly explores the population characteristics and demographic changes in China in the last 50 years. Then it presents an analysis of recent economic development in China followed by framing the discussion in relation to sustainability issues. It concludes with policy implications about the need for a different approach to development that will not jeopardize the future of China's young generation.

The model used to justify the need for a national sustainability strategy is presented in Figure 1. It shows that the overlapping areas of population, economic development and environmental protection need to be considered within a national sustainability strategy in order to have a comprehensive framework to deal effectively with the increasing pressures coming from all three areas.

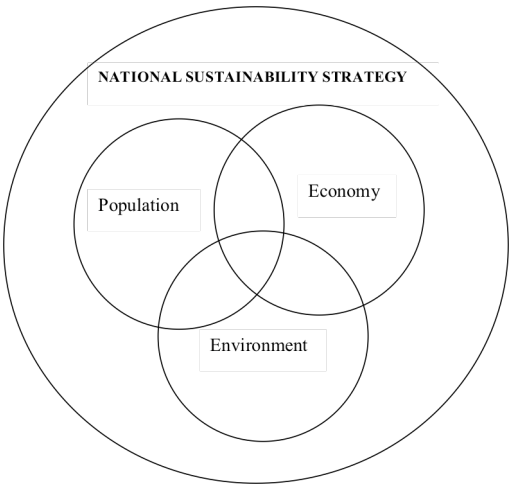

Figure 1. National Sustainability Strategy

2. DEMOGRAPHIC CHARACTERISTICS OF CHINA

Over the past fifty years, China's birth and death rates have experienced dramatic up and down periods (see Figures 2 and 3). From 1949 when the People's Republic of China was founded, until mid 1950s birth rates were relatively high. However the famine in the late 1950s caused a sharp decline which was followed by population boom in the early 1960s. Since 1964, birth rates in China have been steadily decreasing, a major contributor to this being the one-child policy introduced in the early 1980s which directly impacted on people's choice for a family size.

Overall, China's birth and death rates over the past 50 years have declined dramatically due to the implementation of revolutionary and controversial policies for the purpose of improving health and controlling population. In 1958, the Chinese government launched the Great Leap Forward policy in order to rapidly increase agricultural and industrial production. It is well known that this policy has caused the highest death rate due to the largest famine in human history. As a result, the mortality rate increased from 11.9 per thousand in 1958 to the unbelievable 25.4 per thousand in 1960. Due to the strict family planning policy, especially the one-child policy, the country's fertility rate has decreased dramatically (Riley, 2004). China's socio-economic, political and family planning policy changes over the past 50 years have strongly influenced this country's population growth rate.

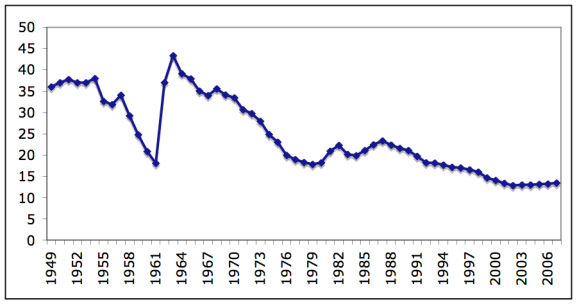

Figure 2. Crude birth rates (per thousand), China, 1949 – 2007

Source: Compiled from National Bureau of Statistics of China (1999) – 1949-1998 data, National Bureau of Statistics of China (2003) – 1999-2002 data, and International Data Base (2007) – 2003-2007 data.

China's slow population growth, but rapid economic growth has drawn a lot of attention in the world. The one-child policy is one of the important factors that helped China to achieve a rate of population growth less than 1 percent for more than ten years. The crude birth rate of China in 2007 was 13 per thousand, the death rate was 7 per thousand, and the natural growth rate was 0.65 percent (International Data Base, 2007). The life expectancy has been steadily increasing and in 2007 is at 73 years which means that Chinese people now enjoy a longevity similar to that in the West.

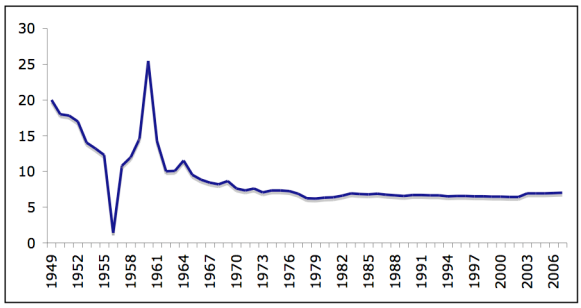

Figure 3. Crude death rates (per thousand), China, 1949 – 2007

Source: Compiled from National Bureau of Statistics of China (1999) – 1949-1998 data, National Bureau of Statistics of China (2003) – 1999-2002 data, and International Data Base (2007) – 2003-2007 data.

China's one-child policy has helped to slow down the nation's population growth rate, but it has also brought about a lot of challenges to China. One of them is reflected in the fact that population ageing grew fast with the rapid decline of fertility. Reductions both in fertility and mortality rates have produced a fundamental change in the age structure of China's population, most evident in its population pyramid (see Figure 4). China's overly large population is an unfavorable factor for achieving China's social and economic sustainable prosperity and its current development is causing negative impact on its natural environment. Hence, the issue of population remains a key factor for China's sustainable development in the 21st century.

3. ECONOMIC DEVELOPMENT

China's recent economic strength has risen gradually to match the status this country enjoyed in the world more than a century ago (see Figure 5). However, the economic growth is too fast (TIAC, 2007) and many economists have raised the

question about its sustainability in the long run (Wu, 2006).

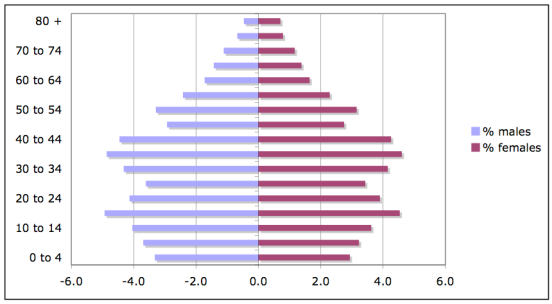

Figure 4. Population pyramid of China, 2006
Source: International Data Base, 2007

Figure 5. China's shares of world GDP, 1500-2030
Source: Wu, 2006

The main problems of China's development are among others weak agriculture, high energy and materials reliance of its manufacturing sector, fossil fuel based energy production and still low labour productivity in its service sector (see Figure 6). There are also increasingly sharp conflicts between economic growth and the environment.

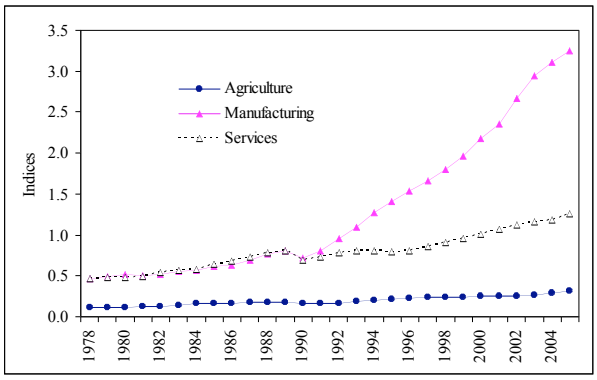

Figure 6. Labour Productivity Indices by Sector, 1978-2005
Source: Wu, 2006.

Even though the Chinese economy has experienced spectacular growth since the economic reform and open-door policy were initiated in the late 1970s, China is still a developing country with a much lower gross domestic product per capita than in the western countries. China is also facing a pension crisis due to the fiscal gap from the last few decades during which no superannuation or personal savings were accumulated. It is still long way to go to implement a strategy of developing expanding domestic demand and coordinated economic development between the country's various regions, particularly more equity between rural and urban areas and between the coastal and non-coastal regions. China's fast urbanization is adding social and environmental pressure on its economic development.

China has enjoyed unprecedented growth for about three decades, but this growth has been resource-intensive and export-oriented without significantly improving the prosperity of its now ageing population.

4. ENVIRONMENTAL HEALTH

Over the last twenty years, environmental deterioration has become serious in China. The Chinese government has concentrated on economic growth while environmental issues in the country have not attracted enough attention. With China's rapidly ageing population it is crucial to start resolving ecological problems. In addition, the ageing population needs sound environment for its health, including clean air, fresh water, green grass and beautiful parks.

Good quality land is becoming more important for food production. However there is evidence that arable land in China is persistently lost not only to natural disasters but also to construction and urbanization (Fischer et al., 1998). For example, cultivated land is abandoned due to construction by state-owned units, construction by rural communities and peasant housing. Such loss of cultivated land should be controlled and eventually prevented in order to achieve and maintain food self-sufficiency for the present population. Uncontrolled land degradation and air and water pollution can result in problems affecting the whole of China.

There is also loss due to disasters, such as flooding, mud flow, gully erosion and landslides. In addition, there is also evidence of illegal land transactions. Therefore a strong legal framework needs to be applied including a clear definition of property rights (Sadownik and Jaccard, 2002). Attention

should be paid to the condition of the reservoirs and rivers, as they are the source of the tap water and water pollution and shortage are already a big problem in China.

With the rapid development of its economy in recent years, China is suffering from the degradation of its natural environment (serious water, land and air pollution) due to the increasing number of factories, cars, and people as a result of increasing affluence and a lack of enforcement of the environmental law (Kenworthy and Hu, 2002). Uncontrolled deforestation and improper land use practices cause soil erosion. Longer periods of low or no flow in China's major rivers are a frequent phenomenon due to waste and mismanagement of water.

Factors such as cultural attitudes, trade relationships, and the transfer of technical knowledge, determine the environmental outcomes associated with population ageing in China. There is concern about whether China can maintain economic growth and preserve its arable land, water and other limited natural resources. China's average population density is very high compared to the world standard, especially in the urban areas. In the future, China will have to face not only the problems of increasing pressure on the environment due to the large and growing population, but also environmental deterioration due to continuing industrialization, urbanization and land degradation. Solving China's environmental problems, such as carbon emissions, land erosion and degradation, air, soil and water pollution will add more pressure on the population in China.

If China is to be able to successfully sustain its growth, China should establish a new system of land and resources development based on both government administration and market regulation. The government should strengthen the supervision of land and resources development and protection. The social and economic impact of an ageing population is widely discussed globally. However the environmental impact of the rapidly ageing population is easily ignored. In areas with a high concentration of elderly people there may be pressure on local government planning processes to provide sufficient land, general transport and infrastructure for aged care. Education, aged care and disability support pension costs will be influencing any environmental investments.

Building environmental awareness is another major issue for China. People in China have their own perspectives and attitudes towards the environment, which influence their skills, aspirations and practices. Chinese are less likely to be environmentally conscious than people in developed countries. Therefore, in order to protect the environment, educational programs may need to be put in place to encourage people in China to adapt environmental friendly behaviour. Every citizen has a responsibility to help protect the environment.

The environmental problems created by countries pursuing industrial development and the elimination of social disparities triggered by a globalized market driven economic order require a new approach to the use of technology. The emerging new sustainable technologies should not only have the required functionality, but also must be cleaner, environmentally friendly and socially acceptable. Their use should balance market profitability with environmental considerations and social accountability (Marinova, 2005).

China needs to be able to tackle all of these problems simultaneously and the evidence that we have seen so far is that there is no easy recipe for this to be achieved. In fact, no other country has been in a position to clean its acts together. The additional challenge that China and the world face is related to China's massive size and the gigantic impact that it can potentially have. What we argue for is for this impact to be a positive one.

5. NATIONAL SUSTAINABILITY STRATEGY

China recently adopted its first National Climate Change Program (NDRC, 2007). It is aiming at restructuring the country's economy, promoting technology advancement and improving energy efficiency. The government's goal is to improve the overall energy efficiency in 2010 by 20% over 2005's level. The measures include expanded research and use of fresh energy-saving technologies, improvement of agricultural infrastructure, water resource management and greater investment in public environmental education. However, these goals should not be seen in isolation but they should be incorporated into an overall sustainability strategy.

The definition of sustainability endorsed in the Western Australian State Strategy is: "Sustainability is meeting the needs of current and future generations through an integration of environmental protection, social advancement and economic prosperity" (Government of Western Australia, 2003, p. 24; Newman, 2005, pp. 273-274). Sustainability requires increased understanding of the complexities and

interrelationships between social, cultural, environmental, economic, political and technical aspects of reality but also needs increased respect for the diversity of voices from different religious, ethnic groups, geographic locations, current and future generations (Wheeler and Byrne, 2003). As a practical philosophy, sustainability is framed along principles that engage "multi-levels, places and cultures in a systemic approach towards better environmental and social health whilst simultaneously allowing the economic improvement and technological development that this may require" (Marinova and McGrath, 2005, p. 277).

For China, sustainability is still a new concept. The country's economy is booming but there is little evidence of policies encouraging simultaneous consideration of social, economic and environmental concerns. Population ageing has implications for all three of them. By developing a national sustainability strategy the government can put targets and measures in place that are aimed at bringing the economic development in line with the carrying capacity of the environment while protecting the weakest sections of society.

These policies should explicitly target the business sector. It is important to understand how firms can be profitable and leave next generation with a living planet. All of the major environmental issues must be seen in their global context as opportunities for innovations in environmental technology, clean production and environmental services (Government of Western Australia, 2003).

Starkey and Welford (2001) believe that business plays a big role in moving society towards a sustainable future. In order to pursue sustainable development when doing business, it is necessary to commit to pursuing resource efficiency. In addition, the commitment to maintaining environmental quality is needed. People in China need to adopt the sustainability ethics to ensure the prosperity of current and future generations.

6. CONCLUSION

The ageing of China's population will result in an increased pressure on its younger and working population. This will create further challenges for aged care, financial support, social security and pension. China's economic growth has accelerated its industrialisation and urbanization, negatively affecting the ecosystems of the country. Future generations will have to face limited availability of natural resources together with the responsibility for maintaining ecological and social health within the country.

This paper suggested that the development of appropriate policies can be facilitated by endorsing a national sustainability strategy that deals with all problems simultaneously in a balance way. Economic development in isolation from environmental protection and social concerns will not create a prosperous and harmonious society and will generate tremendous local and global problems.

From a global perspective, China has to do a lot more to adopt a sustainability ethics to improve the level of environmental awareness, economic prosperity and social equity to ensure the prosperity of current and future generations so that the country can catch up with the world's best practice for a transition to a sustainable development model.

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