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Why Did China’s Population Grow So Quickly?¹

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Abstract: By the 1970s, China’s communist government faced a looming resource constraint in “caring” for its nearly 1 billion citizens, necessitating a policy to alleviate the crippling aftermath of nearly 30 years of rapid population growth. The one-child policy of 1979 was the result, and it has since become heralded as an effective government policy to save humans from their lack of reproductive restraint. In this article we explain why population growth in China was so strong from 1949-79, and why the one-child policy was seen as the best solution. Under the leadership of Mao Zedong, the government promoted pro-natalist policies and remunerated families not according to their productivity but by the number of workers. Faced with general economic scarcity from the communist regime’s poor economic policies, parents pursued children as the sole means to avoid an otherwise bleak lifestyle.

Keywords: one-child policy, labor shortage, China, Malthusian.

¹ We would like to thank two anonymous referees and the editor for astute comments. All remaining errors are solely our own.

Introduction

China's one-child policy has come to be widely regarded as an effective piece of government legislation that saved the country from a Malthusian fate. The Cultural Revolution of 1966-76 was the crowning achievement of Mao Zedong, Chairman of the Communist Party of China (CPC) from 1945-76. This social-political movement aimed to remove all capitalistic and traditional elements from Chinese society and to enforce the Maoist orthodoxy of industrialization.

The Cultural Revolution itself functioned as a type of backlash against the failure of China's "Great Leap Forward" of 1958-60. Mao initiated this campaign to transform the agrarian society into a modernized industrial one by way of the complete collectivization of the economy. One of the defining features was that private agriculture was prohibited with violators persecuted as counter-revolutionaries. Lackluster economic growth and social strife during this period provided the impetus for Mao to initiate the Cultural Revolution in 1966. While the Cultural Revolution did lead to some reforms necessary to avoid the setbacks of the Great Leap Forward, it also had more than its share of shortcomings. Chief among these was the inability of the beleaguered economy to adequately provide for its burgeoning population.

The death of Mao Zedong in 1976 opened the door for more serious reforms. The family planning policy, more commonly known as the one-child policy (1CP), was the first such reform to be carried out on a wide scale. Broadly stated, the 1CP made giving birth to more than one child illegal, thus fostering a generation of only-child families. It also had the effect of reducing the birth rate, and lacking significant immigration into the country, the rate of population growth. Throughout the 1950s and 1960s, the Chinese population grew by about 2% per year. By 2007,

the rate of population growth had slowed to 0.7% per year, roughly the same as that of the United States excluding immigration.

The rapid expansion of China's population from 1949 to the late 1970s stoked the flames of neo-Malthusian demographers. Most popular among these was Paul Ehrlich, who opened his wildly popular *The Population Bomb* (1968: xi) with the warning that "[t]he battle to feed all of humanity is over. In the 1970s hundreds of millions of people will starve to death in spite of any crash programs embarked upon now. At this late date nothing can prevent a substantial increase in the world death rate." Though Ehrlich was the most popular of the neo-Malthusians, he was far from alone. Throughout the 1960s and 70s there was a widespread belief that famines would become more commonplace as limited resources were strained by the world's growing population (Gardner 2010: 130-31). Ehrlich's pessimistic forecast was proven wrong, though mostly due to the increased crop yields from the Green Revolution, not due to an imminent reduction in the global population.

The ICP had the immediate effect of alleviating scarcity among the Chinese population. It was also heralded as a success story, and an instrumental piece of policy that has contributed to China's rapid economic growth over the past two decades. While there is no doubt that China did face significant problems feeding its population in the 1950s and 1960s, there are several questions that are rarely addressed in the literature. First, did China's population grow faster than other comparable countries (and if so, when)? This paper will show that China did not have unusually high population growth, except for the period of 1949-79. Second, and more importantly, it will answer the question of why China's population grew so quickly over this limited period.

We begin by explaining the economic state of affairs in China in 1979, the year the 1CP was implemented, then give a brief overview of the policy, who it affected and its results. Next we address the historical question of how China's population growth rate compared with other countries', arguing that the rapid population increase from 1949-1979 was largely the result of Maoist pro-natalist policies as well as the peculiar remuneration scheme of the communist regime. We conclude with an explanation of why high population growth rates were uniquely damaging in China and not to other countries.

China, 1979

In 1979 China was at the cusp of two different periods. The 30-year-old People's Republic had already suffered under various political movements, especially the 27-year rule of Mao Zedong. The core of Mao's political philosophy was the "people's war"- uniting the majority and crowding out the minority – which was promoted in China through several propaganda campaigns.² This strategy was prevalent throughout Mao's political career. By the end of 1970s, the majority of Chinese citizens were in an unconscious state of support for such policies.

In December 1978, the Third Plenary Session of the 11th Central Committee of the Communist Party of China (CPC) was held in Beijing. It is recognized as the watershed moment in the guiding ideology of the CPC – that point when the focus was converted from class struggle to economic development. The conference has also been recognized as an important symbol of China's reforms and the opening up of its economy. In short, the Third Plenary represented the shift from the regime of Chairman Mao to the hesitantly pro-market regime of Deng Xiaoping.³

² An example of such propaganda emblematic of the time was the first successful satellite launch in April 1970 of the Red East-1. The satellite transmitted a song from space to the earth, with typical pro-Mao lyrics: "The sun has risen; The East is Red; from China Mao Zedong emerges."

³ Note that Deng Xiaoping was never the *de jure* leader of the CPC, but held *de facto* power over politics from 1978

Shenzhen, a modern city adjacent to Hong Kong, is a typical representative case of China's reforms and opening up to the outside world during this period. In 1979, this city was a small town but because of its geographical location it became a center for smuggled goods from free-market oriented Hong Kong into mainland China (and Chinese citizens into Hong Kong). It was the apparent prosperity of Hong Kong that prompted Deng Xiaoping to pursue China's subsequent pro-market reforms (Hutchings 2000: 168). In this way Hong Kong served as a window for China to look at the advances and successes of the outside world, but also as a mirror for the country's leadership to get a glimpse at its own political and economic failings.

Grassroots support for political change during the more recent communist period inaugurated in 1949 stemmed from unlikely sources. In 1978, 18 farmers in the village of Xiaogang in the Anhui Province of eastern Middle China pioneered the "household contract responsibility system" whereby remuneration was linked to output, not to the number of workers, and local managers (not the State) were held responsible for the profits and losses of the operation (Watson 1983; Krusekopf 2002). This system functioned by way of oath, upheld even in cases of death and under the responsibility not of individuals, but of the whole family. This new type of contract had three important features. First, farms were divided between subsequent generations of families, not allocated by the State as in the existing system. Second, no longer could participants ask for resources (e.g., income, food, shelter, etc.) from the State. Finally, if any supervisory officer from the local government was debilitated, the other farmers would ensure the support of his dependents until they reached 18 years of age. This precedent set in motion a rural revolution and despite its many critics, Deng Xiaoping affirmed the practice in 1980, and the CPC began promoting the system by 1982.

to 1989, and was highly influential until his death in 1997.

Similar reforms in other cultural, social and economic fields followed shortly thereafter. The coupon system which allocated food, clothing and other consumers' goods was gradually replaced by the "double-track" price system starting in 1984. This new system allowed for goods produced in excess of the needs of the rationing system to be freely traded on the market, with the outcome of two series of prices (hence, "double-track"). Generally, because of scarcity, the prices in the market were higher than those in the planned system. The "Price Law" was passed in December 1997 and implemented in May 1998, whereby central and local governments were charged with developing their own systems for dealing with changing prices. More recently, in 2002 China finally established an initial "socialist-market economic system" with more freely varying prices (Chen 2009).

In short, the year 1979 represented the year that China sowed the seeds of reform to move from its communist system to a more market-based alternative. The economic and political systems, styled as they were by socialist ideology, viewed the country's large population as a burden rather than as a resource (as it had been under Mao Zedong). Despite Deng Xiaoping's pro-market leanings, he felt that the growing population was a chief problem in need of a solution for China to become welcomed on the global stage:

"In order for China to achieve the four modernizations, it must overcome at least two important roadblocks. The first one is weak economic standing. The second one is a large population with limited arable land. Now the population is more than 900 million, 80 percent of which are farmers. The coin of a large population has two sides. Under the condition of insufficient development, all the problems related to food, education and employment are severe ones." (Deng 1979: 163-64)

This type of pessimism concerning population's strain on resources echoed similar neo-Malthusian fears of the time. It also created an apparent "need" for further reforms to limit the growth in what was once viewed as China's most important resource: its population.

The One-Child Policy⁴

The 1CP was implemented in 1979 to alleviate the social, economic and environmental problems plaguing the People's Republic of China (PRC). It has long been heralded as an example of a good government policy that corrects for a market failure, in this case, the desire of citizens to produce more children than the market can provide for.⁵ The rapid population increase over the preceding decades strained some of China's most important resources. These problems were only solved superficially and on a piecemeal basis, with little attention to the underlying causes. For example, health-care availability became so scarce that by 1965 Mao introduced the concept of "foot doctors" to alleviate this scarcity. Farmers received basic medical training and were sent to the rural villages of the PRC that lacked professional doctors (Hsu 1974). This practice was continued until 1981 when it started to become obvious that the 1CP would reduce the pressure on overcrowded hospitals. The 1CP was drafted not only to slow the rate of population growth, but to ultimately control the size of the total population and consequently, limit the strains on the nation's scarce resources.

The 1CP allows most couples of Han race to give birth to only one child.⁶ (According to the last census in 2010, Han families account for 91.5% of the population of mainland China.) Not

⁴ This section draws from Howden and Zhou (2014).

⁵ Much of China's recent success is often erroneously credited as being the result of interventionist policies, when in fact its free-market reforms play a much more significant role (Schoolland 2012).

⁶ Ethnic minorities who live mostly along the borders of the north, west and south of the country are dealt with

only are births controlled directly through the policy, but also indirectly by laws pertaining to marriage. The legal age to marry is set at 22 years for males, and 20 for females (1980 Marriage Law of the PRC, ch. 2, clause 6).

In response to recent fears concerning future population declines, the 1CP has been recently relaxed in some instances, e.g., when both the husband and the wife are an only child, in which case they are allowed to give birth to two children. By 2011, all 31 provinces and municipalities of mainland China had relaxed the policy. More recently, in November 2013, China announced a further loosening of the policy, this time allowing for two-child families provided that only one parent is an only child.

Violations of the 1CP are met with punitive and pecuniary penalties. The birth of a second child (if not permitted) results in a monetary fine which generally ranges from 3 to 6 times the annual income of each parent, though the exact amount is determined by the local government (2001 Law of Population and Family Planning of PRC, ch. 6, clauses 41-42).⁷ Violations also provoke political ire, affecting both those directly involved and their extended family. These political repercussions come in the form of being disadvantaged for politically appointed positions, as well as discrimination when dealing with administrative formalities. Officials who ignore infractions also face punishments. In some cases infractions have been dealt with through forced abortion, as was the widely publicized case of a young mother in Hunan province who was forced to abort her seven-month-old fetus by injection of an abortifacient (L. Li 2013).

The 1CP has had two main effects on the Chinese population. The first and most obvious is that it is smaller than would otherwise be the case, and that its growth rate is slower. Low estimates by demographers place the number of avoided births at 100 – 200 million (Wang and

through local policies, administered at the provincial level.

⁷ The exact fine depends on the parents' region of residence, their income, and the number of children already born.

Cai 2010), with some estimates as high as 400 million (Guo 2014; Lu 2013). This latter figure represents roughly 30% of the current population.

The second effect is the sex imbalance. The natural sex ratio of males to females at birth is 105 to 100, which balances out as children age since males have higher mortality rates during their early years. According to the National Bureau of Statistics of the PRC, the ratio currently stands at 118 males for every 100 females, leaving many young Chinese men unable to find a partner as they enter their marriageable years. As of 2010 this imbalanced sex ratio has created a surplus of 40 million males unable to find an appropriately aged Chinese woman to marry (Poston *et al.* 2011).⁸

Although not formally implemented until 1979, the 1CP was conceived as early as the 1950s. The famous Chinese demographer and economist, Ma Yinchu, proposed population control measures such as later marriages and the widespread availability of contraception to control the population. In his report entitled “New Population Theory”, Ma Yinchu (1957: 297-317) outlined his case that China’s population was growing too quickly relative to the rate of capital accumulation. As a result, he predicted that the Chinese quality of life would not be able to be maintained in the future. While his policy recommendations centered mainly on capital accumulation through raw material production, education and scientific research initiatives, and limited consumption, he also noted that capital would accumulate faster on a per capita basis by slowing the rate of population growth.

While the 1CP is not without its opponents both inside and outside of China, it is generally viewed favorably by Chinese citizens. A Pew Research Center survey taken in 2008 found that it has the support of 76% of the country (Pew Research 2008).

⁸ There is also evidence that the preference for male heirs is the result of economic liberalization, as “Chinese mothers with higher levels of education are substantially more likely to select sons than less educated mothers” (Almond *et al.* 2013).

A Retrospective Look at Population Growth

One prevailing view of China's population growth is that it has always been high. This may stem from the fact that China is by far the world's most populous country with over 1.35 billion citizens. In fact, China has long held this title and even as far back as 1820 the country could boast of containing over 380 million citizens, over 6 times the combined populations of Japan, the United Kingdom (UK) and the United States (US) at that time.⁹ More than one in three people alive in 1820 were Chinese. By contrast, China's population is currently *only* around 3 times as large as those three countries, and only one in five humans counts as Chinese. China's declining share of the global population points to a slowing rate of population growth relative to other countries. In fact, the average rate of Chinese population growth has only been roughly half as much over the past 200 years as it was in such developed countries as Japan, the UK and the US.

⁹ We focus on these countries for the stability of their borders over this time period and because of the availability and quality of their demographic statistics.

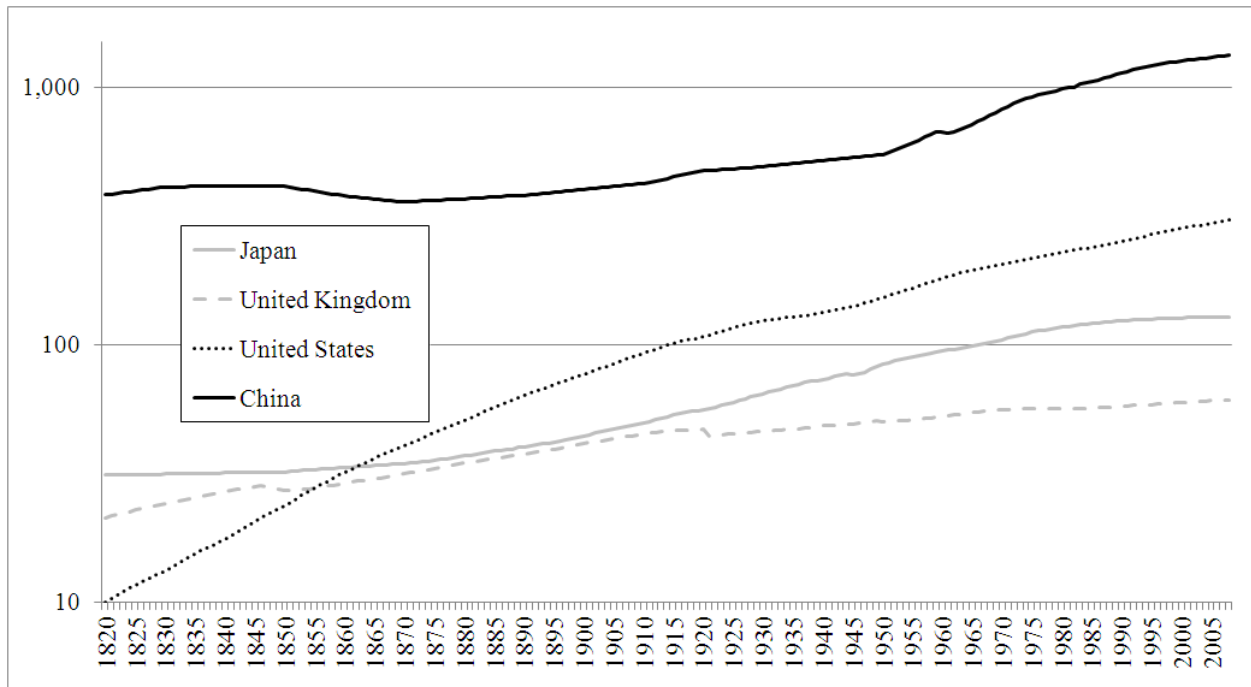


Figure 1: Populations of China, Japan, the UK and the U.S. (log scale, in millions)

Source: Portal for Historical Statistics, available at <http://www.historicalstatistics.org/> (accessed 25 June 2014)

One explanation for this relatively sluggish rate of population growth over its recent history can be seen in figure 1. China's population continually declined from roughly 1845 to 1870, ultimately dropping by 13%. The population decline during this period coincides with the Taiping Heavenly Kingdom (1851-1864). The rebellion that ushered in this new Kingdom covered almost half the main provinces of eastern China, and resulted in the deaths of millions of people. Remnants of this Kingdom persisted until 1872 and were accompanied by some small rebellions, explaining the prolonged drop in population until 1870. Despite short-term setbacks during the World Wars in Japan and the United Kingdom, the populations of the comparison group have continually grown since the mid-19th century. While the rapid rates of population growth in the United States and the United Kingdom over the 19th century can be attributed to the Industrial Revolution (Boserup 1981), it is difficult to extrapolate the same reasoning to

Japan or China. Japan's own Industrial Revolution started only in the 1870s during the Meiji period. Any industrialization that may have bolstered China's population growth did not occur until the mid-20th century, whether because of strong political regimes hesitant to allow for economic expansion or a culture resistant to change (Landes 1999: 38-39, Weber 1930).¹⁰ In either case, China's population growth did not coincide historically with other large countries, making the phenomenon relatively recent.

Despite always having a large population, the only country that China has been comparable with in terms of its growth throughout the 20th century is the United States. During the 19th century and the first half of the 20th century (ignoring the period during which continuous civil wars caused a severe setback to its population), Chinese population growth was no higher than in its neighbor Japan, or that of growing European nations such as the United Kingdom. In fact prior to the 20th century, the United States was the sole country of the four that had a noticeably higher than global average population growth rate. Nor was this mostly a product of immigration, as even the growth of the existing U.S. population was unusually strong (relative to its peer group) up until the early 20th century (figure 2).

¹⁰ China experienced a small but short-lived bout of industrialization from 1861-95 called the "Westernization Movement", but its brief longevity had no impact on population.

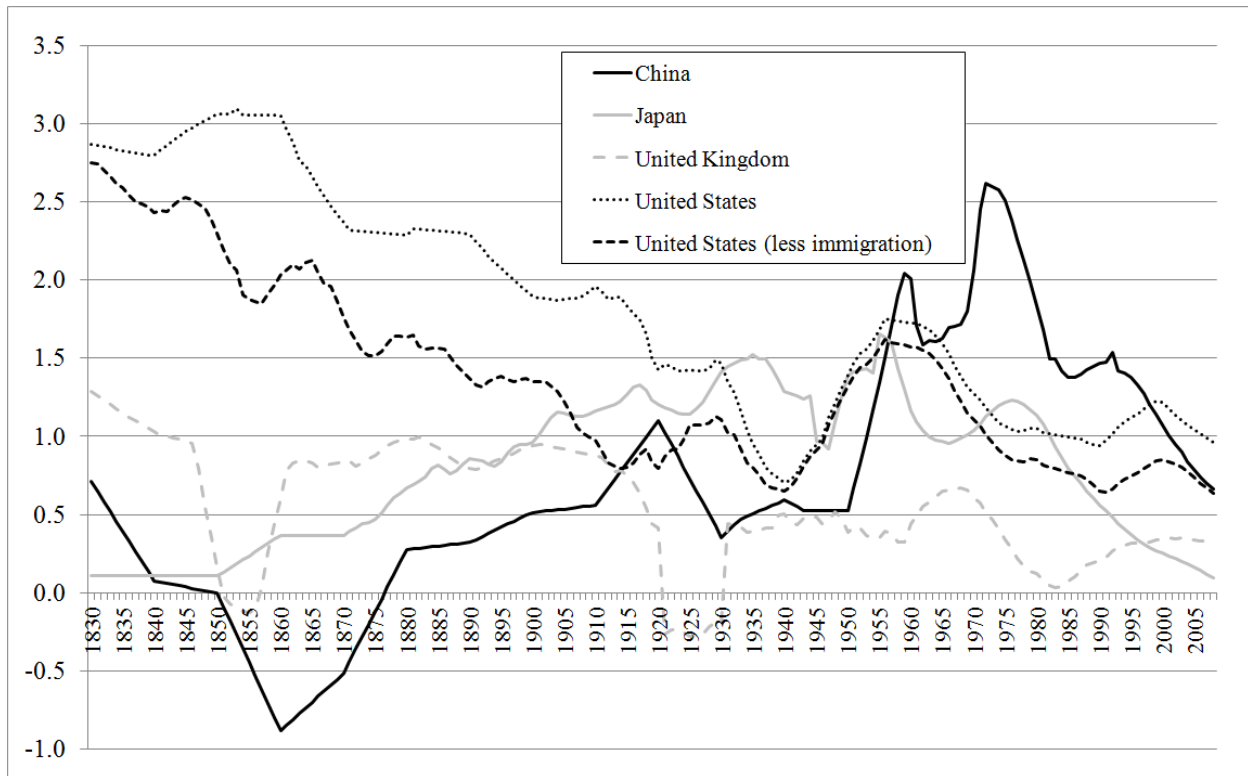


Figure 2: Annual population growth rates for China, Japan, the UK and the U.S. (10-year moving average, percent)

Source: Portal for Historical Statistics, available at <http://www.historicalstatistics.org/> (accessed 25 June 2014)

If there is an anomalous period for China's population growth, it starts in 1949 and proceeds until the late 1970s (with a brief dip during the Great Chinese Famine of 1959-61). Following the Second World War, China joined both Japan and the United States (among other countries, but notably not the UK) in commencing a baby boom of sorts. China's population growth was not unusually strong by American or Japanese standards until the mid-1960s. At this point, while the three other countries started to see a decrease in their population growth trends, growth in China remained robust and climaxed in 1971 at 2.6%.

Along with other developing regions, the rate of population growth in China remained high relative to the world from 1950-80, though only marginally so (figure 3). During that three-

decade period the world population increased by 1.9 percent annually, compared with 2.0 percent for China. In this sense, Chinese population growth over the period is much less remarkable than that of Asia in general (2.1 percent), Africa, or South and Central America (both 2.5 percent). While this general increase in population growth is variously attributed to improved nutrition (Deevey 1960), lower infant mortality rates (e.g., through improved sanitation and childhood immunization (McKeown 1988)), improved maternal health (Albanesi and Olivetti 2014), or general real wage growth (Greenwood *et al.* 2005), China differed from other developing countries for two reasons. First, China's population growth during the first half of the 20th century was among the lowest in the developing world.¹¹ Indeed, from figure 3 we can see that China's rate of population growth from 1900-50 was broadly similar to that of the world in general. What sets China apart is the rapid surge during the 1950s, and the subsequent high level of population growth until the enactment of the 1CP in 1978. Although other areas of both the developing and developed world realized their own baby booms during the post-War period, none experienced as rapid an ascent as did China.

¹¹ Partly this can be explained due to the approximately 2 million deaths suffered during the Chinese Civil War of 1928-36 and the 15-20 million casualties during the Second Sino-Japanese War of 1937-45, though the absence of these untimely deaths over the period would still only allow for an annual rate of population growth of less than 1 percent (an increase of only 0.09 percentage points over the actual figure).

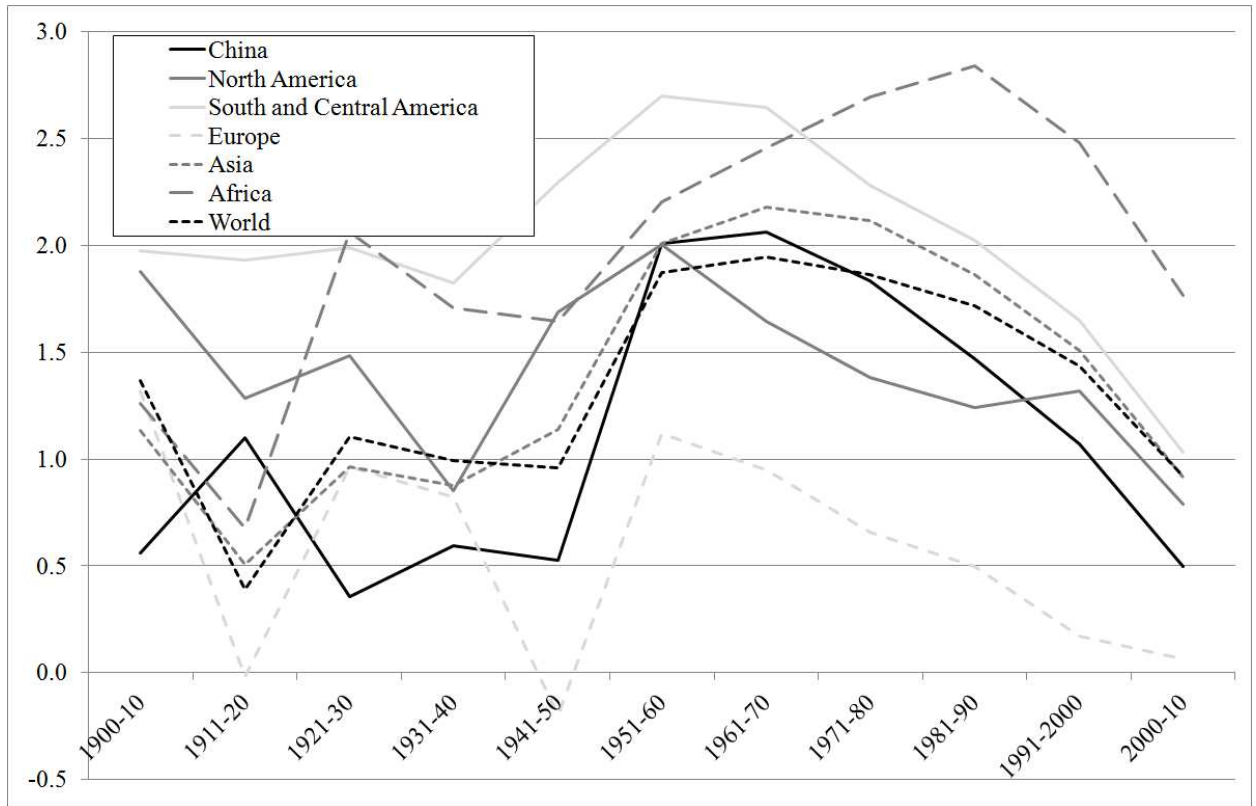


Figure 3: Annual population growth by region (percent)

Source: Source: Portal for Historical Statistics, available at <http://www.historicalstatistics.org/> (accessed 25 June 2014)

Accounting for the duration of its baby boom, China's average annual population growth rate of 1.97% per year from 1950-79 was just barely greater than the growth rate for the world as a whole (table 1). It is also not far off the growth rate generated by the post-War baby boom in the United States, which averaged 1.4% per year over the same period. Looking beyond this narrow 30-year period, China generated just barely greater than Japanese levels of population growth throughout the 20th century, and lagged behind the United States and the world as a whole in this regard.

	United Kingdom	United States	China	Japan	World
1900-10	0.9	2.0	0.6	1.2	1.0
1911-20	0.4	1.4	1.1	1.2	0.6
1921-30	-0.2	1.5	0.4	1.4	n.d
1931-40	0.5	0.7	0.6	1.3	1.1
1941-50	0.4	1.4	0.5	1.4	1.0
1951-60	0.4	1.7	2.0	1.2	1.9
1961-70	0.6	1.3	2.1	1.0	1.9
1971-80	0.1	1.1	1.8	1.1	1.9
1981-90	0.2	0.9	1.5	0.6	1.7
1991-2000	0.3	1.2	1.1	0.3	1.4
Average	0.4	1.3	1.2	1.1	1.4

Table 1: Average annual population growth rates by decade (percent)

Source: Portal for Historical Statistics, available at <http://www.historicalstatistics.org/> (accessed 25 June 2014)

Thus, China did not have an abnormally high rate of population growth, except for the 30-year period following the accession of Mao Zedong as Chairman of the Communist Party in 1949 until the implementation of the 1CP in 1979. As the rapid growth of China’s population was the justification for the 1CP, it is useful to identify the reasons why such “rapid” (though we use that word sparingly in light of the statistics) population growth took place.

One explanation of the rising population could be natural through increasing life expectancies. While life spans have increased unabatedly through the less and more developed regions of the world since 1950 (figure 4), in China this has only been the case since the early 1960s. This sudden increase in life expectancy can be said to contribute to the spike in the Chinese population growth rate during the same time period (roughly 1962-72). However, for the purposes of this article we are chiefly concerned with the initial and most rapid period of population increase which took place from 1949-62 (see figure 2). Since Chinese life expectancy

did not begin to increase until the very end of this period and was actually flat or declining throughout much of it, it is dubious that this factor was responsible for the initial population surge.

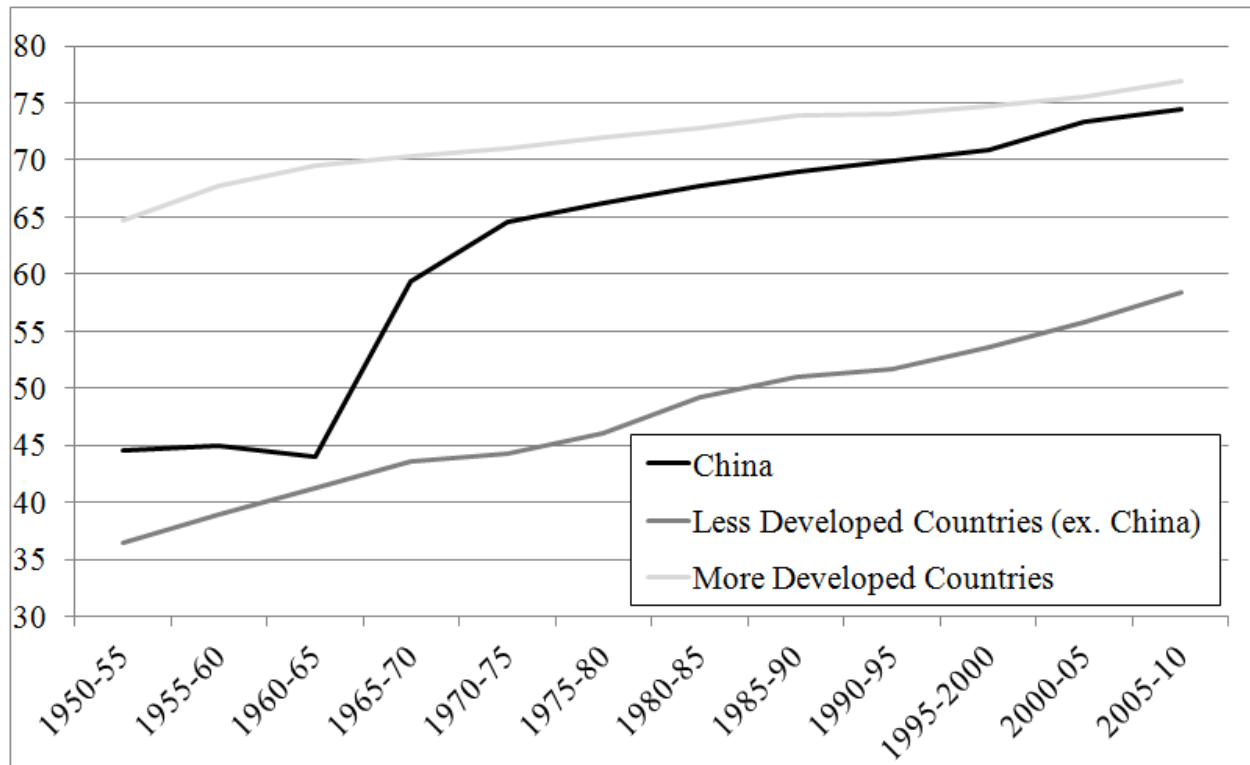


Figure 4: Life expectancy at birth, both sexes (years)

Source: United Nations Population Division, Available at <http://esa.un.org/unpd/wpp/> (Accessed 27 Nov. 2014)

Alternatively, one could point to improvements in public health and the emphasis during the Great Leap Forward of increasing medical service availability (Lampton 1974). General improvements to healthcare did lead to results beneficial to population growth (such as decreases in infant mortality, as in figure 5), though these benefits mainly accrued during the post-1958 period. While the rest of the world experienced earlier declines in infant mortality, the CPC was a laggard in adopting some general health-care policies that would reduce the risks of childbirth

and did so in a piece-meal and fragmented manner relative to other countries (Lampton 1974). China's initial population surge commenced in 1949 yet infant mortality did not begin to decrease significantly until the late 1960s. As with increases to life expectancy, the decline in infant mortality contributed the second population burst from 1962-72, but cannot be said to have had an impact on the initial surge from 1949-60.

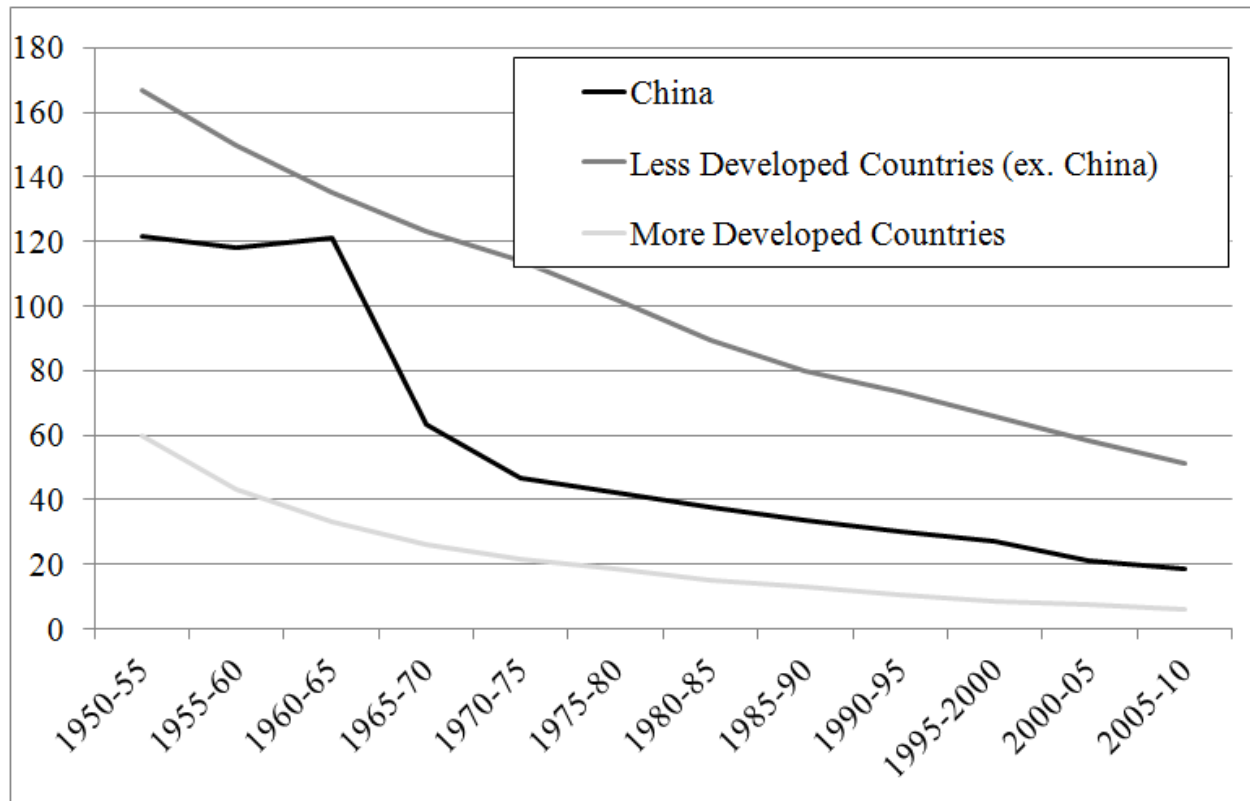


Figure 5: Infant Mortality Rate (per 1,000 births)

Source: United Nations Population Division, Available at <http://esa.un.org/unpd/wpp/> (Accessed 27 Nov. 2014)

Finally, one could point to increases in real economic growth as being a driver of Chinese population growth. Although standard growth models place increases in population as one of the main drivers of real economic growth in both theory and practice (Mankiw *et al* 1992), one alternative view sees wage growth contributing to the birth rate, and ultimately to the total

population (Greenwood *et al.* 2005). Chinese economic growth was strong through the early 1950s, though in general it lagged the majority of the world for the majority of the 20th century (figure 6). Even during its short burst of economic success in the 1950s, real growth was no higher than in the rest of Asia or Europe. While both of these regions also experienced population surges of sorts during the immediate post-War period (figure 3), Europe's was from an admittedly low level considering the military and civilian casualties of the war. At any rate, China's sluggish rate of economic growth during the 1960s could also not explain the maintained population surge under the same reasoning that uses the economic growth of the 1950s as the driver of that decade's population growth.

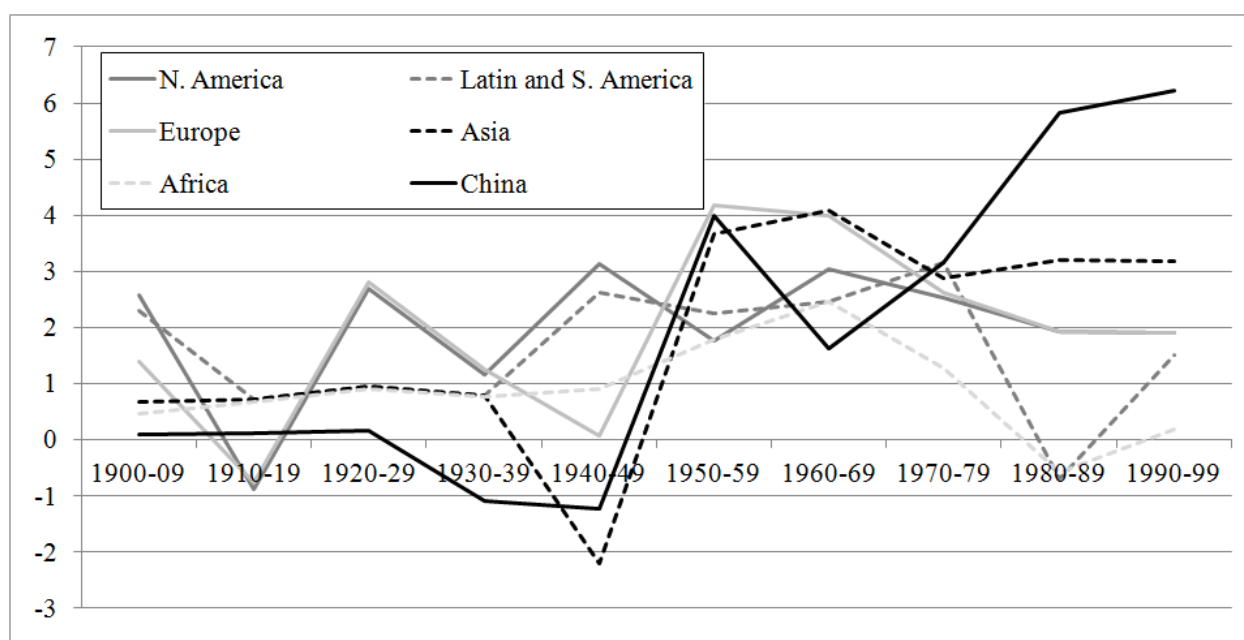


Figure 6: Annual real GDP/capita growth by region (percent)
 Source: Portal for Historical Statistics, available at <http://www.historicalstatistics.org/> (accessed 27 Nov. 2014)

Since general economic conditions were not exactly positive throughout whole period of 1949-79, we can withdraw the hypothesis that population growth was a natural response to the

increased carrying capacity of the economy. Alternatively, since immigration into China was minimal during the 20th century we can remove this alternative as a source of population growth. Focusing narrowly on the total fertility rate, China's average increased continually until 1965 when it peaked at 6.2 births per woman before declining swiftly into the late 1970s. By contrast the OECD countries were already on a declining path from the late 1950s and data from the United Nations (n.d.) shows that the average for the least developed countries of the world hovered around a high plateau of 6.5 until the early 1970s. Again China is unique by developing country standards for having a somewhat lower fertility rate which started to normalize with the rest of the world nearly 10 years before its peer group. What is also unique about China's fertility rate (which unlike general health measures *does* correlate well with the population surge from 1949-79) is its sudden rise in the early 1950s and swift decline through to 1979. Thus it is the rise in births per woman that served as the primary driver of China's population growth. As we will see, two important pieces of legislation motivated Chinese citizens to have children as a method to escape their subsistence lives.

Maoist pro-natalist policies

As a capricious leader, Mao's population "policies" were also in a constant flux. The official description of the population theory espoused by the PRC prior to 1979 was later referred to as erroneous, mainly due to a Maoist recklessness accompanied by fantasies inconsistent with the country's social situation (People's Government of the People's Republic of China 1980). On 18 December 1962, the CPC's Central Committee and the State Council issued a document entitled "Instructions on Promoting Family Planning Seriously."¹² It stressed that party committees and

¹² Available from the database of important news and documents at CPCnews, <http://cpc.people.com.cn/GB/64184/64186/66669/4493533.html>

local governments should seriously strengthen their involvement in family planning issues in both rural areas and densely populated cities. While there were few explicit policies, we can interpret Mao's implicit policies as a factor that influenced population growth over his leadership.

In the early 1950s, Mao and some other key leaders began to support some form of a family planning policy. Ma Yinchu made several lectures and reports favoring family planning at national conferences (Wang 2008). Mao's attitude at the time was mostly ambivalent on the topic and as a result such ideas never came to be implemented as policy. However, by late 1957 the Great Leap Forward brought the country to the early stages of the largest social reform ever undertaken. Mao did not know whether the population should be higher or lower, but overstatements concerning food production over this period altered his thoughts to be more favorable of population growth (Wang 2008). As a result, Mao affirmed his support for a growing population, assured by false reports of production.

With Mao decided in his support for promoting population growth, his ministers were free to draft policies to implement this viewpoint. On 9 July 1957, Mao met several important public figures from outside of the party to hear their opinions about the forthcoming Great Leap Forward. In that meeting, Shao Lizi, himself a supporter of family planning policies, suggested to Mao that he reconsider controlling the population. Mao's answer was that "the population problem is not serious yet, and would not be until the population reached 800 million" (Wang 2008). As a blind proponent of social engineering and ever optimistic about the CPC's ability to overcome trials, Mao even went so far as to state that "under the leadership of the Communist Party, as long as there are more people, miracles will be created!" (Wang 2008). While there is debate as to the extent of Mao's unilateral control over the country during the period, his

authority was unrivalled and unchallenged. On issues in which he was interested, “he exerted the dominant influence. He always got his way if he so chose, and his words had to be obeyed” (Chang 2001: 6-7, see also Tiewes and Sun 1999). In effect, Mao’s beliefs were translated into policies applicable to the entire country.

In the following several years, Mao made oral encouragements for a larger population, not only being blinded by the overstatements of food production and the unrealistic enthusiasm generated during the Great Leap Forward, but also in response to new threats from China’s former close ally, the Soviet Union. After the death of Joseph Stalin in 1953, relations between Nikita Khrushchev and Mao deteriorated, and formal Sino-Soviet relations began to decline. The rectification of the personality cult by Khrushchev after Stalin’s death and some other diplomatic conflicts between the two countries made Mao wary of his neighbor. As one Chinese saying goes, two tigers cannot live on the same mountain, and so too was the feeling among CPC officials regarding the two socialist countries bordering in northeast Eurasia. During his second and final visit to Moscow in 1957, Mao Zedong gloated of being able to sustainably lose 300 million citizens (half the country’s population) in a nuclear war, such was his faith in the strength of the Chinese population to survive a prolonged conflict (Shen 2011). His belief in the “strength in numbers” approach as deterrence to international conflicts contributed to many statements during the Great Leap Forward amounting to the fact that “the more people, the stronger we are” (Mao 1958). A personality cult surrounding Chairman Mao existed in China at that time, and the leader’s opinion was treated as the supreme command. One result was a preference shift among the general population to satisfy their dear leader’s population whims through higher birth rates.

In addition to the increased preference for children aimed at pleasing Mao Zedong, improved medical and sanitary conditions also contributed to the baby boom before 1979. The

spread of vaccinations greatly reduced infant mortality. Between the outbreak of the First Opium War in 1839 until the end of the Korean War in 1953, China suffered from a nearly uninterrupted century of social strife which depressed population growth. The prolonged peace soon after the 1949 revolution produced the first extended period with no fear of wartime death. Similar to other post-war developing countries, China went through a common path: high birth rates coupled with low death rates to create a rapid rate of natural population growth.

Notwithstanding a brief decline in the birth rate during the Great Leap Forward and Great Chinese Famine of 1959-61 (caused mainly by mass starvation and related diseases, e.g., dysentery), from 1949 to 1991 the country's birth rate remained nearly continuously above 2% per year. Coupled with the declining death rate and ignoring the spike in deaths during the Great Chinese Famine, the natural rate of population increase (i.e., excluding immigration, which in any case was quite low) averaged more than 1.5% per year from 1956 until the early 1990s.

Children as a Response to Communist Remuneration System

Decades of socialism plunged much of the country into destitution. The *hukou* (Household Registration) system and the People's Commune System not only removed private property and initiative from agricultural production, but also confined farmers to allocated lands from which migration was restricted. Technological backwardness, institutional limitations and unsustainable stewardship of its publically owned natural resources (especially arable lands) left the country with a scarce amount of general resources, particularly food, to sustain its growing population (Howden and Zhou 2014). This problem was especially acute as poor monetary management by

the People's Bank of China reduced the purchasing power of the renminbi through high levels of inflation, and thus hindered the country's ability to import resources (Chang 2001: 3-4).¹³

After 1956, all lands were publically owned by either the state or local governments. The farmers of a village were divided into production teams, and how much food they could earn was decided by a points system (each hour worked earned 10 points for a man, 8 for a woman and 6 for a child). How many resources (e.g., food) a family received depended on the points earned through this system. Notably, as it was an hourly scale remuneration was not linked to production or contribution to output, but rather by having an individual available to work.¹⁴ Lacking an incentive to not only show up for work, but also to work hard, the system resulted in the low productivity that eventually led to its own demise. By 1978 this problem had compounded until land reforms became necessary. Starting that year farmers could sign long-term contracts with the local government to farm the land and market the produce.¹⁵

Having many children has been part of Chinese culture for thousands of years. This fecund aspect of Chinese society is often given as one reason why China's population was growing at such an unsustainable rate. A central theme in Ma Yinchu's "New Population Theory" (1957) was that traditional Chinese desires (such as to bear many children) still existed in modern China and that these were reinforced by many older aphorisms.¹⁶ While it is undoubtedly

¹³ Before 1978 there was no substantial consumer goods market in China, and we hesitate in making assertions concerning price inflation during the early years of the Communist regime. The quota system distributing goods among consumers was hampered by frequent, if not perennial, shortages in the absence of a price system to aid in economic calculation. However, some statistics point to high levels of imputed price inflation throughout the 1950s-1970s, which contributed to the difficulties in the central government supplying adequate rations. The National Bureau of Statistics of the PRC officially estimates that prices rose by 50% between 1951 and 1961.

¹⁴ There were distinctions in wages based on the skill level of the worker (Schurmann 1966: 96, 199). A dualism in the wage system commonly existed with state-owned factory and service workers earning higher wages relative to peasants and workers in "satellite factories" outside of the main administrative jurisdictions (*ibid.*: 389). In some cases remuneration was also linked to the total output of the collective though not to the individual.

¹⁵ More correctly, these contracts were with the so-called "collective", because all land in rural areas of the country were *de jure* "owned" by the village itself while its use was *de facto* controlled by the local government.

¹⁶ For example, there are three types of unfilial conduct, of which the worst is to have no children (and hence, descendents). This guideline comes from the ancient Chinese philosopher, and second most famous Confucian,

true that large families have been an historical fact, this is not a uniquely Chinese phenomenon. European couples in the 19th century averaged 4.5 children each, while most common estimates in the United States put the figure around 5.5 children during the same period (Münz 2007; Haines 2008). Large families were pursued throughout most of history due to two factors, neither one of which is unique to China. First, high rates of infant mortality gave rise to a preference for many children to ensure a sufficient number lived to adulthood. This sufficient number was guided by the second factor, which was the need to have children to care for elderly family members. Despite this historical preference for children, there were several additional factors created by the CPC that interacted to increase the demand for children among Chinese citizens.

First, under the socialist system parents had little need to calculate the marginal cost of raising an additional child, as all resources were provided by the state. As a result, the individual (or private) marginal cost of an additional child was reduced since the resources to care for the child were mostly provided for by the central government. In effect, parents responded by having more children than was sustainable given the resources of the country. More to the point, it was unnecessary from a narrow point of view to perform the calculus of whether the productive capacity of the parents could sustainably raise a child. While this failing posed no problem for any one individual (or couple) within the socialist economic system where each was provided according to his needs, for the system as a whole this calculation failure bred great instabilities as the increased demand for children was not met by a corresponding increase in production to sustain the growing population.¹⁷ As a result, parents tended to have more children than they could collectively support through their productive services.

Mencius, from around 372 – 289 BC.

¹⁷ To the extent that pregnant women and families with small children have lower productivity than would otherwise be the case, total production would have been reduced further because of the increased birth rate. We thank Robert Whaples bringing this to our attention.

The hukou system rules that children of Chinese parents will inherit their social rank, whether “citizen” or “farmer.” Although all citizens now have more flexibility in job selection, only those registered as “farmers” are able to work arable lands. This system was enforced very strictly before the start of the reforms after the death of Mao Zedong. Chinese who were identified as “citizens” could inherit their parents’ jobs in factories (or other non-agricultural) sectors, through a process that functioned as a hereditary custom. Moreover, “citizens” had more privileges under the hukou system, including employment in desirable jobs in cities and remuneration based on their skill set and job profile. “Farmers”, on the other hand, were fixed in their villages, and were remunerated for their labor according to a system of “working-points”. Under this system, having more children not only meant more laborers for the country (after a requisite time lag), but it also meant more points (and remuneration) for the family immediately.

While the socialist system in China generally resulted in widespread shortages and inefficient production methods, there was one good that was produced in relative abundance: children. Shortages during the Great Leap Forward coupled with the remuneration system of the socialist economic system left people with only one option to increase their availability of basic resources. Each additional child born would guarantee the family unit a greater availability of resources. The sustainability of the system promoting children to increase remuneration is not possible on a macroeconomic scale, as each additional child reduces the amount of resources available to all other Chinese citizens and will not contribute resources until a future date. However, by not having additional children a family would see its standard of living reduced by the drain on resources by other children, without compensating for it by having more children of its own. As a result, Chinese families were motivated to have as many children as possible lest

their standard of living continually decline due to the increased children of other families draining resources from their own availability.

While this reasoning makes sense as a one-time prisoner's dilemma, over thirty years some type of institution (formal or informal) should have arisen to detect the over-population problem.¹⁸ This is a reasonable theoretical claim to make, yet it is questionable whether any one individual could avoid falling prey to the dilemma given that knowledge of the resource constraint was only known to the CPC leaders in Beijing. Due to the collective nature of the Chinese economy, individuals had little knowledge of the connection between consumption and production. Since the pooled resources were centrally allocated among the country's citizens, any deficiency in production without a corresponding decline in rations would be seen as only a local and not economy-wide phenomenon. In short, the resource constraint would be unknown to all but those near the top of the rationing system. On the other hand, it is possible that Chinese citizens did learn of the collective folly of their reasoning to have more children, though by this time (e.g., the early 1960s) improvements to public health and the general provision of medical services had occurred and contributed to population growth through increased life expectancies and lower infant mortality rates (as discussed above, in section 4)

Thus, not only was the cost-benefit calculus of having children skewed by the socialist system (as the benefits of children were privatized among the family while the costs were paid for by the state), but widespread shortages motivated Chinese parents to maximize their number of children as a way to maintain their quality of life. Coupled with the proclivity to have children to satisfy the desires of the widely idolized Chairman Mao and the historic tradition to have many children, this incentive resulted in a short-term burst in the birth rate. Shortly thereafter advances in medical technology reduced the death rate. Consequently, the rate of population

¹⁸ We thank an astute referee for raising this point.

growth rose rapidly and remained at a high level until exogenously reduced by the one-child policy in 1979.¹⁹

Conclusion

China's one-child policy is among the most famous policies enacted in the wake of the country's Cultural Revolution. It is also among the most positively viewed policies, drafted to save the country from a neo-Malthusian fate. By keeping China's population from growing larger than would otherwise be the case, the 1CP has contributed to the boom that the country now finds itself amidst. (Instead of increasing output, as in any standard neoclassical growth model, Chinese population growth created such a binding resource constraint that it has been estimated that every 1% decrease in the population growth rate after 1979 has been associated with an increase of GDP by 1.2% (Hang and Leong 2014).) Despite its popularity, one question pertaining to the policy is rarely asked: why did China's population grow so quickly? This paper has achieved two goals in answering this question.

First, with the exception of the period from 1949 to the late 1970s, China's population grew no quicker than other comparable countries', such as Japan or the United States (excluding immigration). Over the whole of the 20th century, China's population grew only a little quicker than Japan's (1.2% versus 1.1% per year), and more slowly than the American and world averages of 1.3% and 1.4%. Nor is this apparent average population growth a result of low birth rates since the 1CP's implementation in 1979. Even during the most fecund years of China's baby boom lasting from 1949-1980, the average yearly population growth rate of 1.97% was

¹⁹ In this way, China's 1CP is a case study in Mises' (1929: 25) argument that interventions beget further interventions. Motivated to have an unsustainable number of children due to state controls over the labor market and worker remuneration, the CPC was "forced" to enact a further policy to force such motivated parents from having more children than the country could support.

hardly greater than the global average of 1.90%. In short, China's prodigious rate of population growth widely cited as the reason the 1CP was "necessary" is more apparent than real.

It is true, however, that China's population growth rate did spike suddenly in 1949 before leveling off in the late 1970s due to natural causes such as educational advancements and income growth. The second goal of this paper has been to explain why the country's population growth rate increased so quickly. Advances in public health that lengthened life expectancies and reduced infant mortality came later on, mostly after the end of the Great Leap Forward in 1961, and thus are unable to explain the early surge in population growth from 1949-59. Furthermore while part of the later population surge from 1962 to 1979 can be attributed to better medical care, these factors alone cannot explain the case of China since life expectancies were increasing across the globe but China alone witnessed the magnitude of population growth that it did.

The personality cult following Chairman Mao during his rule enticed millions of Chinese citizens to obey his faintest command. Mao's belief that a large population was necessary to secure the country's borders and aid in the communist party's industrialization policy whipped up a fervor to have more children to satisfy the leader. While this factor explains the ideological shift towards having more children, the fact that so many parents actually did follow through by birthing larger families stems directly from another of Mao's policies.

The hukou system nationalized all the country's lands, and remunerated workers by their labor hours instead of their output. At the same time, the scarcity that plagued the country after the Great Leap Forward, left parents with few options to provide a better life for their families. Paradoxically perhaps, one way to increase family earnings was to have additional children. Although children were remunerated less than adults by the Chinese government, they still provided an important source of resources for their family. Chinese parents tried to escape

poverty by having children as a source of income. Unfortunately, while such a policy might work on an individual level, for the economy as a whole it meant more scarce resources diverted to citizens (the newborn children) who would not be capable of producing until sometime in the future. Scarcity worsened, and since the communist government was unwilling to introduce significant market oriented reforms, the only alleviation would come from limiting the amount of new children entering the economic system each year. The 1CP was born.

Thus, not only was China's average population growth rate not higher than the rest of the world during the whole of the 20th century, its baby boom fits within a remarkably compact 25-year period. The start of this period also coincides with the Cultural Revolution, and taken together the rapid population growth starting in 1949 occurred because of parents bearing children to receive additional resources from the government in a bid to alleviate the individual scarcity foisted upon them by the Communist regime.

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