

Ask: NUS Economists

How to nudge couples to have more kids

Lowering long-term net cost of raising children yields more benefits than one-off Baby Bonus cash gift

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Q How effective are the Baby Bonus and other incentives in raising fertility rates?

A It is well known that Singapore has a problem with a declining fertility rate. In the post-war period, Singapore's total fertility rate (TFR) peaked in 1957 to more than six children per woman, but has declined steadily since then. TFR refers to the average number of live births each woman would have during her child-bearing years (that is, from 15 to 49 years old). For the population to replace itself (without immigration), women need to have an average of 2.1 babies. The extra 0.1 child per woman is to allow for death and for those who are unable to have children.

After the boom of the 1950s, in 1965, the year Singapore became independent, the TFR fell to 4.5. This was, however, still way above the replacement rate.

But by 1977, as the country modernised and women became better educated, the TFR was fluctuating below replacement level.

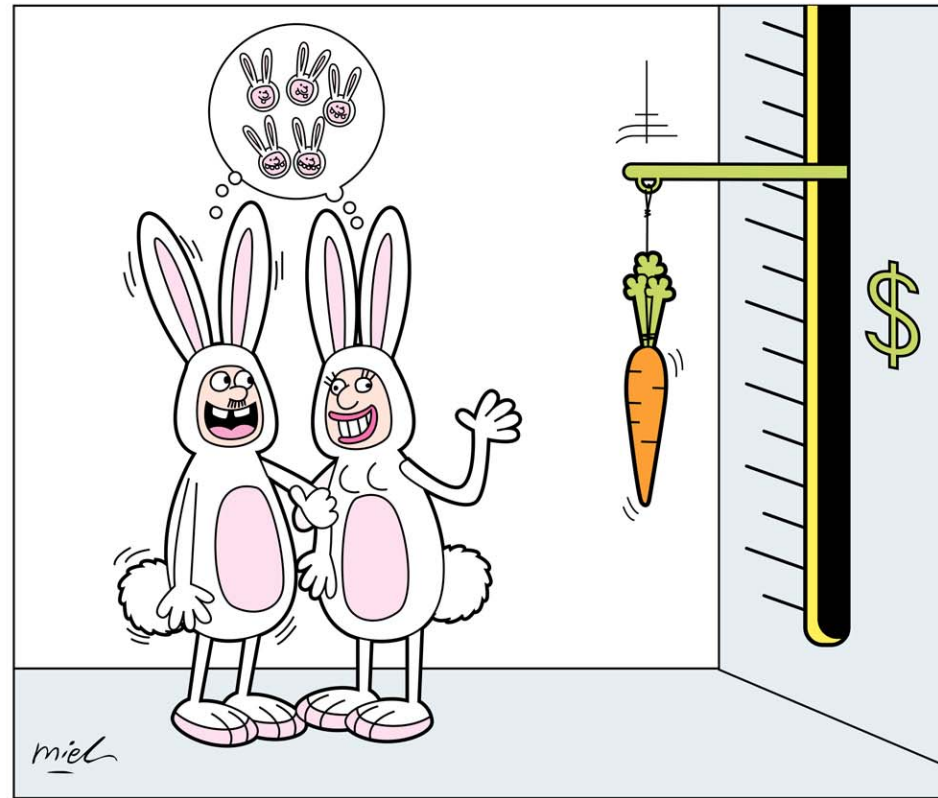
From 1966, the state ran a series of family-planning campaigns to persuade couples to have fewer children. By the 1970s, the campaign included tax and housing allocation disincentives that penalised those with more children.

In 1986, the TFR reached a low of 1.4 children per woman. That year saw Singapore's first economic recession since independence, which coincided with the Year of the Tiger (in the Chinese zodiac calendar), considered inauspicious for births.

In 1988, the TFR rose sharply to a high of 1.96 children per woman. The 1988 TFR peak is a result of a confluence of factors: the reversal of the anti-natalist policy coming together with the traditionally auspicious Year of the Dragon, coinciding with the number "88", which is homonymic with double prosperity in some Chinese dialects.

However, the TFR remained low in the 1990s and 2000s. Last year, Singapore's TFR dropped to 1.16, making it the second lowest recorded. The lowest figure is 1.15 in 2010. A below-replacement TFR has implications on population growth, which in turn aggravate the old-age support ratio (ratio of working-age to old-age population) and hinder future economic growth.

How might a country raise the fertility rate of the population? If having children is a rational



economic decision, an individual's preference for wanting them and the cost of having them will affect the TFR.

How effective are population policies in influencing people's decisions to have more children and in alleviating fertility decline? How effective are policies that seek to defray the costs of having children if the costs of raising children are impediments to having children?

BABY BONUS AND OTHER LONG-TERM POLICIES

To find out, we looked at data on pro-natalist policies and the TFR.

The Singapore Government offers a range of economic incentives in the hope of boosting fertility rates. The Baby Bonus scheme implemented in 2001 is probably the most explicit incentive, giving parents "cash for kid" to defray the financial costs of child-rearing. There are two components to the Baby Bonus – a cash gift that increases by birth order and a matching dollar-for-dollar co-saving scheme that can be used for approved expenses (mainly education and health-related expenses).

Since its inception, several enhancements have been made to the scheme. In 2015, under the Jubilee Marriage and Parenthood Package, the cash gift was enhanced to \$8,000 a child for the first and second birth orders; and \$10,000 a child for the third and higher birth orders.

Our regression analyses suggest that the implementation of the one-off Baby Bonus is ineffective or limited in effectively raising

fertility rates.

When we incorporate two dummy variables into the regression model to take into account the years with zodiac signs dragon and tiger, we found a positive effect of dragon and a negative effect of tiger on fertility rates. This suggests that the decision and preference for having children are culturally influenced – with an increase in the TFR in dragon years and a fall in the TFR in tiger years.

While the cash Baby Bonus alone had no or little effect, we did find that pro-natalist policies as a whole have a positive and significant effect on the TFR. This suggests that policies to lower the long-term costs of raising children may be more effective than the one-off Baby Bonus gift.

THE COST OF RAISING A CHILD

With the insight that policies to defray the long-term costs of child-rearing are effective, we then set out to benchmark the long-term costs of child-raising from infancy to age 21 and evaluate how pro-natalist policies help to defray the costs of raising children.

We projected the expected costs of raising a child of first birth order. Expenditure per child typically declines with higher birth order since there are economies of scale when there are more children. Direct subsidies and tax reliefs tend to increase with the number of children, thus lowering the cost per child.

We estimated the expected child-rearing costs for three income groups – at the 30th, 50th and 70th percentiles of household income.

As people of different income levels exhibit different spending patterns, expenditure on a child is adjusted accordingly. To simplify computation, we assumed that mothers enjoy maximum benefit under the government schemes and that they stay employed and remain in the same income percentiles throughout the 21 years of child-raising.

The main expenses for direct child-rearing are medical, education, personal enrichment, domestic help, food, clothing, transport, housing and other costs (insurance and pocket money). Most of the expenses data is culled from the Household Expenditure Survey 2012/2013.

In projecting the net cost of raising a child, we took into account the array of subsidies on childcare and the tax-saving benefits for working mothers. Working mothers enjoy a basic subsidy of \$600 a month for infant care and \$300 a month for childcare. For the 30th percentile working woman, we assume that the household earns less than \$7,500 a month and receives an additional subsidy of \$200 and \$100 for infant care and childcare full-day enrolment, respectively.

Working women with children enjoy tax savings through higher deductibles from their earned income. These are effectively implicit birth subsidies. Working women are able to deduct qualified child relief, twice the amount of the foreign maid levy, and the Working Mother's Child Relief (WMCR) that amount to 15 per cent to 25 per cent of earned income, subject to caps. Our simulation results indicated

that it would cost a median-income woman \$560,000 (in current dollars) to raise her first child. Leaving aside the Baby Bonus of \$8,000, the total tax savings and subsidies enjoyed over the child-rearing period come to \$50,467, which would offset 9 per cent of the total cost of raising a child.

How about mothers in the 30th income percentile? We found that while such lower-middle-income working mothers have smaller tax savings, they enjoy higher direct subsidies. The total tax and direct subsidies enjoyed in present value terms are about \$57,000. Excluding the Baby Bonus, these benefits offset about 20 per cent of the total child-rearing cost, estimated at \$280,000.

Notably, the total benefits increase significantly for working mothers in the 70th income percentile. This is because of the WMCR being a percentage earned income relief rather than deductible lump sum. Pro-natalist tax policies excluding the Baby Bonus yield a benefit of around \$68,000. With the child-rearing cost estimated at \$640,000, assuming the child goes to a local tertiary institution, this helps to defray about 11 per cent of the cost of rearing a child.

To sum up, our analysis showed that compared with one-off cash bonuses for babies, pro-natalist policies using tax and other longer-term birth incentives help to defray a higher proportion of the cost of raising children. Such policies are also shown to have some impact on the TFR.

If so, this might be an area for policymakers to build on. Looking at the rough computation above of how much current subsidies offset child-rearing costs, it might be worthwhile to devote more resources to give middle-income mothers more tax and other benefits to offset a higher proportion of their child-rearing costs than the current 9 per cent.

If a declining "fertility culture" is due to concerns over the cost of raising children, more could be done to defray the long-term cost of raising children, particularly for middle-income working mothers. But, of course, having children goes beyond dollars and cents calculations and it is imperative to also have social and work environments that are welcoming of parenthood.

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