

EVENING KEYNOTE ADDRESS

Freer Choice, Lower Growth, and Higher Welfare: Recent Changes in China's Population Control Policy and the Impact on Its Economy

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Introduction

China used to be known mainly as the most populous but poor nation that was a small part of the world economy. Now it is more likely to be known as the largest single-country contributor to global economic growth as well as the most populous but fast-aging country.

The sheer size of the Chinese population almost guarantees that any significant changes to the country's population control policy will affect not only the future of the Chinese economy but that of the world economy as well. But there is more to it than that. The population control policy has also contributed to a side effect: a high degree of sex ratio imbalance for the premarital-age cohort, which recent research suggests can have profound effects on China's savings rates, current account balance, rate of entrepreneurship, and economic growth.

The Chinese population control policy is commonly known outside the country as the one-child policy. This is not quite right, as I will explain below, but it was approximately right at some point in time. Throughout the history of the People's Republic of China, which was founded in 1949, there have been quite a few changes to the population policy.

At the start of the People's Republic, the government had, in fact, attempted to encourage childbirth. This alarmed Professor Ma Yinchu, a Ph.D. economist graduated from Columbia University in the late 1940s and at that time president of Peking University, who thought that population growth was too fast. The total fertility rate then was 6.3 children per woman on average, meaning

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that many families could have 6, 7, 8, or even 12 children. Indeed, that was the case during my grandparents' generation.

Dr. Ma Yinchu thus advocated some measure of population control, but his proposal was essentially dismissed by Mao Zedong, the paramount leader of China at the time. Mao Zedong's view on population growth was that the attention should not only be on how many mouths need to be fed but also on how many hands come with more people. By this view, women who can produce many babies are "hero mothers." However, his comrades disagreed with him, and the government quickly pulled back on such advocacy, going from encouragement to silence on the subject to gentle suggestion for families to voluntarily limit their number of children.

China's Population Control Policies

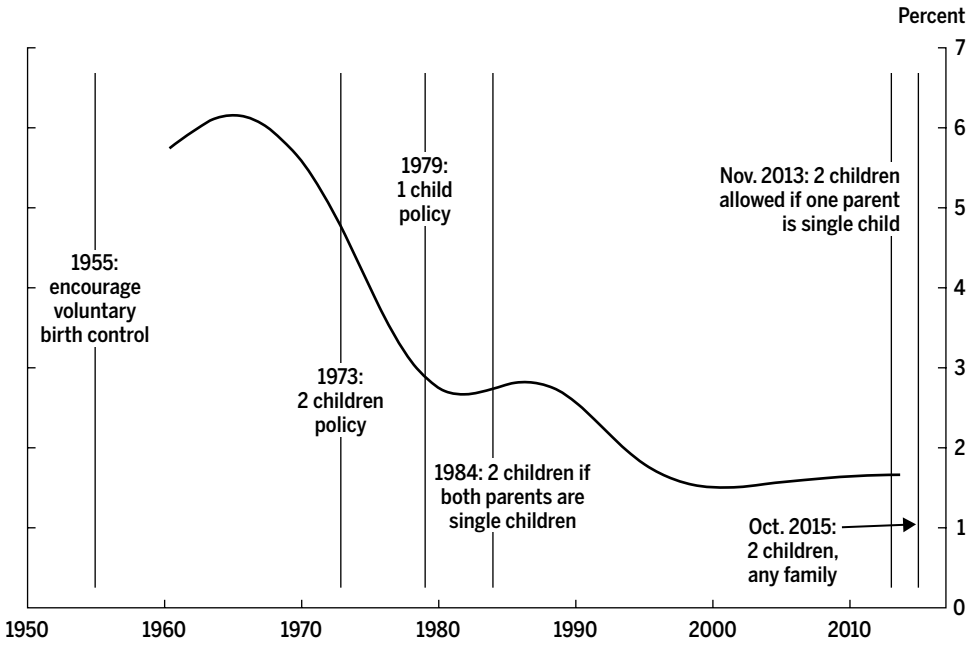
Beginning in 1973, the government formally encouraged its citizens to have no more than two children and to allow for longer spacing between children. There was no penalty for violating birth quotas at that time, but some people listened. My mother, my mother's sisters, and my mother's brother all had no more than two children.

In 1979, with Deng Xiaoping's ascent as the paramount leader of the country, the government came up with a much more stringent population control policy—the one that's commonly known outside China as the one-child policy. Going beyond the one-child quota would incur a penalty. Deng Xiaoping was a firm believer in family population control, and since then, China has adopted relatively stringent population control policies.

Nevertheless, some modifications were introduced along the way. In the mid-1980s, the government began to allow a second child in certain rural areas if the first child was a daughter. This is sometimes labeled by demographers as the 1.5-child policy. In more recent years, further modification has been adopted in many regions: a second child is permitted, regardless of the gender of the first child, if both parents are single children themselves. The policy was selectively implemented in different regions and spread very slowly, with the very last province adopting it in 2011. Figure 1 documents these discrete changes in policies, and the wavy line traces out the country's total fertility rate, which is the average number of children born per woman.

As Figure 1 shows, China initially had a very high fertility rate before it plummeted. The year 1979 was the turning point when the fertility rate fell very low; it continued its descent, so that starting from the late-1990s, it fell to a level of about 1.6 children per woman, which is below replacement rate.

FIGURE 1
Evolution of the Chinese Population Control Policy and Total Fertility Rate



People then began questioning the population control policy. But when Deng Xiaoping was alive, he was a firm believer in population control. He saw in the West that population did not equate to power. Even if the West had a smaller population, it had a much higher standard of living and was much more powerful than China. So population control was strictly enforced. In the performance assessment of lower-level government officials, staying within the population quotas has been a central element. While many aspects of performance—for example, how much foreign investment has been attracted and how much tax revenue has been collected—can be negotiated, it is said that observing population control is a non-negotiable item in the local officials' career assessment and promotion decisions.

Over time, as China's per capita income increased, households' intended fertility rate also declined (as one would expect from the experience of other countries without a strict population control policy). At the same time, the Chinese leadership came to the realization that, when it comes to a country's position on the world stage, the absolute size of the population, not just per capita income, is also useful, and that population must not be allowed to decline too fast.

In November 2013, the government relaxed anew its population control policy, allowing any family to have two children if at least one of the parents was a single child. So, the requirement went from having both parents as single children to just one of them being a single child. There were about 20 times more people who satisfied the second condition than the first condition, but that wasn't enough to revive the population growth rate.

In October 2015, the government announced the latest change to its population policy: any family can now have two children. There are roughly 10 times more families where parents are still in the childbearing age relative to the families where one of the parents is a single child.

Consequences of the Population Control Policy

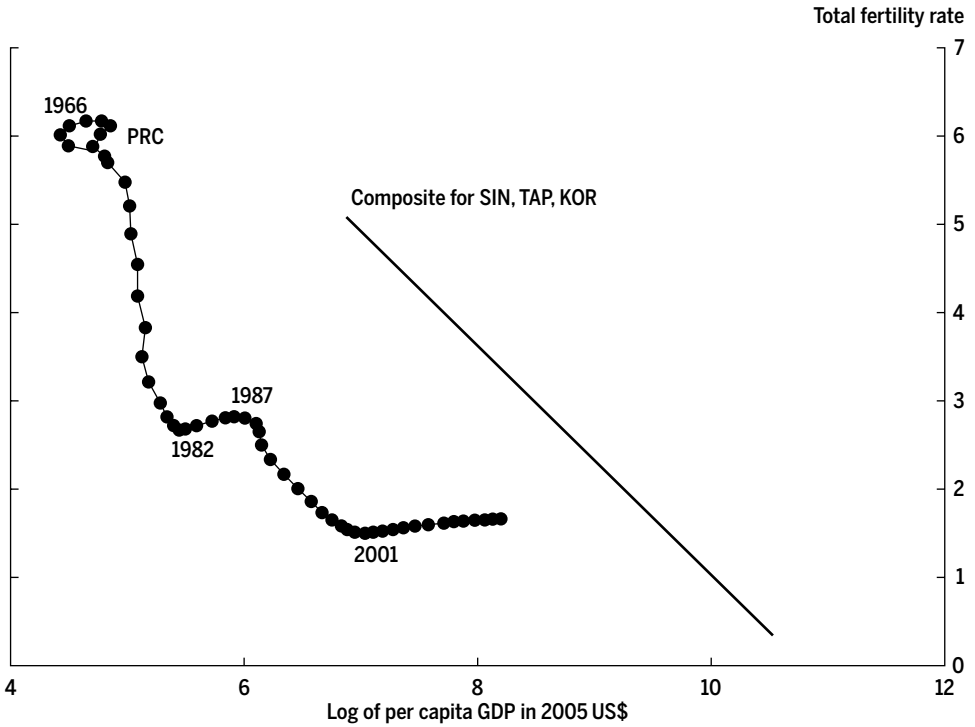
Did the population control policy make any difference? Some argue that it doesn't really matter, because globally, fertility rates naturally decline as incomes rise, especially when a woman's education goes up, and the social security system improves. There are many plausible reasons for a steady decline in fertility rate, but international experience suggests that this is a general pattern throughout the world.

Because of this general pattern, many argue that China would have gotten where it is anyway, even without population control. However, I doubt that argument. Look at Figure 2. The line with circles is the total fertility rate for China, the same as is shown in Figure 1, except now it is plotted against the log of per capita gross domestic product (GDP) measured in 2005 constant dollars. The solid line is the fitted line from a regression of the total fertility rate of Singapore; Taipei, China; and the Republic of Korea versus their log of per capita GDP in constant 2005 dollar terms.

Compared with these three economies, for the same income level, the Chinese fertility rate is substantially lower. This implies that something other than the normal pattern matters. Perhaps China's fertility rate would not have fallen that quickly without some factors that did not exist in places like Singapore; Taipei, China; and the Republic of Korea. The latter three economies are known to have a much faster drop in fertility rates than other high-income countries, and we also note that their current fertility rates are just about 1.5 children per woman.

Why is this relevant in this occasion? Standard theories suggest that output growth should be linked to at least two aspects of demography. But I think three aspects of demography should be considered simultaneously to help us understand why China grew as fast as it did in the previous three decades, why it is declining the way it is now, and how this might help us to think about

FIGURE 2
Total Fertility Rate vs. GDP: Comparison with Composite



Note: KOR = Republic of Korea; SIN = Singapore; TAP = Taipei, China.

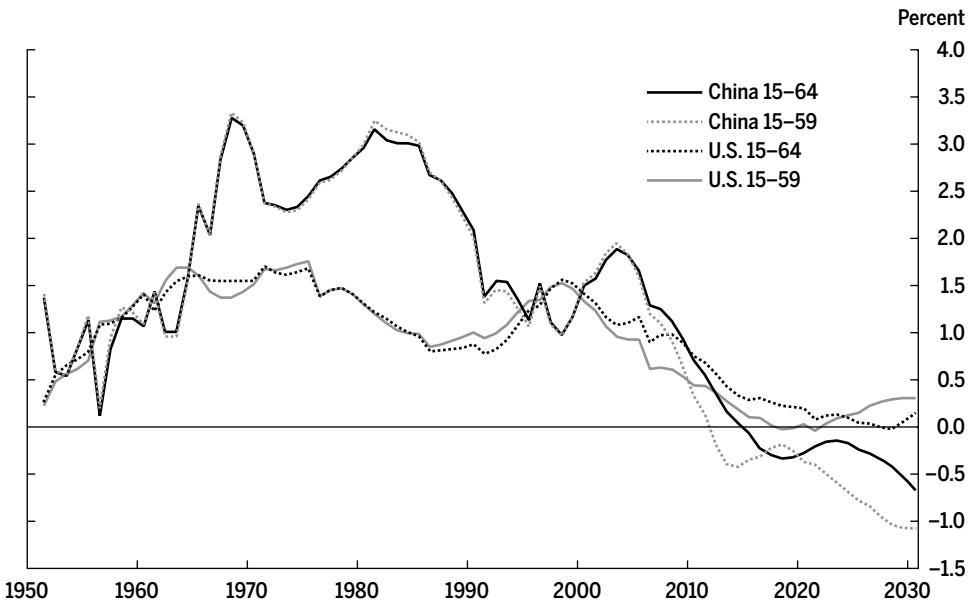
its likely growth trajectory in the future. The three aspects are the size of the working-age cohort, the dependency ratio, and the sex ratio for the premarital-age cohort.

China's Demographics and Growth

These three demographic aspects are not the only determinants of growth by any stretch of the imagination, but they are very important ones. The first two are easy to understand: growth of the working-age cohort and the dependency ratio. There already are well-worked-out theories that point to those connections. Figure 3 plots the growth rates of the Chinese working-age population, measured by two cohorts, 15–59 and 15–64. The top two lines are the China lines, showing growth rates from 1950 onward. As a benchmark, similar lines are plotted for the United States.

A key takeaway is that, for a while, the population control policy gave China a higher growth rate of its working-age cohort than the United States. But

FIGURE 3
Growth of Working-Age Population: China and United States



eventually the population control policies led to a dramatic decline in the growth rate, so much so that starting from 2011, the 15–59 cohort began to record a negative growth rate. The actual size of the working-age cohort is thus shrinking.

For the United States, the 15–64 cohort may be the more relevant proxy for working-age people. China has officially a much earlier retirement age, with most women having a legal retirement age of 50 and most men having a legal retirement age of 55. Some fraction of people—civil servants and highly educated people—tend to have a later retirement age, by five more years, though still relatively early.

Although the exact turning point may differ depending on the age cohort being considered, there is no arguing that by now, China is facing a shrinking working-age cohort, which is likely to persist or even worsen in the medium term. Figure 4 looks at the absolute size of the working-age population—the lower line for the 15–59 cohort, the upper line for the 15–64 cohort. The 15–59 cohort peaked in 2011 and began shrinking in absolute size. In theory, this implies that, holding everything else constant, this would lead to a lower GDP growth rate.

The other theory is that the dependency ratio has implications for growth, partly going through the savings channel. Figure 5 plots the inverse of the

FIGURE 4
Chinese Working-Age Population Peaked in 2011

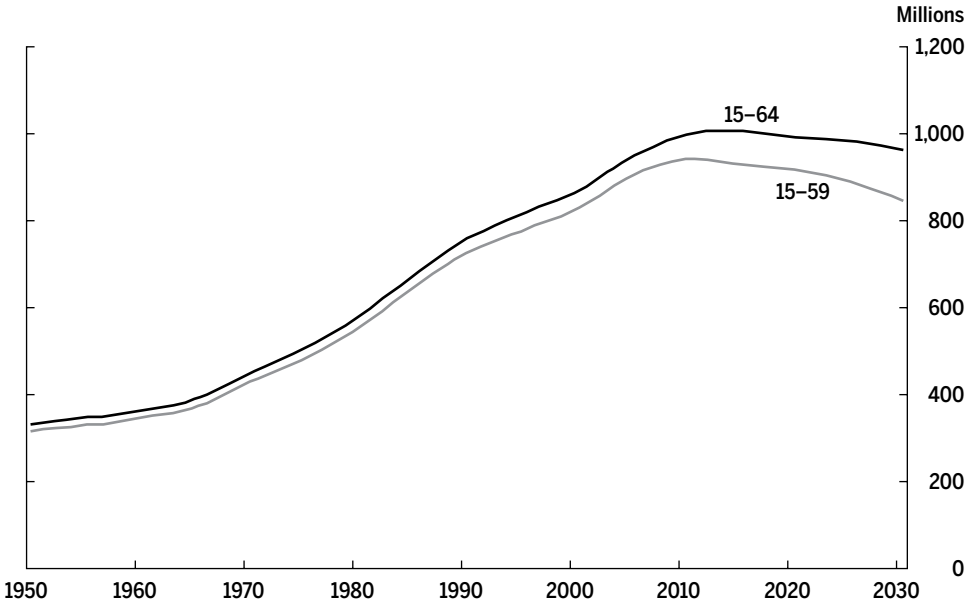
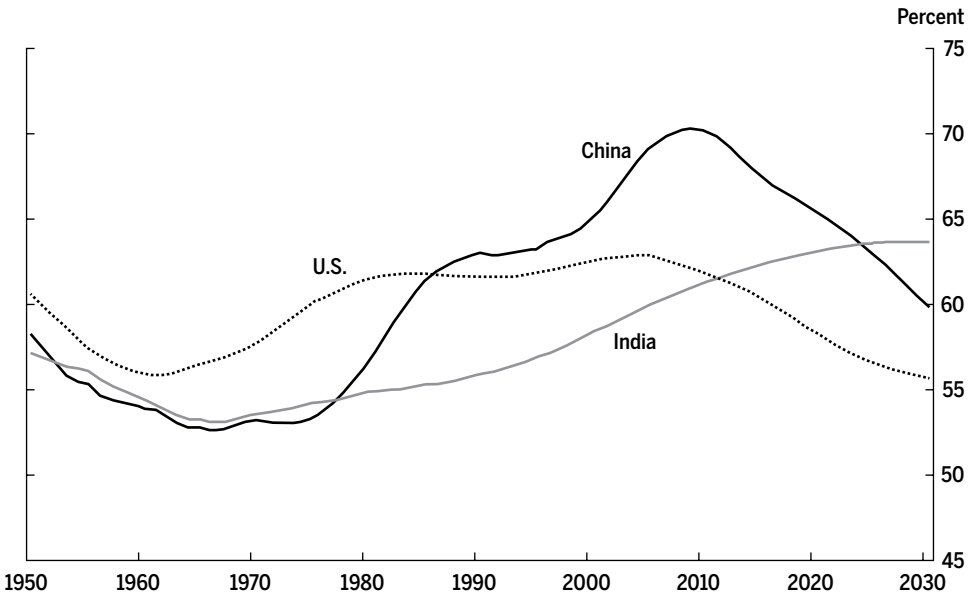


FIGURE 5
Inverse of the Dependency Ratio: Share of 15-59 Cohort in Total Population



dependency ratio, i.e., the working-age cohort divided by total population, over time.

The solid black line is for China, the dotted line is for the United States, and the solid gray line is for India, with the latter two countries added as benchmarks. The year 2014 is the latest actual figure; from 2015 onward, numbers are based on United Nations projections, based on the previous set of population control policies in force.

Here, the population control policy effect does show up, i.e., having fewer children born than what nature intended, starting from 1979 to now. China had an unusually favorable dependency ratio. Fewer children needed to be supported. However, the exact same policy is also responsible for China's switch now to unusually unfavorable demographics.

Too few children born in the past means fewer people entering the working-age cohort today, and yet their parents, grandparents, and parents' and grandparents' friends are retiring. So there are too few working people relative to people that need to be supported. The turning point is 2009 for China, and by the 2020s, its dependency ratio will become worse than India's. India's position is improving because of its relatively young population and high growth rate. China will become worse than India, and is on its way to becoming worse than the United States, not long from now if there are no significant changes to its retirement policies and norms.

The connection of these two variables—the dependency ratio and the working-age cohort—with growth is relatively direct and thus uncontroversial. But these are not the only variables affected by the population control policy. With the strict implementation of the population control policy from 1979 onward, China began to have an unusually high ratio of boys to girls, as well as of young men to young women, and this also has implications for China's current account position and growth.

Why would the population control policy lead to an unbalanced gender ratio at birth? It comes from two essential ingredients, and one additional ingredient, which, while not absolutely needed, can augment the imbalance.

The first of the required ingredients is parents' preference for a son. This is not unique to China then, nor today. This per se need not generate a gender ratio imbalance. In the past, this preference for a son just produced more children. It is not that parents want as few daughters as possible and as many sons as possible. Rather, parents want to make sure there is a son among their offspring. So in the old days, parents continued to have children until they had at least one son. This makes no significant difference by itself to the gender ratio.

The second ingredient is technology—a technology that allows one to tell the gender of the fetus relatively easily and abort a child relatively inexpensively. The most relevant technology in this context is the ultrasound beam machine. Although it was invented a while ago, for many developing countries it used to be a very expensive machine. In China, ultrasound machines in the 1970s and early 1980s were all imported. The ultrasound was intended to be a device to improve women's health. Because it was so expensive, hospitals very carefully recorded when they first got ultrasound beam machines. From their data, one can see the gradual spread of ultrasound beam machines in China. By 1985, about half of the county-level hospitals in China had at least one ultrasound beam machine.

The desire by parents to make sure one offspring is a boy, plus some reason to want to have fewer children than one's parents' cohort and grandparents' cohort, together with relatively inexpensive technology to allow gender determination very easily can collectively produce gender-selective abortions. Many countries satisfy these conditions. Viet Nam; India; Hong Kong, China; Singapore; and Taipei, China all do; and they all have gender ratio imbalances. But none had as severe an imbalance as China. Why? Because China had one more ingredient—a government-enforced, very strict birth quota, its population control policy.

Consider 20 couples, all with some preference for a son. The government says only one child is allowed. So after the first child, they stop. Assume 4 out of the 20 couples really want to make sure they have a son. Left to nature, approximately, 10 couples would have a son, the remaining 10 couples would have a daughter, and the ratio of boys to girls would be 1:1. If it is easy to determine the gender of the fetus, and the government also offers subsidized abortion, then perhaps 4 out of the 20 couples would choose to abort, i.e., they would have had girls but choose to abort girls. This will generate an unusually high boys-to-girls ratio at birth. In this example, even if the four couples who choose to abort the girls end up having two sons and two daughters later on, the boys-to-girls ratio becomes at least 12 to 8, or 1.5 to 1. In comparison, the natural boys-to-girls ratio at birth is 1.06, with no apparent cultural effect.¹

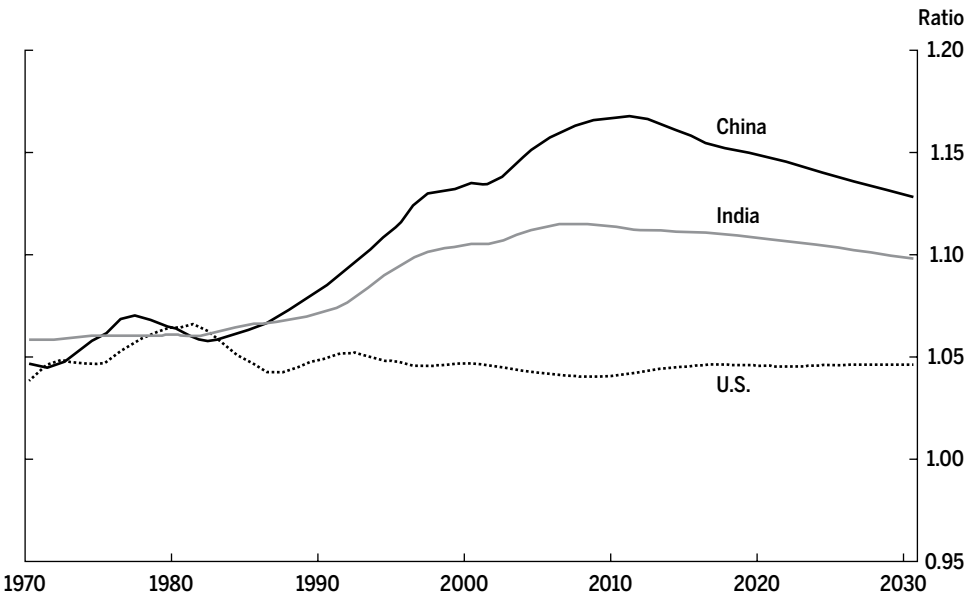
China, before the current strict version of its population control policy and before Deng Xiaoping came to implement his policy, had a ratio of about 1.08 boys to girls because of its two-children policy. So, it was basically balanced. But from 1979 onward, there was a steady increase in the boys-to-girls ratio at birth. By 2009, the nationwide ratio was 122 boys per 100 girls. It peaked in 2009, then started to decline a bit, but was still unbalanced.

Why does this matter? When an excessive number of boys is born relative to girls, it will eventually translate into difficulty for some young men to find girlfriends or wives. Look at the sex ratios for the 0–14 cohort in Figure 6. The United States has been at the natural rate, fluctuating around 1.05. China's sex ratio took off in the early 1980s and peaked in 2011 for the 0–14 age range at 1.17. At this ratio, 17 out of 117 boys on average or roughly one out of every seven young men cannot find a wife, mathematically speaking. But for age zero, i.e., sex ratio at birth, the peak was 1.22. This implies an even worse marriage market outcome for young men in the coming decade.

Imbalances at birth eventually lead to a relative shortage of brides. When there is a shortage of brides, people get anxious. People adjust their behavior. Most men want to get married. In the Chinese context, perhaps an even more relevant fact is that most parents with sons want their sons to get married. So they ask themselves, what can we do so that our son will not be in the involuntary bachelor category?

One of the useful things to have in the dating and marriage market is wealth—relative wealth, to be more precise. Wealthy men have an easier time finding a girlfriend or wife. Indeed, there are no wealthy involuntary bachelors.

FIGURE 6
Sex Ratio (Age 0–14)



The implication is that parents—and young men themselves—need to find a way to accumulate wealth. This leads to a heightened competition for wealth.

Making money becomes a lot more important than used to be the case. Wealth is always useful, but now there is one more reason to accumulate wealth, i.e., not having money will probably doom one's son to be involuntarily single. And that is a very, very big deal. Suddenly, the importance of accumulating physical wealth becomes much higher.

Wei and Zhang (2011a) came up with the term “competitive saving motive.” One implication is that people choose to raise their savings rate. The effect does not have to just go through the generation of young men; it can go through the parent cohort. Parents with sons raise their savings rate by cutting their own vacation, clothing, food, and other expenditures. As a result, the savings rate goes up.

For China as a whole, the sex ratio of the premarital-age cohort is about 1.15; this means that one out of every eight young men in that premarital-age cohort cannot find a girlfriend or wife. But there is a lot of variation across regions. Some places have a much stronger gender ratio imbalance than others. Wei and Zhang (2011a) find a very strong positive association between local household savings rates and local gender ratio imbalances. Holding constant the things that matter for savings rates, such as local income level, age composition of the local population, economic structure, race, and so on, the results still hold.

At the household level, this theory predicts a particular interactive effect, i.e., a combination of having an unmarried son at home and living in a region where one's son faces an extremely unfavorable environment in getting a girlfriend motivates parents to save even more—holding income and education constant. So this is no longer just about the fact that parents with a son save more than parents with a daughter—though this is true in the data on average. More importantly, comparing two sets of parents, both with a son and with similar income and similar other characteristics, those who live in the region with the highest sex ratio save more than the others.

The proximate reason for the imbalance is selective abortions. The deeper reasons are those explained earlier. While the family planning policy is national, i.e., set by the central government, implementation varies. In particular, the penalty a family has to pay when it violates the birth quota is set by local officials. More precisely, one of the determinants of today's sex ratio for the premarital-age cohort is the penalty set 15 or 20 years earlier by local officials. Using data collected by Harvard demographers on penalties for violating birth quotas by region and by year, Edlund et al. (2013) verified that those penalties seem to be mostly driven by the zeal of local officials.

In Wei and Zhang (2011a), we employ instrumental variables (IV) to make sure that the correlation patterns actually reflect causality. Based on IV estimation, we claim that about half of the observed rise in household savings from 1990 to 2009 could be linked to the rise in the sex ratio.

Since current account is saving minus investment, and though investment does not respond with an equal force, this also generates a natural link between the sex ratio and the current account. And that emboldened me to title one of my follow-up papers with Qingyuan Du “A Sexually Unbalanced Model of Current Account Imbalances.” But when that paper was published we changed the title to “A Theory of the Competitive Saving Motive” (Du and Wei 2013). It is a theory, and the theory is helpful in clarifying additional questions by discussing a number of extensions.

Let me just discuss one. We often hear people object to our theory, because they say that when the sex ratio goes up, even if parents with a son are induced to save more, women and parents with a daughter are likely to do the opposite thing, and the latter could offset the former.

But our theory says the effect is always positive: the higher the sex ratio, the higher the savings rate. For parents with a daughter, a rise in the sex ratio surely raises the probability of the daughter finding a husband. However, parents with a daughter want their daughter to marry the best possible man. In terms of wealth, the best possible man under an environment with sex ratio imbalance is better than the corresponding man without sex ratio imbalance.

The reward for the daughter to be matched with the best man is thus higher than used to be the case. Therefore, there is also competition among women and parents with a daughter. Parents would want their daughters to have the best chance to be matched with the best men. Competition among women and parents with a daughter encourages greater savings too.

Unfortunately, a rise in the aggregate savings rate that is triggered by a rise in the sex ratio is socially inefficient. While all young men (and their parents) hope to improve their chances of marriage by increasing savings and reducing consumption, such hopes cannot be realized in the aggregate, as the total number of unmarried young men for the country as a whole is ultimately determined by the sex ratio and not by the aggregate savings rate. The economy thus has excess savings that could be consumed or invested with no corresponding change in the marriage outcome. There are other extensions to the model, but this essentially can clarify some of the potential objections.

Fang, Gong, and Wei (2015) also undertake some lab experiments to document the competitive saving motive. A lab experiment has a few advantages one

cannot get in the data. For example, one can easily manipulate the gender ratio imbalance in either direction. Intuition says that the savings ratio goes up when you have either a surplus of men or a surplus of women, although the elasticity may not be the same, because the tolerance of men and women for being single may not be the same. This can be verified in a lab experiment.

Other assumptions made in the theory can also be relaxed. For instance, in theory one makes assumptions about the mating and marriage markets, and how people are matched. In the lab experiment, those assumptions can be relaxed and can be verified.

Note that the gender ratio imbalance turned out to be an unintended consequence of the population control policy. The government never wanted to create an unnaturally high boys-to-girls ratio. In fact, the government discouraged the abortion of girls and officially forbade doctors and hospitals from performing tests to determine the gender of the fetus. But people can get around this, apparently, without too much difficulty.

One of the ways to accumulate savings is to buy a house (Wei, Zhang, and Liu 2012). For most families, housing represents the single most significant form of household wealth. The competitive saving motive thus implies that the sex ratio is a determinant of housing prices. The greater the sex ratio imbalance, the higher the housing prices, other things held constant. Figure 7 shows four lines. Working with household-level data, we classify all households into four groups: (1) households with a son in a high-sex-ratio region; (2) households with a son in a low-sex-ratio region; (3) households with a daughter in a high-sex-ratio region; and (4) households with a daughter in a low-sex-ratio region. We plot the housing value against household income.

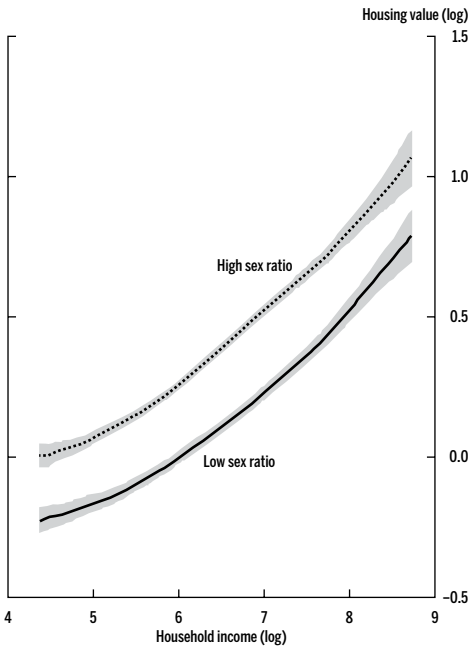
Not surprisingly, in every group, wealthier households tend to buy bigger and more expensive homes. The interesting thing is the interaction term, i.e., an average family with a son buys a more expensive home than a family with a daughter. Looking at just families with a son and with equal income, the family with a son living in a region where there is a more skewed sex ratio chooses to own a more expensive home, because the need for saving in anticipation of marriage and the need for saving to compete on the wealth dimension is greater.

Figure 8 shows another pair of graphs that plots the ratio of the average value of a home in the region to the average household income in the region against the local sex ratio. The left panel compares one rural area with other rural areas. The right panel compares across cities.

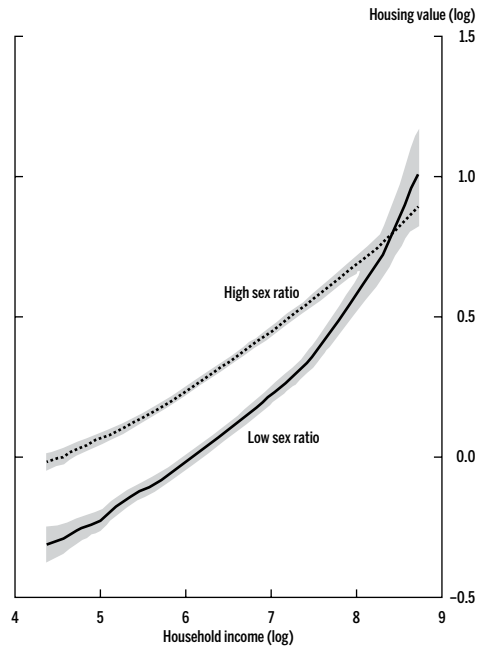
We find that, across the country, regions with a higher sex ratio have higher home values relative to household incomes. And this is not a result of comparing

FIGURE 7
Housing Value vs. Household Income

A With a Son



B With a Daughter



rural areas with urban areas; we are comparing rural areas with rural areas, urban areas with urban areas. One can see that the sex ratio is a predictor of housing value.

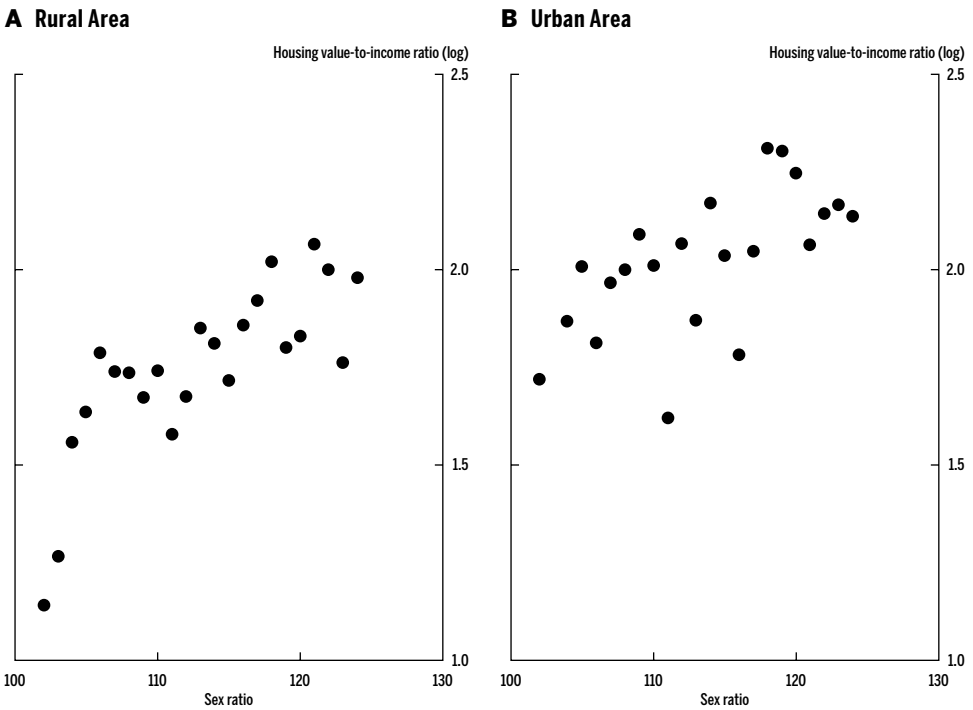
This follows very naturally from the logic of competitive savings, with one additional assumption, i.e., that the supply of houses is inelastic, unlike the supply of furniture or pencils. That assumption together with competitive savings gives this picture.

Implication for Growth

The implication for growth is also very natural. Again, a higher sex ratio leads to a stronger desire to create wealth. There are multiple ways to create wealth. For a given level of income, one can choose to consume less and save more, to leave it for the child's marriage time. The other way is to create more income. How?

We identify two channels. One is by choosing to work more. We show that, by looking at household-level data on labor supply, households with an unmarried son in regions with a greater than average gender ratio imbalance for the

FIGURE 8
Housing Value-to-Income Ratio vs. Sex Ratio



son's cohort supply more labor. The second channel is by choosing to take more risks. If, on average, risk and return are positively associated, one of the ways to take more risk and earn more income is to be an entrepreneur. We document that regions with a higher sex ratio tend to generate more entrepreneurs, measured by the growth in the count of private-sector firms between firm census years, holding constant the local income level, economic structure, importance of the firm, and so on (Wei and Zhang 2011b). These two channels, i.e., higher sex ratio imbalances inspiring more people to want to be entrepreneurs, in spite of the risk, and to supply more labor, give higher growth rates.

Household-level evidence and IV regressions confirm this. Based on our IV regression, we conclude that the sex ratio imbalance generates about 2 percentage points extra in the growth rate. This means that without the sex ratio imbalance, in the previous three decades, instead of China being a 10 percent growth economy, it could just have been an 8 percent growth rate economy. While 8 percent is already a growth miracle, it is less miraculous than 10 percent. This helps explain why China is growing so much faster, given its supposedly very lousy institutions.

It also helps to understand another interesting feature about the Chinese growth trajectory, which is that Chinese growth through the 1990s was higher than it was in the 1980s. The Chinese growth rates between 2000 and 2011 were even higher than those in the 1990s. Now, the fact that China can grow faster than the United States is well understood. Both the convergence theory and international experience tell us that should be the case. But why did China's growth accelerate in the 2000s relative to before when its income has increased?

The gender ratio imbalance provides a very natural explanation for China's growth acceleration in the previous three decades, particularly since the shortage of brides became progressively worse from the 1980s to the 1990s and 2000s. The change in the growth rate is partly explained by the change in population policy.

This theory can help us to gauge implications of the recent changes in the population control policy on the future growth of the Chinese economy. A shift to the two-children policy will simultaneously generate a change in the dependency ratio and sex ratios in the coming years.

First, there will be a deterioration in the dependency ratio for at least the next decade and a half, because more children will be born and need to be supported. But there will be no change to the working-age population. It will take some time before it will lead to an improvement in that dimension of demographics. Second, it will lead to an improvement or correction of the gender ratio imbalance—not a complete correction, but a reduction in the gender ratio imbalance. This will produce a decline in the savings rates initially, before it starts to get better. In terms of growth rates, both the deterioration of the dependency ratio, initially, and the reduction in the gender ratio imbalance, by our theory, will lead to a reduction in growth rate. And when the growth rate reverses, it will tend to do so perhaps faster than standard convergence theory would predict.

The relaxation of the population control policy raises the welfare of Chinese citizens. Not only will they have more say about an important decision in their lives, but they will also face less pressure and less welfare loss from competitive savings, competitive labor supply, and competitive risk-taking that are motivated by a desire to improve the marriage market outcome for individuals but in the end will not alter the number of young men who will be involuntarily unmarried. Therefore, even if the change in the population policy could result in a lower growth rate, the social welfare still goes up. In this sense, a complete removal of any restriction on family childbirth decisions would be even better. This is the big picture that needs to be kept in mind.

At the same time, unchecked decisions on childbirth by individual households, while optimal for individuals, could have undesirable externalities collectively from the viewpoint of managing carbon dioxide emissions and climate change. That is a separate point and will require additional research to settle.

Conclusion

In this presentation, I summarize a new way of thinking about demographics and use it to interpret the impacts of China's population control policy for its macroeconomy and to make forecasts about the future of the Chinese economy as altered by the recent shift of its population control policy. In particular, I argue that when it comes to understanding the economic consequences of demographics, we need to pay attention to three, not just one or two, dimensions: the size of the working-age cohort, the dependency ratio, and the sex ratio of the premarital-age cohort. While the first two are relatively well understood, the economic effects of the third one have been explored in recent research and could benefit from further research. Indeed, my coauthors and I find sex ratio imbalances to lead men or their parents to raise savings, supply more labor, or engage more in entrepreneurship to accumulate more wealth to better compete for girlfriends or brides.

The recent relaxation of the Chinese population control policy—to allow for two children per couple in general—will likely worsen the dependency ratio over the next two decades and lessen the competitive pressure on savings, work effort, and risk-taking. While this could produce a lower growth rate in China than the standard convergence or cross-country growth regressions may suggest, it raises the welfare of the Chinese citizens nonetheless.

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NOTE

1 Famine can generate a temporary reduction in the boys-to-girls ratio, so there are more girls than boys being born in countries in years when there are famines. Intuitively, this could mean that when there is a shortage of food, it is more important to preserve future mothers than future fathers, to get the human race going.

GENERAL DISCUSSION

**Freer Choice, Lower Growth, and Higher Welfare:
Recent Changes in China's Population Control Policy
and the Impact on Its Economy**

Mr. Ostry: I really enjoyed your talk. But I didn't hear you mention education too much. When I think of young people and how they make themselves attractive to the opposite sex, I think of many things. But I would have thought having a good education was one of them. So I wondered whether you thought that the unbalanced sex ratio and the desire to make yourself attractive to the opposite sex might have had an effect on the desire to invest in education.

Mr. Wei: Education certainly matters. In my *Journal of International Economics* paper on the theory of competitive savings, we have an appendix section where the people can also compete through human capital accumulation rather than just physical capital accumulation. We show conditions under which the two can complement each other rather than be substitutes. In general, households will raise the children's education level as a way to be more competitive in the marriage market. The household chooses an interior solution and does both. It raises the savings rate, and also tries to get the children to study harder than otherwise is the case. In the data, the education channel seems to be a bit noisier than the monetary savings channel. When we go to micro data, what we found is that we get the right sign, but it's not easy to get consistently significant coefficients. That's one reason why we don't emphasize the education channel. It doesn't mean the story is wrong. It's just that so far we have not found clear-cut data to support it. But theoretically it's certainly possible.

Mr. Edwards: I have a short question. What do you think about a possible fourth channel on how the one-child policy has affected China's future growth? And that is the succession policy in family-owned firms if you have one child. Eighty percent of firms in China are family owned. The one child may not have the skills, the desire. Or the child may not actually live in China to take over the family firm. So it seems that one of the great crises facing China in the next 10 or 15 years is who's going to be running these firms.

Mr. Wei: It's an excellent point. On my recent trip to China, I visited a very successful privately owned firm that produces steel frames. The founder has one son. He sent his son to study in the United Kingdom and he got an MBA degree and came back. He's now an intern at, I think, UBS in Shanghai with the clear intent to take over his father's business someday. So there's tremendous pressure on a single child to take over the parents' business. But not all children have a preference or the ability to be a successful entrepreneur. So one of my other friends is in the business of trying to get entrepreneurs to think about professionalizing their management. That is, to think about how to separate the passing of their wealth to children versus passing the control and management of the firm to a professional manager. It's a thriving business, as many entrepreneurs are now reaching the age at which they have to think about succession. This is a very important problem in many developing countries and could have a big effect on private-sector growth in the future.