

Fertility in Singapore: An Analysis by Parity Progression Ratio

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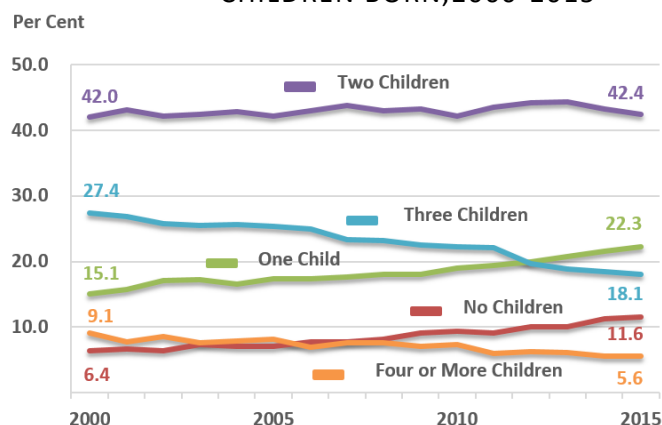
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Introduction

Fertility has generally fallen over the years, although the Total Fertility Rate appeared to have stabilised at around 1.2 to 1.3 births per female in the past decade. From 2000 to 2015, among resident ever-married females aged 40-49 years who are more likely to have completed child-bearing, the proportion of those who remained childless or had only one child increased considerably (Chart 1).

CHART 1 RESIDENT EVER-MARRIED FEMALES AGED 40-49 YEARS BY NUMBER OF CHILDREN BORN, 2000-2015



Conversely, the proportion with three or more children showed a decreasing trend across the period. Nevertheless, having two children continued to be the norm.

This article examines Singapore's fertility trends after taking into account the number of births that a woman already had, through the use of parity progression ratio (PPR)¹. It also investigates the relationship between the gender composition of existing children² and the probability of having an additional child.

Parity refers to the number of children ever born to a female. Parity order refers to the order of the births, e.g. first, second, third, fourth or higher order birth.

Parity progression ratio (PPR_x) measures the probability that a female with a certain number of children (x) will go on to have an additional child. It is computed using the following formula:

$$PPR_x = \frac{\text{Females with at least } x + 1 \text{ child ever born}}{\text{Females with at least } x \text{ children ever born}}$$

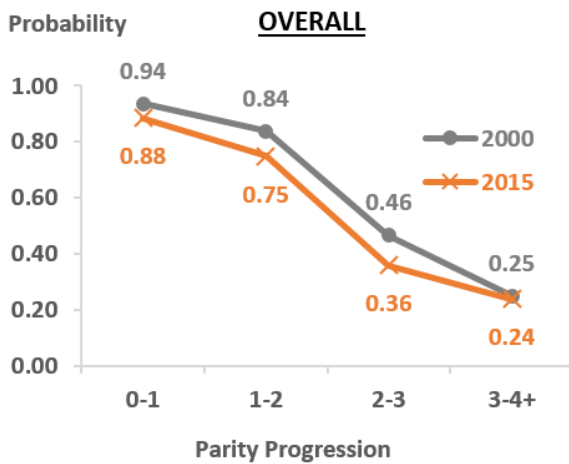
1 Data are based on resident ever-married females aged 40-49 years from the Census of Population 2000 and General Household Survey 2015.

2 Data are based on females who declared all her children ever-born as living in the same household as them as at the survey reference period.

General Observations

Congruent with the observation that having two children was the most common among resident ever-married females aged 40-49 years, the probabilities of progression to have a first and second child were high, but declined sharply with three or more children (Chart 2).

CHART 2 PARITY PROGRESSION RATIO (PPR) OF RESIDENT EVER-MARRIED FEMALES AGED 40-49 YEARS



Among those aged 40-49 years in 2015 who were ever-married, close to nine in ten became mothers. Three-quarters of those with one child progressed to have a second child. Only around one in three of those with two children went on to have a third child. After having three children, the prevalence of those who went on to have additional children dropped further to slightly less than a quarter.

The likelihood of progression to have a first, second and third child was at least six percentage-points lower for females aged 40-49 years in 2015 compared to their counterparts of the same age in 2000. For progression from third to fourth or higher parity orders, the probability was comparable between the two groups of females.

By Ethnic Group

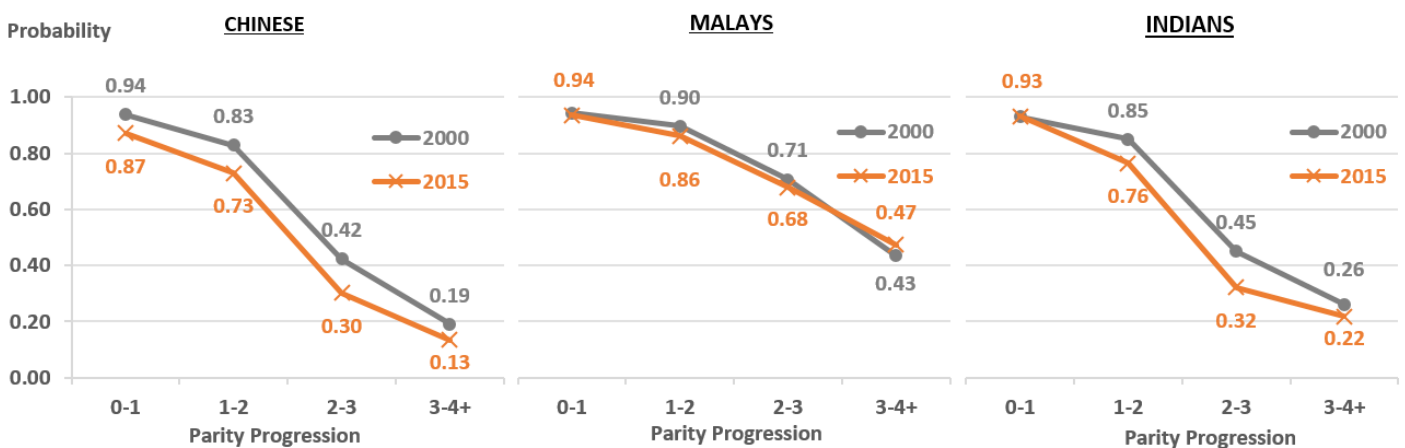
The broad trends in parity progression were largely similar across the three main ethnic groups (Chart 3).

Amongst them, the Malays were the most likely to give birth to an additional child for all parity orders. In particular, the odds of progressing from two to three children were pronouncedly higher at around seven in ten among the Malays aged 40-49 years in 2015, more than twice the corresponding prevalence for the Chinese and Indians.

Between 2000 and 2015, the Chinese had a lower likelihood of having another child across all parity orders. Similarly, a noticeable drop in the probability of progression to the second or third children was also observed among the Indians over the same period.

In contrast, Malay females aged 40-49 years in 2015 were almost as likely as those in 2000 to bear another child across all parity orders.

CHART 3 PPR OF RESIDENT EVER-MARRIED FEMALES AGED 40-49 YEARS BY ETHNIC GROUP



By Gender Composition of Existing Children and Ethnic Group

Are parents' decision to have an additional child influenced by the gender of their existing children? The following sections attempt to answer this question by examining the gender composition of existing children and subsequent parity progression.

By Gender of First Child

Mothers who had a boy for their first child were almost as likely as those who had a girl, to have a second child (Chart 4). Similar observations can be seen across all ethnic groups (Chart 5). This suggests that the gender of the first child has little impact on the parents' decision to have a second child.

CHART 4 PPR FROM FIRST TO SECOND BIRTHS AMONG RESIDENT EVER-MARRIED FEMALES AGED 40-49 YEARS BY GENDER OF FIRST CHILD

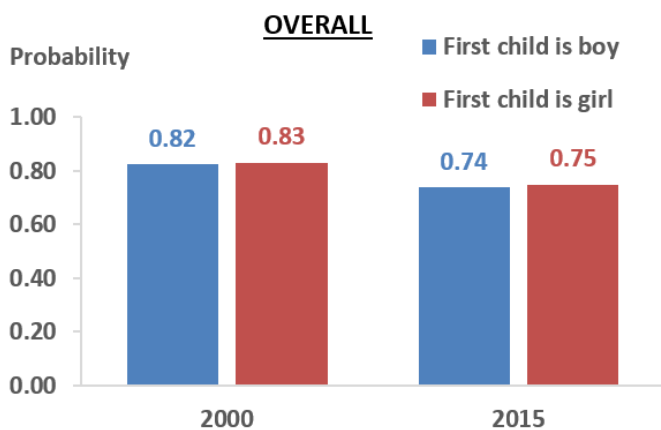
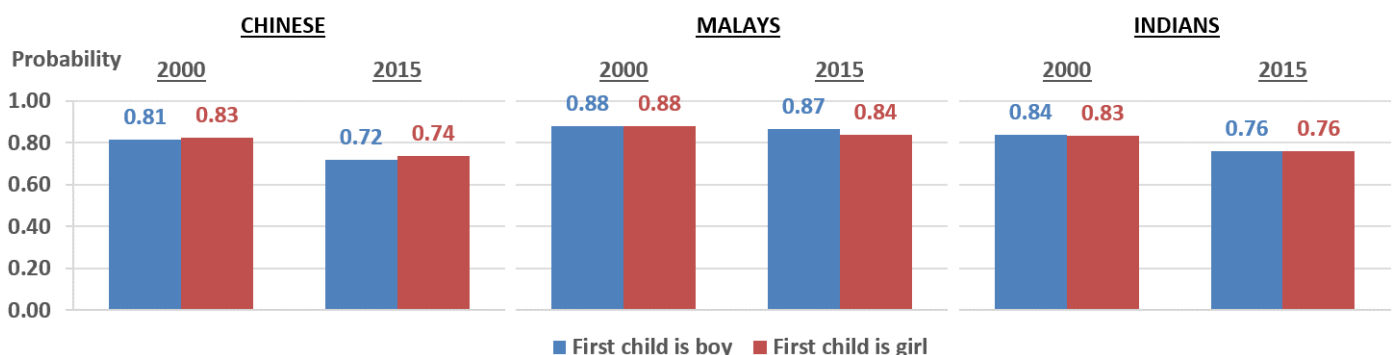


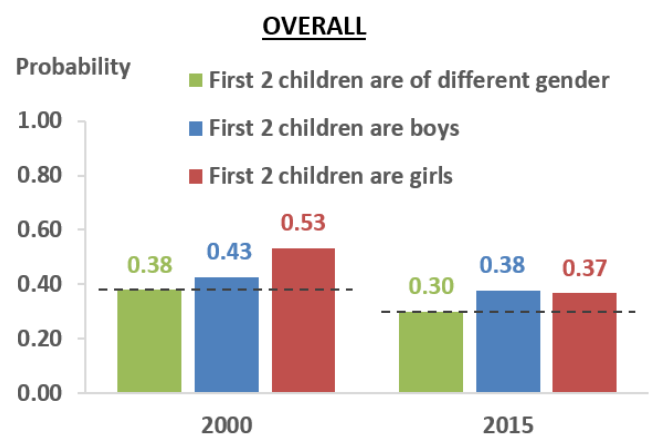
CHART 5 PPR FROM FIRST TO SECOND BIRTHS AMONG RESIDENT EVER-MARRIED FEMALES AGED 40-49 YEARS BY GENDER OF FIRST CHILD AND ETHNIC GROUP OF FEMALE



By Gender of First Two Children

Mothers who already had a boy and a girl were generally less likely to have a third child compared to mothers with two children of the same gender, regardless of whether they were both boys or both girls (Chart 6). This suggests a preference to have children of both genders.

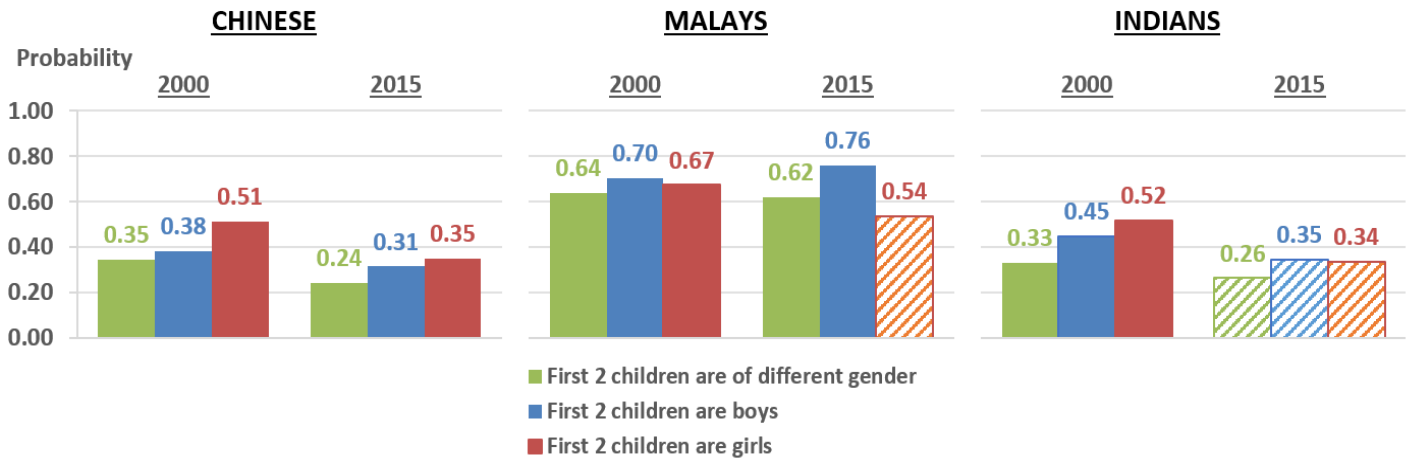
CHART 6 PPR FROM SECOND TO THIRD BIRTHS AMONG RESIDENT EVER-MARRIED FEMALES AGED 40-49 YEARS BY GENDER OF FIRST TWO CHILDREN



In 2000, mothers aged 40-49 years with two girls were more likely to have a third child compared to those with two boys, suggesting a greater desire to have a son then.

In 2015 however, the PPR from second to third birth fell to the same levels for those with two boys and two girls.

CHART 7 PPR FROM SECOND TO THIRD BIRTHS AMONG RESIDENT EVER-MARRIED FEMALES AGED 40-49 YEARS BY GENDER OF FIRST TWO CHILDREN AND ETHNIC GROUP OF FEMALE



Note: Figures represented by slashed bars are based on small sample sizes. Caution should be taken when interpreting these figures.

Among Chinese and Indian mothers aged 40-49 years in 2000, those who had two girls were most likely to bear another child, suggesting a preference to have at least one son in the family (Chart 7).

For the cohort aged 40-49 years in 2015, Chinese and Indian mothers who had two girls were about as likely to bear another child as mothers who had two boys. This could indicate that the desire for having sons has diminished to similar levels for having daughters.

In contrast, for the Malays, mothers with two boys were the most likely to have a third child, suggesting an inclination towards having at least one daughter in the family.

Conclusion

The analysis by PPR shows that the majority of resident ever-married females became mothers, and a considerable proportion also went on to have their second child. Chinese and Indian mothers were more likely to stop childbearing after their second child as compared to the Malays.

Another observation is that the gender composition of existing children has some impact on the eventual completed family size. Mothers were more likely to give birth to a third child if their first two children were of the same gender, suggesting a preference to have children of both genders.



Resources

Data used in the analysis for this article are taken from:



[Singapore Census of Population 2000](#)
[General Household Survey 2015](#)