

A Study of the Universal Two-child Policy's Impact on China's Future Population

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Abstract: The most essential step in adjusting and improving the childbearing policy, the universal two-child policy will produce far-reaching impacts on the future development of China's population. With its implementation, the country's total population will peak later, the underage population and its proportion will increase substantially, the working-age population will experience a slower decline, and the aging of China's population will be eased. However, the drop in the proportion of working-age people over the last 15 years has expedited the reduction of the demographic dividend, the elderly population will remain unaffected over the next 60 years, the aging of the population will continue to deepen, and at the same time, the increased child dependency burden will expand the overall dependency ratio.

Keywords: the universal two-child policy; underage population; working-age population; the aging of the population; family planning; demographic structure; demographic dividend

China's population development is highly complicated for two reasons: First, the number of people affected is enormous; a minor structural change is likely to morph into a major problem. Second, China has a childbearing policy with Chinese characteristics. For a long time, the adjustment and improvement of the childbearing policy has drawn the attention of the whole society, even the world.

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* Fund Project: The research has received grants from the National Natural Sciences Foundation as a major project (Project Approval No.: 71490731).

It is especially so after the launch of the two-child policy for couples where either the husband or the wife is from a single-child family. The direction China's childbearing policy would take has become a hot topic and widely discussed for some time. The phenomenon indicated the importance people give to the childbearing policy's impact on future population development. The restricted two-child policy was a preface to the new round of adjustment and improvement, whereas the universal two-child policy is the central issue. The universal two-child policy brings about new opportunities, but also produces new challenges.

1. Adjusting and Perfecting the Childbearing Policy: From the Two-child Policy for Couples where Either the Husband or the Wife Is from a Single-child Family to the Universal Two-child Policy

Over a relatively long period following the institution of family planning as a basic national policy, the childbearing policy remained stable overall, and was only fine-tuned locally. Since the Party's 18th national congress, efforts have been strengthened and the pace has picked up in carrying out a new round of adjustments and improvements: The Third Plenary of the Standing Committee of the 18th Central Committee of the Party included the two-child policy for couples where either the husband or the wife is from a single-child family in the major initiatives to deepen comprehensive reform and the Fifth Plenary of the Standing Committee listed the universal two-child policy as among the strategic tasks of economic and social development during the "13th Five-year Plan". However, whether it be local fine-tuning, or greater and faster adjustment and improvement on a national scale, the fundamental purpose is to co-ordinate

population size and structure and promote long-term, balanced population development. To adjust and improve the childbearing policy, we must first focus on characteristics of changes in population size and structure.

During the 1970s when the family planning policy featuring later birth, longer birth intervals and fewer births was established and gradually implemented, the population growth rate had significantly decreased for the first time since 1949. The annual net increase in population growth was reduced from 23.21 million in 1970 to 12.83 million in 1979 and the natural population growth rate was reduced correspondingly from about 2.6% to about 1.2%. In the 1990s, under the combined influence of the family planning policy and the economic and social development, the population growth rate declined significantly again. The annual net increase in population growth decreased from 16.29 million in 1990 to 10.25 million in 1999, with the natural population growth rate correspondingly dropping from about 1.4% to about 0.8%. In the 21st century, since the fertility rate basically stabilized at this low level, the population growth rate continued to slow, and the annual net increase of population decreased from nearly 9 million to 6.4 million at its lowest point, with the natural population growth rate dropping from about 0.7% to 0.48% at the lowest point. In 2010 and after, population growth entered the new normal with an annual net increase of no more than 6.7 million and a natural growth rate stabilizing at about 0.5% (the lowest level since the 1960s). In this process, the pressure on population size had been eased, but the problems with the population structure have become increasingly pronounced. The aging of population (at the beginning of the 21st century, the proportion of the elderly population aged 60 and over surpassed the "threshold level" marking the entry into an aging society) and the imbalance in the gender structure (in the first 10 years of the 21st century, the gender

ratio at birth topped 120, its highest level since 1949) plagued population development to a great extent, and thus had a profound impact on sustained economic growth and stable social development. To implement more relaxed, specific fertility policies under the framework of the basic national policy of family planning, and to optimize the future population structure (to slow the aging of the population and help reverse the gender imbalance), while controlling the size of the population to some extent, are the principal bases and policy objectives for the Party's decision to intensify and accelerate the speed of adjustment and improvement since the 18th Party Congress.

To change from the two-child policy for couples where either the husband or the wife is from a single-child family to the universal two-child policy is a path to follow in adjusting and improving the childbearing policy, and one that suits China's national conditions and reflects the unity between a clear objective and a gradual process. As a pilot to the universal two-child policy and transition link in the childbearing policy adjustment, the two-child policy for couples where either the husband or the wife is from a single-child family can release part of the accumulated fertility potential in advance and achieve the policy effect of a forward staggering baby boom (the childbirths under the restricted two-child policy peak in 2016 and 2017, while the childbirths under the universal two-child policy peak in 2018 and 2019). Moreover, it can help decision makers draw practical experience to deal with concentrated childbirths, create buffer conditions to change the mode of work, and win over the time needed for constructing relevant public facilities thereby laying a solid groundwork for the steadier, more orderly landing of the universal two-child policy that has a larger target population and accumulates greater

childbirth potential. The restricted two-child policy has a target population of about 11 million, and the total of potential childbirths is projected to be over 6 million.^[1] Assume that the target population's choices of having a second child are distributed evenly over five years, then during the two years from the adoption of the restricted two-child policy to the implementation of the universal two-child policy, the potential of about 2.5 million childbirths will be released ahead of schedule, which will alleviate the percussion of the shock in the childbirth rate following the launch of the universal two-child policy. Since January 2014 when the restricted two-child policy was adopted in all provinces, it started to deliver results. Either from the perspective of the amount of second-child applications^① or the number of hospital deliveries^[2] we can see the restricted two-child policy has increased childbirths, and although it put extra pressure on resources and services (especially in urban areas), the pressure is still in the manageable range. Since the restricted two-child policy has tested the social environment and created buffers, the timing of the implementation of the universal two-child policy can be more mature, and the conditions will also be more practicable.

The restrictive two-child policy must be followed by the universal two-child policy as the established course for the new round of adjustments and improvements to the childbearing policy. The universal two-child policy signals a fundamental shift in China's childbearing policy and is invested with new connotations of the times. First, the implementation of the policy reflects the change from a strict childbearing policy to a relatively relaxed one. Before the new round of adjustments and improvements, the single-child policy was adopted in urban areas while the "one and a half child" policy

① According to the tabulate data released by the National Health and Family Planning Commission, over 1.45 million couples where either the husband or the wife comes from a single-child family applied for childbirth around the nation as of May 2015.

(if the first child is a boy, the couple cannot have additional children but if the first child is a girl, they can have another child four or five years later) was mainly pursued in rural areas. The national policy fertility rate was only 1.47^[3] as a considerable number of people of childbearing age were restricted to only one child. Although the restrictive two-child policy had been successively adopted, it mainly covered young couples, and thus had a limited influence during the period it was in effect. The universal two-child policy, however, will affect a larger population. Most people of childbearing age in urban areas and nearly half of the people of childbearing age in rural areas may be eligible to give birth to a second child in the future. Second, the introduction of the universal two-child policy reflects the shift from group differentiation to universal unity in the childbearing policy. Before the new round of adjustments and improvements, China's childbearing policy not only has a rural-urban divide, but also differed between different regions and ethnic groups. For example, in rural areas of Hainan, Yunnan, Qinghai, Ningxia, Xinjiang and Tibet, the universal two-child policy has long been in place, while the one-child policy has been pursued in the rural areas of Beijing, Tianjin, Shanghai, Jiangsu, Sichuan and Chongqing. Therefore, the universal two-child policy basically eliminates the childbearing policy differences between urban and rural areas and among different regions, lifts the childbearing policy out of a fragmentary era, and contributes to achieving fairness among groups and unity within the country. In addition, its implementation may also promote the practical transition from being control-oriented to being service-oriented. As the limits are scraped, the boundaries of different groups are blurred, and the tasks to control are lightened, the administrative efforts can be focused on providing service. A huge change within the framework of the basic national policy of family planning, the universal two-child

policy will significantly affect the future development of the population, and hence have a profound impact on the economic and social operation.

In predicting the impact of the universal two-child policy on the future development of China's population, the emphasis should be given to its impact on the future trend of China's childbearing, and what is most important is to project the overall fertility level under the policy. Adopting the back-inference method by groups of people, the study calculates the total fertility rate during the period of childbearing momentum reduction, and, on that basis, predicts the total fertility rate after the momentum is reduced.

First, the new round of policy adjustments and improvements carries with it the childbearing momentum accumulated over the last two or three decades. The restricted two-child policy reduced part of the momentum, but the childbirth concentration is expected to raise the fertility level due to the enormous target population of the universal two-child policy. Relying on data from the 2014 national population change sampling survey, by examining the size of the target population of the universal two-child policy (including two main links: deducting the number of women of childbearing age according to the current fertility policy and forecasting the fertility rate at the policy-change year based on the current fertility rate), and analyzing the proportional distribution of second childbirth of the target population, we can estimate the childbirth concentration under the universal two-child policy (Integrate the size of the target population and the proportional distribution of its second childbirth with childbearing age to get the overall childbirth concentration size, and then combine them with the time of the second childbirth of the target population to calculate the annual concentration). Then, we can back-infer the fertility level under the universal two-child policy, and based on that predict the indexes of

future population changes. The method of classifying groups and elements directly produces data that are reliable, and logically clear without too much indirect estimation, thereby ensuring high quality. The results show that it will take roughly five years for the childbirth concentration under the universal two-child policy to be released, and the total fertility rate is expected to reach the replacement level (around 2.1), and ultimately fall to about 1.8.

Second, after the accumulated childbirth potentials of the universal two-child policy are unleashed, the fertility level will fall. But due to the expansion of the policy space, the total fertility rate is expected to be slightly higher than before the implementation of the policy (around 1.65), roughly between 1.70 and 1.75. With the gradual economic and social development, the fertility level will drop further on this basis. But the childbearing policy adjustment and improvement does not end with the universal two-child policy. By 2050, a more relaxed, and even encouraging childbearing policy is bound to be implemented. By the middle of the 21st century, the total fertility rate is expected to be stabilized at around 1.7.

This study aims to predict the future population development trends under the universal two-child policy. Considering both the restricted two-child policy and the universal two-child policy are integral parts of the new round of childbearing policy adjustments and improvements, the following will compare them with the original strictly followed childbearing policy and discuss the universal two-child policy's influence on China's population after 2015.

2. Total Population Size and Structure: The Delayed Turning Point and Irreversible Aging of the Population

The development trend of China's population will be profoundly influenced by the universal

two-child policy. From the perspective of the total population's size, the policy will raise the population peak, while delaying the population's turning point. It is especially so with the era of negative growth in population, where the policy's impacts become even more poignant. The projections (see Fig. 1) show that, if the previous strict childbearing policy remains unchanged, the inertial growth of the total population will continue, reaching its peak of about 1.415 billion by 2025. The year 2025 marks the beginning of the era of negative population growth. Thereafter, the total population will reduce at an increasingly high rate. By the mid-21st century, the average annual reduction in population will approximate 10 million, and the total population will be reduced to less than 1.3 billion (about 1.285 billion by 2050). Under the universal two-child policy, the total population will peak around the year 2028, at about 1.45 billion, 35 million more than if the original strict policy remains unchanged. The era of negative population growth will thus be delayed by three years. After that, the decline in the total population will be relatively flat. By the mid-21st century, the total population will basically remain at more than 1.4 billion (in 2050, about 1.383 billion, 100 million more than if the original strict policy is kept unchanged). At that time, the average annual reduction in population will be about 6million. The

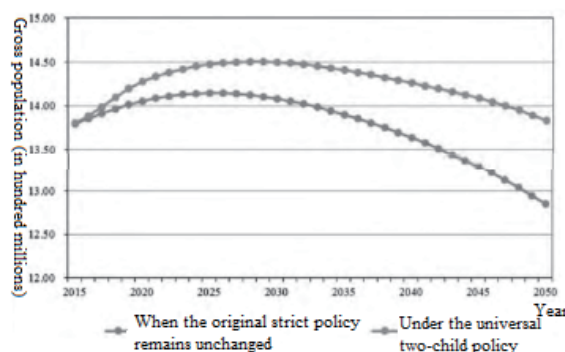


Figure 1 Change Tendency of the Gross Population Under Different Childbearing Policies(2015~2050)

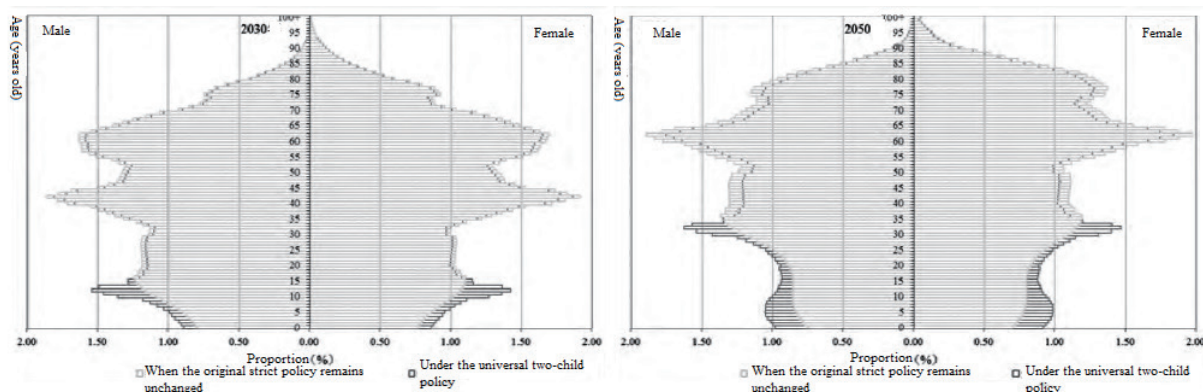


Figure 2 Comparison of Population Pyramids under Different Childbearing Policies (2030 & 2050)

rapid negative growth will be eased.

The impacts of the universal two-child policy are manifested not only in population size, but in population structure as well. For the next four or five decades, China's population will assume an overall trend of rapid aging. The reflection of this trend in the population pyramid will be the rapid expansion of the pyramid's top and the corresponding decrease of its bottom and middle parts. Fig. 2 includes the population pyramids in 2030 and 2050, which can be regarded as a microcosm of this process. If the original strict childbearing policy remains unchanged, China will enter the two periods, one where the proportion of the aged population increases at a faster pace and the other where the underage population decreases rapidly, as the population cohorts resulting from the second baby boom (born in the 1960s and early 1970s) and the third baby boom (born in the 1980s) successively become older (in Fig. 2, the population pyramid of 2030 basically reflects the population cohort from the second baby boom the senior age group causing obvious swelling of the top. The population pyramid of 2050 basically reflects the population cohort from the third baby boom entering the senior age group, causing an even more obvious swelling

of the top). By the mid-21st century, the middle and bottom parts of the population pyramid will have shrunk. The introduction of the universal two-child policy can alleviate this contraction. Fig. 2 reflects the results of the reduction in the accumulated childbearing potentials. China will experience a birth peak over a relatively short period which is conducive to stabilizing the proportions of the working-age population and the underage population. Nevertheless, the two-child policy only somewhat slows the aging of the population and is unable to put a stop to it. Under the general trend of the population's aging, the effects of the universal two-child policy are of limited significance.

3. Underage Population: Concentrated Childbirths Change Its Tendency

The underage population group is highly sensitive to adjustments in childbearing policies and both the size and proportion of this group will undergo changes immediately after the childbearing policy is adjusted. Under different childbearing policies, changes in the underage population's size and proportion will manifest distinct trends. Under the universal two-child policy, the size

and proportion will first rise, then decline before experiencing a small margin increase for the next 40-odd years, while if the original strict policy remains unchanged, the size and proportion will be in continuous decline over the same period.

After the universal two-child policy goes into effect, the number of childbirths will substantially increased. Influenced by this, the underage population will also grow substantially and experience a short-period peak. Forecasts (see Figure 3) show that the underage population will peak around 2022, at about 261 million. After the childbirth concentration following the implementation of the universal two-child policy, the underage population will experience a decline for around twenty years. During this period, its size will drop below 200 million in 2037, and will reach its lowest point of 194 million around 2041. From then on as this group enters childbearing age, there will be a small peak in the population leading to another small increase in the size of the underage population. The uplift will bring the underage population back to above 200 million around 2047, and send it to 203 million in 2050.

Forecasts show that if the original policy remains unchanged, the underage population could drop below 200 million as early as 2031, and fall to 155 million by the mid-21st century. Without

the addition of a newborn population produced by the adjusted and improved childbearing policy, the underage population under the original policy will be consistently smaller than that under the universal two-child policy. In the first half of the 21st century, when their difference reaches its maximum, the former will be 48 million less than the latter.

Forecasts (see Figure 4) show that the underage population's proportion will peak at about 18.2% around the year 2020 after which the proportion will be on a downward trajectory—it will fall below 15% around the year 2034, and fall to 13.6% around the year 2040. After that, the proportion will experience a slight rebound, but will only climb to 14.7% in 2050.

Judging from the above, we can conclude that the adjustments and improvements of the childbearing policy will give China an underage population that is larger in size and accounts for a higher proportion, thereby making the age structure of the total population younger. The new-born population resulting from the adjustments and improvements will generate a large demand for all kinds of maternal and child services and products in the short term, which is both an excellent opportunity and a great challenge for the maternal and child services market. Meanwhile, the adding of new births will result in a rising underage population hence a substantial

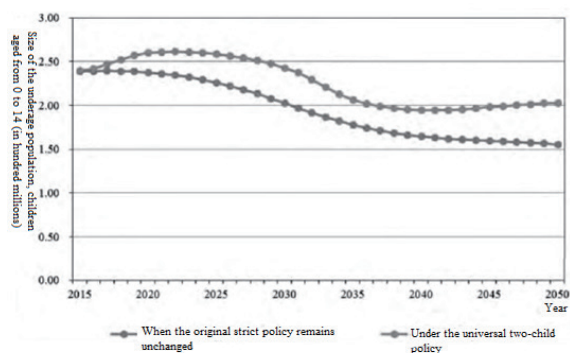


Figure 3 Change Tendency of the Underage Population Under Different Childbearing Policies(2015~2050)

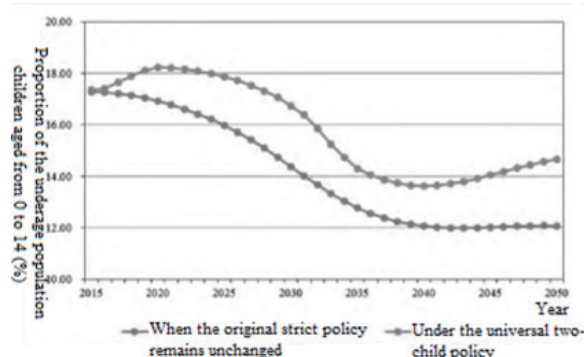


Figure 4 Change Tendency of the Underage Population's Proportions Under Different Childbearing Policies(2015~2050)

increase in the children dependency burden and cost to the whole society. Specifically, preparations in terms of child education infrastructure development and medical services supply should be made as soon as possible. However, in the long run, the larger underage population resulting from the policy adjustments and improvements will be transformed into a greater working-age population, which will help supplement the human resources for “old-age care” and “child nurturing.”

4. Working-age Population: Can a New “Demographic Dividend” Be Created?

The impact of the universal two-child policy on the working-age population, people aged from 15 to 59, will be manifested in the changes in the proportion of this group before the 2030s, and in the changes in the group’s size after the 2030s. However, the size and proportion of the working-age population will be unchanged in the following three aspects before the mid-21st century; the downward trend of its size and proportion will not change significantly, the evolution trajectory of its size before the 2030s will experience no change (which means the increase of the working-age population resulting from the universal two-child policy will only be achieved over a long term) and the trajectory after the 2030s will hardly change (which means that the raise of the proportion of the population group resulting from the universal two-child policy will only have a limited effect).

4.1 The decline in the size of the working-age population will slow

The decline in the size of China’s working-age population began in 2012 (its peak being about 940 million^[4]). For the subsequent decade, the size of China’s working-age population will decline

at a relatively small and stable rate. According to forecasts, by the end of the “13th Five-year Plan”, the working-age population will only be 20 million less than its peak. But as its size falls below 900 million (around 2024), its rapid decrease will be particularly salient during the middle and late 2020s. The forecasts (see Figure 5) show that during the 2026~2030 period the working-age population will decrease by about one percent per year with an average annual reduction of about 8.7 million. By 2030, it will fall below 850 million, about 90 million less than the peak.

If the original strict childbearing policy remains unchanged, this trend of rapid decrease will continue. Based on the forecasts, after the slight slowdown in the rate of reduction in the 2030s (the rate is still over 0.7 percentage point per year, with an average annual reduction of nearly 7 million), a steeper reduction rate of about two percent annually will appear in the 2040s, an average annual reduction of over 11 million. The working-age population will fall below 800 million around 2036, below 700 million around 2048, and about 660 million by the mid-21st century.

The universal two-child policy by contrast will slow the rapid decrease in the working-age population after 2030, especially during the 2032~2036 period. Because the new-born population under this policy will enter working age during

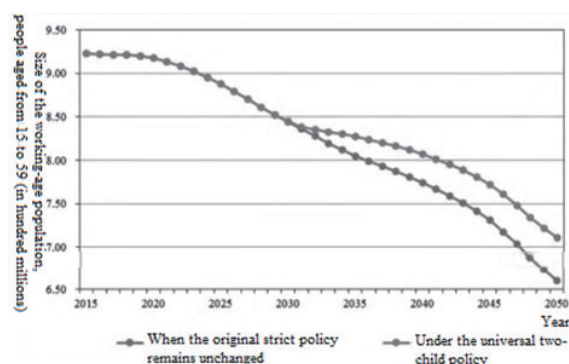


Figure 5 Change Tendency of the Working-age Population's Sizes Under Different Childbearing Policies (2015~2050)

this period, the rapid decrease of the working-age population will be discernibly curbed. The forecast results show that if the universal two-child policy is implemented, the losses in the working-age population will be reduced to 0.3 to 0.4 percent from the 0.9 to 1.0 percent projected under the original strict policy. The average annual reduction being less than 3 million under the universal two-child policy rather than the 7.4 million projected if the original strict policy remains unchanged. Thereafter, influenced by the adjustments and improvements in the childbearing policy, the rapid decrease in the working-age population will also slow to a rate of about 0.2 percentage points less than if the original strict policy remains unchanged. The size of the working-age population will fall below 800 million around 2042, and decline to around 710 million by the mid-21st century. Seen this way, the future medium and long term working-age population will highlight the effects of the universal two-child policy. By 2050 the working-age population under the universal two-child policy will be about 50 million more than it would be under the original strict policy. Against the background where the labor-intensive industries will continue to occupy an important position in China's economy and the expanding aging of the population will produce enormous pressure on old-age care, it is of prominent significance for stabilizing the economic growth prospects and increasing the elderly supporting capacity to have these extra 50 million workers.

4.2 The “demographic dividend” will decrease at a faster rate over the next 15 years.

At present, the working-age population account for about 68% of the total population. This number will be reduced to about halfover the next four or five decades (see Figure 6).^[5] If the original strict policy remains unchanged, the decline in the working-age population will be relatively small

and smooth during two periods, before 2020 and between 2034 and 2044 (the annual reduction rate being no more than 0.4 percent). But the decline will be sharper between 2020 and 2033 and in the middle and late 2040s (the annual reduction rate being above 0.4 percent), and the proportion of the working-age population will fall below 60%.

In terms of the implementation effects of the universal two-child policy, the proportion of the working-age population will remain lower than that under the original strict policy before 2032. The proportion's decrease, in large part, will be due to the new-born population resulting from the universal two-child policy being included in the underage population, increasing the proportion of the underage population and thus depressing the proportions of the working-age and elderly population. Because the elderly population is significantly smaller than the working-age population, the decrease in the former resulting from the universal two-child policy during this period will be significantly less than that in the latter. Therefore, increase in the proportion of the underage population will mainly depress the proportion of the working-age population, and the elderly population will hardly change over this period. Under the universal two-child policy, the proportion of the working-age population will fall below 60% in 2026, 4 years earlier than if the

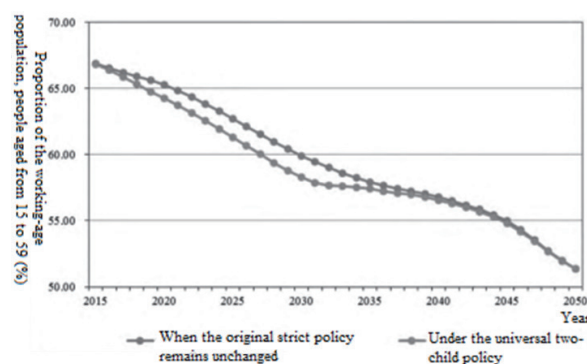


Figure 6 Change Tendency of the Working-age Population's Proportions Under Different Childbearing Policies(2015~2050)

original strict policy remains unchanged.

The proportion of the working-age population can be viewed as an important measure of the “demographic dividend.” “Demographic dividend” in its traditional sense refers in general to a sound population age structure that helps boost economic growth. It is generally believed that, when this proportion is large and the proportions of the elderly and the underage population are relatively small (commonly known as the “bulged middle and shrunk base and top”), economic growth can be supported with an abundant labor force, strong savings and, etc.; it hence can be seen as a “demographic dividend”. Thus, an increase in the proportion of the working-age population signifies a demographic dividend accumulation to some extent, and its decline means the abatement of the “demographic dividend”. Over the 15 years following the introduction of the universal two-child policy, the “demographic dividend” will accelerate its reduction as the proportion of the working-age population declines.

From 2032 onwards, the new-born population resulting from the universal two-child policy will gradually move into working age, moderating the decline in the proportion of the working-age population. After 2037, the change in the proportion will basically be the same as that under the original relatively strict policy. Since the universal two-child policy apparently adds to the working-age population, how come the policy does not effectively raise the proportion? Suppose P represents the total population of a year during this period, L represents the working-age population if the original strict policy remains unchanged, c is the new-born population added to the year under the universal two-child policy, and l is the increase in the working-age population under the two-child policy. For the purpose of simplicity, assume that the ratio between P and L is n ($P = nL$) and the ratio between c and l is

t ($c = tl$). Thus, in the year if the original strict policy remains unchanged, the proportion of the working-age population will be $1/n$, and under the universal two-child policy, the proportion will be $(L + l) / (nL + tl + l)$; the difference between the two is $(L + l) / (nL + tl + l) - 1/n = (nl - tl - l) / [n(nL + tl + l)]$. Whether the proportion of the working-age population under the universal two-child policy will be larger than that if the original strict policy remains unchanged depends on whether $n - t - 1$ is greater than 0, or whether n is greater than $t + 1$. The forecasts show that the increase in the working-age population for every year between 2037 and 2050 is roughly equal to the newly added underage population; therefore, $t \approx 1$, and $t + 1 \approx 2$. But look at the proportion of the working-age population for every year if the original strict policy remains unchanged, n approximates 2 (the working-age population's proportion $1/n$ inclines towards half). Hence, the proportion of the working-age population under the universal two-child policy is roughly equal to that under the original strict policy. When $1/n < 1/(t + 1) \approx 1/2$ (or the proportion of the working-age population under the original strict policy is less than half), the working-age population's proportion under the universal two-child policy can surpass that under the original strict policy. But this precondition is unlikely to materialize by the mid-21st century. Although the universal two-child policy can increase the size of the working-age population in the medium and long term, the proportion of this population group will hardly be raised. Based on the above, it is unlikely that the universal two-child policy could create a new “demographic dividend,” at least by 2050.

5. Aging of the Population: the Trend Is Delayed while the Elderly Population Swells

With the sustained and rapid economic and

social development, the aging of the population has always been one of the most typical features of the population's development. In light of the international population change patterns, population's aging is irreversible. This means that for the foreseeable future, whether the childbearing policy is adjusted will not fundamentally change the general trend of a continuously swelling elderly population. But compared with the original strict policy, the universal two-child policy will reduce the level of the population's aging to a degree, slow down the aging, and thus delay the overall aging trend.

5.1 The elderly population's size will remain unaffected for the next 60 years

The childbearing policy's adjustment and improvement will have a lagging impact on the elderly population, elders aged 60 and over. The newborn population resulting from the policy adjustment and improvement will enter the old age after 60 years, thus affecting the amount of the elderly population. Therefore, the policy adjustment and improvement will not affect the elderly population's size for 60 years. Be it under the original strict policy, or the universal two-child policy, the elderly population will exceed, in sequence, 300 million around 2025, 400 million around 2034, and climb to 470 million by the mid-21st century (see Figure 7). The whole society's pension funds expenditure, security system design, supporting infrastructure building and service system construction must be based on the overall size of the elderly population. The reasons why the old-age care confronts enormous challenges and is in a serious situation are: There will be an extremely huge elderly population in China in the near future; and the childbearing policy's adjustment will not effect any change to the elderly population's size over the next 60 years. It is unrealistic to look to the policy adjustment and improvement for alleviating the size pressure of

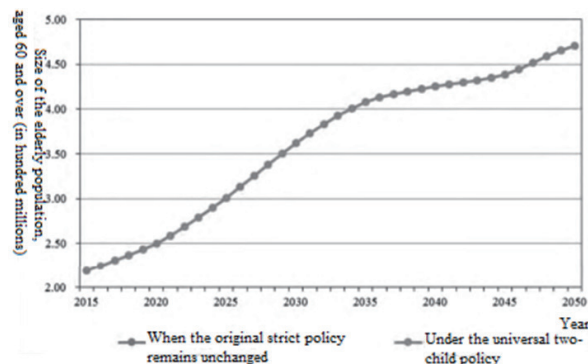


Figure 7 Change Tendency of the Elderly Population's Sizes Under Different Childbearing Policies(2015~2050)

the elderly population. It is required that the social security system and the elderly care service system be improved as soon as possible to cope with the huge elderly population size pressure.

While the overall size of the elderly population will continue to expand, the aging of the elderly population's age structure is also quite serious. As shown in Figure 8, from 2015 to 2050, the base of the elderly population pyramid will continue to shrink, whereas its top is constantly expanding. Specifically, the number of elders aged 80 and over will increase significantly, from about 25 million in 2015 to more than 50 million in 2032, and from there to over 100 million in 2048. As the advanced-ages have more deteriorated physiological conditions, the proportion of those who are partially or totally disabled is higher. Hence, a larger-scale and higher demand for medical services and a variety of long-term care services. The huge group of advanced-ages, exceeding 100 million by the mid-21st century, will add to the already severe conditions the old-age care is in.

5.2 The deepening of the population's aging will slow down somewhat

Compared to the original strict policy, the universal two-child policy will give rise to a large

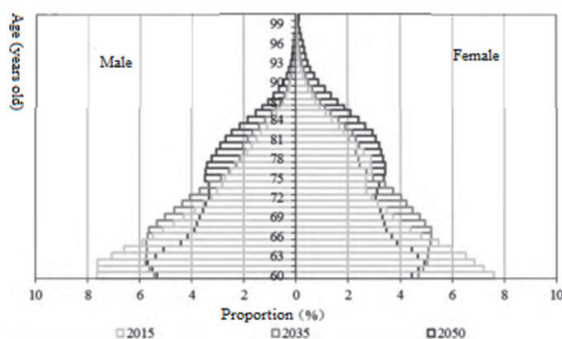


Figure 8 Change Tendency of China's Elderly Populations Pyramid(2015,2035 and 2050)

amount of new-born population, thereby raising the proportion of the underage population and relatively depressing the proportion of the elderly population. The degree of the population's aging will be somewhat reduced. Forecasts (see Figure 9) show that the elderly population's proportion will exceed 20% around 2024, 25% around 2031, 30% around 2041, and rise to about 34.0% in 2050. If the original strict policy is maintained unchanged, the elderly population's proportion will break at an earlier time through 25% (around 2030) and 30% (around 2037), and climb to about 36.6% in 2050. The implementation of the universal two-child policy will only make the proportion of the elderly population by the mid-21st century 2.6 percentage points lower than if the original strict policy remains unchanged.

To lift control over childbearing gradually can also somewhat ease the pressure generated by the increasing number of advanced-ages, though the effect will be much weaker. Under the universal two-child policy, the proportion of the senior population, elders aged 80 and over, in the total population will increase to about 7.9 percent by the mid-21st century. If the original strict policy remains unchanged, the proportion will rise to 8.5%. Even when the two-child policy for couples where either the husband

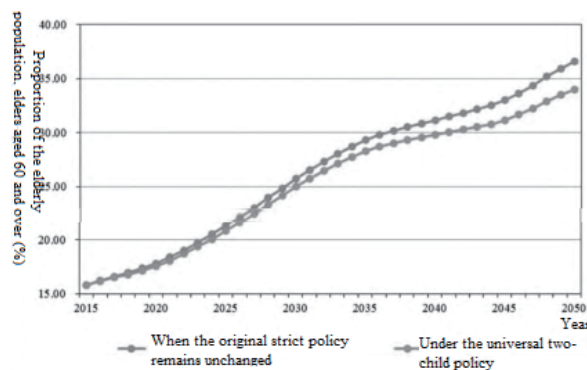


Figure 9 Change Tendency of the Elderly Population's Proportions Under Different Childbearing Policies(2015~2050)

or the wife is from a single-child family and the universal two-child policy are successively adopted, the proportion of the senior population will only be 0.6 percentage points less by the mid-21st century than otherwise.

5.3 The population's aging manifests a wave-like development trend.

As the size of new entrants into the elderly population fluctuates every year (see Figure 10), the population's aging will take on a wave-like development trend under different policies, or that the aging speed will alternate between raising and moderating. But whether it be the acceleration or slowdown in the aging process, the absolute growth rate of the aging under the original strict policy will be higher than that under the universal two-child policy.

The upcoming "13th Five-year Plan" period will be the first period of slowdown in the rate of aging. During this period, the late 1950s-born population cohort will move gradually into old age. They will no longer belong to the first birth peak, and will be relatively small in size, which means that the annual increase in the elderly population will be small, the growth rate of the elderly population will be relatively lower and the fast development

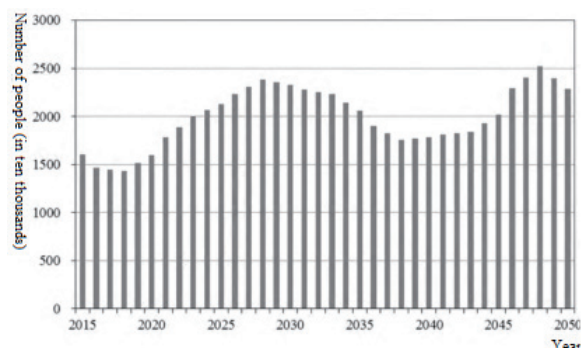


Figure 10 Change Tendency of the Number of New Entrants into the Old Age(2015~2050)

of the aging of the advanced-ages will be eased. If the original strict childbearing policy remains unchanged, the aging rate at this stage will average an annual increase of about 0.4 percentage points. Under the universal two-child policy, the fast development of the aging of the advanced-ages will be eased; besides, the gradual liberalization of the childbearing policy gives rise to more newborn population, increasing the proportion of the underage population by a larger margin and thus depressing the proportion of the elderly population to an extent. Therefore, the fast progressing of the aging of the elderly population pyramid's base is also restrained. The simultaneous moderating in the aging of both the base and the top will make the aging under the universal two-child policy rise only 0.3 percent annually.

Starting in 2021 and continuing to around 2035, the annual increase in the elderly population will grow significantly, as the population cohort resulting from the second childbirth peak will gradually move into old age; this is the period when the aging of the population will advance at the fastest rate. During this period, whatever the childbearing policy, the size of the elderly population will exceed successively 300 million and 400 million in a short period, with its proportion surpassing respectively 20% and 25%.

If the original strict policy remains unchanged, the aging of the population during this period will average an annual increase of 0.8 percentage points, while under the universal two-child policy, the number will be 0.7 percentage points.

Between 2036 and 2045, because the annual increase in the elderly population will decline, the aging of the population will enter another slowdown. If the original strict policy remains unchanged, the aging degree will be increased by about 0.4 percent annually, whereas under the universal two-child policy, the degree will be reduced by about 0.1 percent.

Beginning in 2046, the annual increase in the elderly population will be raised substantially, as the population cohort resulting from the third childbirth peak move into old age. Between 2046 and 2050, the degree of aging will average an annual growth of 0.7 percent if the original strict policy remains unchanged, whereas the number will be 0.6 percentage points under the universal two-child policy.

The childbearing policy adjustment and improvement will ease the degree of population's aging to an extent, slow down the aging process, but cannot fundamentally reverse the overall aging trend. In fact, with the economic and social development, people's childbearing willingness will stabilize at a relatively low level. So even if all the restrictions on the childbearing policy are lifted, China will not return to the era where every woman gives birth to 5 or 6 children on average. The entire population structure will not be young again. The huge size of the elderly population, the rapid aging of the elderly population and the deepening degree of the population's aging are all part of the future China will have to face. Therefore, it must be keenly noticed that the childbearing policy's adjustment and improvement are by no means the fundamental solution to the population's aging, and the effective

way to cope with this challenge is to perfect the social security system and improve the old-age service system.

6. Social Support Burden: Sharply Increased Underage Population Expands the Overall Dependency Burden

Dependency ratio is an index that quantifies the per capita social support burden on the working-age population from the perspective of demographic structure, and it is decomposed into: the child dependency ratio (the index measuring the per capita child nurturing burden among the working-age population), the elderly dependency ratio (the index measuring the average burden of providing for the aged on the working-age population) and the total dependency ratio (the index measuring the average burden of child nurturing and providing for the aged on the working-age population).

After the universal two-child policy is implemented, along with the significant increase, then fast decline, and slight rebound in the underage population's size, the child dependency ratio will correspondingly increase at first, then decrease, then rise again. The forecasts show that (see Figure 11), the child dependency ratio will reach its peak for the first half of the 21st century around the year 2027, the peak ratio being 29.2%. After this, the child dependency ratio will begin its continuous decline and reach its lowest point in the first half of the 21st century around 2039, at 24.0%. By the mid-21st century, the child dependency ratio will rise to about 28.5%. Different from the slight fluctuations in the child dependency ratio, the elderly dependency ratio will exhibit a strong continued rising trend. It will exceed 30% around 2023, 40% around 2029, 50% around 2036, 60% around 2047, and rise to 66.2% by the mid-21st century. Under the double

influences of the child dependency ratio and the elderly dependency ratio, the total dependency ratio will be constantly uplifted, topping 60% around 2024, 70% around 2029, 80% around 2044, and 90% around 2049. By the middle of the 21st century, it will reach near 95%.

On account of the child dependency ratio's variation trend differing from that of the elderly dependency ratio throughout the first half of the 21st century, the total social support burden on the working-age population has different compositions during different periods. Before 2025, since the child dependency ratio is still around its peak, and the elderly dependency ratio has not experienced any significant, rapid uplift, the child dependency ratio is roughly the same as the elderly dependency ratio. This means that during this period, the whole society is under the double pressure of "providing for the aged" and "children-raising", and the working-age population shoulder two such burdens that are of equal amount. This requires that the society's infrastructure building and public service system establishing be carried out in a way that accommodates the needs of the two populations. After 2025, the child dependency ratio will experience first a decline and then a raise, the ratio stabilizing at around 26%, whereas the elderly dependency ratio will start to rise dramatically, and

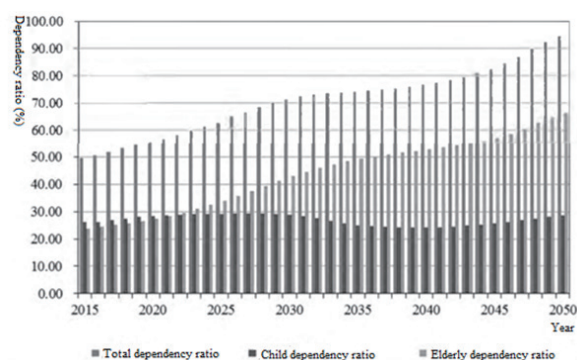


Figure 11 Change Trend of Dependency Ratios under the Universal Two-child Policy(2015-2050)

exceed the child dependency ratio by a large margin to become the lead role in the total dependency ratio. This signifies that during this period, the burden of “caring for the aged” is discernibly greater than that of “raising children” and the whole society is faced with the “old-age service” strain, which is the corollary of the continuous deepening of the aging process. In order to better respond to this situation, the infrastructure of the whole society and the public service system must be constructed at a larger scale and be tilted to the needs of the elderly population more quickly.

If the original strict childbearing policy remains unchanged, there will be no releasing of the cumulative childbearing potential and hence no increase in the underage population's size. Therefore, the child dependency ratio will be in continued slight decline, and be consistently lower than that under the universal two-child policy. Throughout the first half of the 21st century, the difference between the two ratios at its maximum will be over 5 percentage points. Compared with the original strict childbearing policy, the introduction of the universal two-child policy will result in a larger child-raising burden. It is, however, the opposite case with the elderly dependency ratio. The universal two-child policy can curb the reduction in the size of the working-age population to an extent, and whether the policy is adjusted, the elderly population will hardly change through the first half of the 21st century. For these reasons, after 2030 (before 2030, the working-age population's size under different childbearing policies remains the same, and the elderly dependency ratio remains identical), the elderly dependency ratio under the universal two-child policy will be lower than if the original strict policy remains unchanged. Under the original policy, the elderly dependency ratio will exceed 70% by the mid-21st century, standing at 71.2% in 2050. Because of the positive difference between

the child dependency ratio under the universal two-child policy and that under the original strict policy is greater than the absolute value of the negative difference between the elderly dependency ratios under the two policies, the total dependency ratio under the universal two-child policy will be consistently higher than that under the original strict policy throughout the first half of the 21st century.

Although the universal two-child policy will curb the rapid decline in the working-age population's size to an extent, thereby reducing the elderly dependency burden, the effect in this regard will only be a limited one. Besides, the policy will bring about a heavier child dependency burden relative to that under the original strict policy. Hence, the total dependency ratio under the universal two-child policy will be greater than that if the original strict childbearing policy is kept unchanged.

7. Conclusions

The universal two-child policy is the most critical part in childbearing policy's adjustment and improvement. It makes China's childbearing policy fit in better with the ideal number of children among the masses and closer to the replacement level in the population reproduction process. Not only does it profoundly influence the family structure, but also dramatically changes the demographic composition. Due to the launch of this policy, China will face the opportunities to promote the long-term, balanced development of population on one hand, and be subjected to the new challenges of increased dependency ratios and concentrated childbirths on the otherhand. Seen from the population projection results, the universal two-child policy's effects are mainly as follows:

The peak time of the total population will be delayed and the excessive negative growth trend will be controlled to some degree. In terms of the

population structure, however, the bulging of the top part of the population pyramid and the shrinking of its base and middle parts will not be reversed, though they will slow down. The aging of China's population will still be severe.

The large amount of new-born population under the universal two-child policy will significantly increase the size and proportion of the underage population, changing their continuous decrease if the original strict childbearing policy remains unchanged, and instead, making them rise dramatically first, then decline quickly and rebound slightly.

As the added population born under the universal two-child policy gradually move into working age, the continuous decline in the working-age population's size and proportion will be held back. For the next 40-odd years, China's total working-age population will still be larger than the working-age population in all developed countries combined. However, before the added population moves into working age, the population's proportion will decline significantly, rendering the demographic dividend in accelerated reduction. Furthermore, in

the medium and long term, it is unrealistic to rely on the universal two-child policy to create a new demographic dividend, at least not until the mid-21st century.

The universal two-child policy will not change the size of the elderly population over the next 60 years, not to mention reverse the general trend of a continuously expanding elderly population, increasingly deepened aging of the population and the growing severe aging situation. But compared with the situation if the original strict policy remains unchanged, the universal two-child policy will reduce the population's aging to some degree and slow down its progress, though this alleviation effect will only reduce the aging level by about 2.6 percentage points by the mid-21st century.

The universal two-child policy can slightly reduce the elderly dependency burden, but will bring about a heavier children dependency burden at the same time. Therefore, on the whole, the implementation of the universal two-child policy will aggravate the total dependency burden on society.

(English editor: Yan Yuting)

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