

**Research Assessment Exercise 2020**  
**Impact Case Study**

**University:** The Chinese University of Hong Kong

**Unit of Assessment (UoA):** 21 economics and finance

**Title of case study:** *The Relaxation of the Birth Control Policy in China*

**(1) Summary of the impact**

China implemented the strict and controversial One-Child Policy (OCP) in 1979 to promote human capital investment and economic growth. Junsen ZHANG's research presented in this impact case study revealed that the contribution of the OCP to the development of China's human capital was modest. Moreover, OCP was found to have adverse effects on other key economic outcomes. The results of these studies have stimulated debates among policymakers and the media, and provided the empirical foundation for policymakers to relax the OCP in 2016 and introduce the new "Two-Child Policy". In 2016, one of ZHANG's studies on the OCP was awarded the Sun Yefang Economic Science Award, which further raised public awareness of the key research results on this topic.

**(2) Underpinning research**

The theoretical foundation of family planning policy originated from the Quantity-Quality Trade-off, which was first proposed by the American economists Gary S. BECKER (1992 Nobel Laureate in Economic Sciences) and H. Gregg LEWIS. This theory posits that, as the number of children increases within a family, each child would receive less family investment in him/her, resulting in having lower human capital. Under the influence of this theory, many policymakers believed that population control policy could improve human capital levels in developing countries. China implemented the controversial OCP in 1979 to promote human capital investment and economic growth, and to control population growth. ZHANG's research examined this theory from multiple angles in the context of China.

ZHANG's published research with Hongbin LI and Yi ZHU revealed that such quantity-quality trade-off existed in China; they found that family size and children's education were negatively related [3.1]. However, this trade-off relationship was more evident in rural China, and such relationship diminished or even vanished in urban China. ZHANG's study with Mark ROSENZWEIG further examined the existence of such trade-off using data from the Chinese Child Twins Survey [3.2]. They found that having an extra child in the family decreased the schooling progress, the expected college enrolment, grades in school and the assessed health of all children in the family. They estimated that the OCP increased schooling attainment by at most 4%, the probability of attending college by less than 9%, school grades by 1% and incidence of good or excellent health by less than 4%. These results indicated that although the quantity-quality trade-off existed in China, its magnitude was relatively small and the contribution of OCP to the development of China's human capital was modest at most. These two studies were published in *Demography* and *Review of Economic Studies* in 2008 and 2009, respectively. These findings provided credible empirical support for additional research on the net economic benefits of the OCP. ZHANG's study with Mark ROSENZWEIG was awarded the Sun Yefang Economic Science Award in 2016.

ZHANG's research further evaluated the OCP's impact on other economic and demographic outcomes. His published research with Hongbin LI and Junjian YI in 2011 examined the effect of the OCP on the sex ratio (i.e. the number of men divided by the number of women) in China. They found that the OCP resulted in about 7 extra boys per 100 girls for the 1991-2005 birth cohorts, and the effect of the policy accounted for about 57% and 54% of the total increases in sex ratios for the

1991-2000 and 2001-2005 birth cohorts, respectively [3.3]. The social impacts of such change in the sex ratio were investigated in ZHANG's research with Lena EDLUND, Hongbin LI and Junjian YI. The results were published in the *Review of Economics and Statistics* in 2013 [3.4]. According to these results, the elasticity of crime with respect to the sex ratio of 16 to 25-year-olds was approximately 3.4. That is, the distorted sex ratio accounted for one-seventh of the rise in crime. Therefore, the imbalanced sex ratio, which was partly caused by the OCP, had driven up the crime rate in China to a certain extent. Accordingly, abandoning the OCP could contribute to the balancing of the sex ratio, which in turn could lower the crime rate in China. ZHANG's study published in the *Journal of Economic Perspectives* in 2017 summarized many of these findings and examined effects of the enforcement of the OCP on several family outcomes [3.5].

Taken together, the research presented in this impact case study indicated that the positive economic and social impacts of OCP were small or modest, while the negative impacts were large and widespread. ZHANG's research provided strong empirical evidence for considering to change China's population control policy and the prospects for the current Two Child Policy that replaced the OCP in 2016.

After the introduction of the Two-Child Policy, ZHANG continued to conduct research on the economic impact of the OCP. His research with Xuebo WANG showed that as a result of the OCP, the rural-urban difference in the birth rate had lowered the nation's average human capital investment [3.6]. As China's OCP was significantly more strictly implemented in urban areas than in rural areas, this could have significantly increased the rural-urban fertility ratio and induced a population compositional effect on human capital. They found evidence of such an effect, and the OCP actually reduced the average human capital level of China's next generation by approximately 1-2%. These findings offered further scientific justifications for the new policy.

### **(3) References to the research**

- [3.1] Hongbin Li, Junsen Zhang, and Yi Zhu, 2008, The Quantity-Quality Tradeoff of Children in a Developing Country: Identification Using Chinese Twins, *Demography*, Vol.45(1), pp.223-243.
- [3.2] Mark Rosenzweig and Junsen Zhang, 2009, Do Population Control Policies Induce More Human Capital Investment? Twins, Birth Weight, and China's "One-Child" Policy, *Review of Economic Studies*, Vol.76(3), pp.1149-1174.
- [3.3] Hongbin Li, Junjian Yi and Junsen Zhang, 2011, Estimating the Effect of the One-Child Policy on Sex Ratio Imbalance in China: Identification Based on the Difference-in-Differences, *Demography*, Vol.48(4), pp.1535-1557.
- [3.4] Lena Edlund, Hongbin Li, Junjian Yi, and Junsen Zhang, 2013, Sex Ratios and Crime: Evidence from China, *Review of Economics and Statistics*, Vol.95(5), pp.1520-1534.
- [3.5] Zhang Junsen, 2017, The Evolution of China's One-Child Policy and Its Effects on Family Outcomes, *Journal of Economic Perspectives*, Vol.31(1), pp.141-160.
- [3.6] Xuebo Wang and Junsen Zhang, 2018, Beyond the Quantity-Quality Tradeoff: Population control policy and human capital investment, *Journal of Development Economics*, Vol.135, pp.222- 234.

### **(4) Details of the impact**

The Quantity-Quality Trade-off theory posits that birth control should benefit individual human capital investment. However, the effects of implementing the OCP on various social and economic outcomes in China's 450 million families were relatively unknown.

The decline in China's population growth rate from 1.47% in 1990 to 0.48% in 2010 (World Bank, <https://data.worldbank.org/indicator/SP.POP.GROW?end=2010&locations=CN&start=1990>) and

its ageing population had aroused societal concerns and the need of changing China's family planning policy. The rising economic affluence of Chinese families also enabled Chinese couples to bypass the OCP by engaging in "birth tourism" outside China, creating serious policy concerns for many foreign governments (e.g., issues on asset transfer, immigration, and pressure on their public healthcare systems). While the Chinese OCP had been controversial, rigorous quantitative assessments of OCP's overall impact on various economic and social aspects in China were almost non-existent, rendering it extremely difficult to initiate evidence-based policy discussions and debates among relevant stakeholders. ZHANG's studies [3.1, 3.2] were among the first in estimating the consequences of the OCP using modern quantitative methodologies. His earlier studies revealed that the beneficial effects of OCP on China's human capital were modest at best. ZHANG's subsequent studies [3.3, 3.4] offered a holistic assessment of the negative economic impacts of OCP, including its effects on the sex-ratio and crime rate. These findings collectively indicated that the relaxation of the OCP may benefit the country in many ways, and that a policy change was necessary and urgent.

These consistent findings had attracted the attention of the relevant government departments, notably the National Health and Family Planning Commission (now renamed as National Health Commission).

In 2016, ZHANG's research paper with Mark ROSENZWEIG [3.2] was awarded the Sun Yefang Economic Science Award, one of the highest honours in economics in China [5.1]. In the official award ceremony, ZHANG gave a speech on how his research related to the Chinese population and encouraged more research on the impacts of the new Two-Child Policy. This speech was extensively covered in Chinese media [5.2], stimulated further policy discussions and set a new agenda as well as new directions for trans-disciplinary research on Chinese family control policy.

ZHANG's research presented in this case study has also gained the attention of influential think tanks and policy advisories. For example, The Heritage Foundation in the US had published a public document [5.3] on their views of the new "Two-Child Policy". They cited the evidence in one of ZHANG's studies [3.3]. Similarly, the United Nations Population Division had cited ZHANG's study [3.2] in an expert paper presented at the United Nations Expert Group Meeting on "Fertility, changing population trends and development: challenges and opportunities for the future" [5.4]. According to the preface of this expert paper, its purpose includes "...providing access to government officials, the research community, non-governmental organizations, international organizations and the general public to overviews by experts on key demographic issues".

The impact of ZHANG's research on OCP/Two-Child Policy has also attracted attention from both the national and international media. For example, his major conclusions based on the research reviewed above, as well as their implications on the Two-Child Policy, were featured and discussed in the *China Population News* [5.5], a national-level newspaper covering issues related to population policy in China. The British Broadcasting Corporation (BBC) had also cited ZHANG's research in their article on the Two-Child Policy [5.6]. In addition, a number of public media organizations invited ZHANG for interview and commentary on China's relaxation of the OCP, including the BBC, National Public Radio and China Global TV Network (CGTN) America [5.7]. All these illustrate how ZHANG's research has reached to the general public audience outside China, and stimulated discussions in influential international policy and media organizations. It is premature to assess the full impact of the Two-Child Policy. However, it was reported in a recent news article by CTGN America ("*New births still down in China, after implementation of two-child policy*"; July 2019) that the rates of couples having a second child are higher than those just having one and that the new policy is welcomed by some parents in China. ZHANG's work will continue to provide evidence-based guidance to policymakers and scholars on the economic and social impacts of the Two-Child Policy.

ZHANG's work in this area has become an important case study for teaching Development Economics to students around the world. For example, one of ZHANG's published studies [3.5] is an essential reading in the Economics of Development course taught at the College of Charleston in the US. His research work and findings have also been covered in the *Labor Security World*, a magazine that disseminates academic findings relating to labor and social security issues to research students throughout China [5.8]. These attest to the far-reaching and sustainable influence of ZHANG's research in shaping evidence-based family control policies in China and beyond.

#### (5) Sources to corroborate the impact

- [5.1] [Sun Yefang Economic Science Award in 2016](#) [Also Appended]
- [5.2] [新浪新闻, 张俊森: 我们面临的问题是怎么鼓励人家生二胎或三胎, 28 November 2017](#) [Also Appended]
- [5.3] [Sarah Torre, William Wilson and Olivia Enos, "An Economic and Humanitarian Case for Pressing China to Rescind the Two-Child Policy", Heritage Foundation, 18 November 2016](#) [Also Appended]
- [5.4] [Monica Das Gupta, "Women's Empowerment and Fertility: Policy Lessons", U.N. Population Division Expert Paper No. 2013/2](#) [Also Appended]
- [5.5] China Population News (中国人口报), 孩子数量增加会影响教育质量吗?, 23 September 2019 [Appended]
- [5.6] [BBC, 中國或廢計劃生育 專家稱不會帶來「嬰兒潮」, 23 May 2018](#) [Also Appended]
- [5.7] Interview Invitations from five media organizations (BBC, China Global TV Network (CGTN) America, Global Journalist, Le Temps, and National Public Radio) [Appended]
- [5.8] Labor Security World/Laodong Baozhang Shijie (劳动保障世界), 专家眼中的中国人口政策——回顾张俊森教授对计划生育政策的研究, October 2019 [Appended]