Patterns of Lowest-Low Fertility in Hong Kong and Taiwan

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The earlier distinct fertility regimes, “developed” and “developing”, are increasingly disappearing in global comparisons of fertility levels --- convergence towards low fertility.

The spread of below-replacement fertility to formerly high fertility countries has occurred at a remarkably rapid pace.

A global convergence of fertility indicators that has been quicker than the convergence of many other socio-economic characteristics.
Fertility levels may **not naturally stabilize** close to replacement level as earlier notion suggested, they may continue and follow the course declining to **below 1.3**.

The new aspect of current low and lowest-low fertility patterns is that the **postponement of childbearing** – particularly for the **first births** – has emerged as a crucial determinant of differences in fertility levels among developed countries.
The delay of childbearing follows a postponement transition that shares many characteristics with the fertility transition in Europe or contemporary developing countries.
Figure 1 depicts the period total fertility rate (period TFR)

Figure 1 shows that in 1971 HK TFR = 3.41 and experienced a rapid and marked fertility decline until reaching a trough of 1.31 in 1987.

Then stabilized and fluctuated around 1.40 – 1.27 during late 1980s and early to mid-1990s.

Since 1996 HK TFR continued to decline at a moderate below-replacement levels.

In 1998 TFR = 0.99, in 1999 TFR = 0.97, in 2000 TFR = 1.02, in 2001 TFR = 0.93
In 1951 Taiwan TFR = 7.04, experienced a rapid and marked fertility decline and continued to decline at a moderate below-replacement levels in 1990s.

In 1999 TFR = 1.56, in 2000 TFR = 1.68, in 2001 TFR = 1.40, in 2002 TFR = 1.34 (Figure 1)
The mergence of lowest-low fertility since early 1970s has been associated with a **substantial delay of childbearing**.

The **mean age at first birth** increased by about 4.71 years, from 24.0 to 28.7 years (**Figure 2**).

And the **mean age at second birth** increased by 5.28 years, from 26.1 to 31.4.

For third and higher birth, the mean age increased from 30.5 to 33.2.
Figure 2. HK Mean Age at Birth, 1976-2001

- 1st parity
- 2nd parity
- 3+ parity
Since mid-1970s HK has already experienced an increasing mean age at first birth with a relatively high mean age at first birth at the onset.

The mean age at first birth increased by about 2.66 years, from 24.0 to 26.6 years during the period of 1976 - 1987.

By late 1980s to early 2000s the pace of the mean age at first birth increased relatively slower, increased by 1.72 years from 27.0 (1988) to 28.7 (2001).
In 1976, TFR = 2.52, the first birth made 32.8% contribution, 29.1% from the second birth, and 38.1% from the third and higher-order births.

In 1996, TFR = 1.19, 51% contribution from the first birth, 37.2% from the second birth, and the third and higher-order births only made 11.7% contribution.
In addition, the mean age at first marriage for females increased from 22.9 (1971 HK) and 23.3 (1976 TWN) to 27.5 (2001 HK) and 26.1 (1999 TWN) years while for males it increased from 27.8 (HK) and 27.5 (TWN) to 30.2 (HK) and 30.0 (1999 TWN) years during the same period (Figure 3).

HK females increased their mean age at first marriage by 20.1 percent during 1971 – 2001 and Taiwan females increased by 12.0 percent.
Figure 3. Mean Age at first marriage, Hong Kong and Taiwan, 1971-2001
Thus, lowest-low fertility is **NOT inevitably** associated with a rapid delay of childbearing.

The **mean age at first birth** increased only by 1.72 years during the late 1980s to early 2000s.

And the **mean age** increased by 2.01 years for the 2\textsuperscript{nd} birth and 1.84 years for 3\textsuperscript{rd} and higher-order birth.

Therefore since late 1980s HK attained lowest-low fertility levels without substantial delays in the timing of first births anymore.
In the case of HK, a rapid and marked postponement did imply lowest-low fertility, NOT like some of the European countries (e.g., Netherlands) experienced a significant increase in the period mean age at first birth during the 1980s and 1990s without substantial declines in period fertility levels.
Issue: How do period TFR levels below 1.3 affect cohort fertility?

The effect is modest if lowest-low fertility is only temporary and births are merely postponed but not foregone, or

The implications of lowest-low TFR levels on cohort fertility are severe if lowest-low fertility persists and if it is caused by reductions in completed fertility levels instead of changes in the timing of fertility.
Completed cohort fertility for cohorts born between 1930 – 1937 have been relatively stable and remained within the interval ranging from 4.7 – 4.1 children except HK 1935 cohort (4.1) and 1936 cohort (3.7), and no marked downward or upwards trends (Figure 4).

For both HK and Taiwan women of these cohorts, they did not really reduce their fertility levels, just changed the timing of the fertility.
After 1937 birth cohort, Taiwan cohort fertility declined from 3.9 (1939 cohort) to 2.9 (1948 cohort) and further down to 2.6 (1952 cohort) while HK cohort fertility fell from 3.6 (1938 cohort) to 2.9 (1947 cohort) and down to 2.1 (1952 cohort) (Figure 4).

These cohorts did truly contribute to HK and Taiwan reaching lowest-low fertility levels, especially for period TFR after mid-1980s.

However, such analyses are no longer feasible for women born from 1953 onwards because these women have not yet completed childbearing as of 2002.
Figure 4. Completed cohort fertility, Hong Kong and Taiwan, 1927-1952 Birth Cohort
An alternative is to study **cumulated fertility** – the number of children that have been born to women at various ages up to the most recent available calendar years.

In order to provide a context and reference for such analyses, it is conducted relative to a reference cohort.
The analyses focus on the differences between the cumulated fertility of women in the calendar year and the number of children that have been born to women in the reference cohorts (1931 for all HK birth orders and 1935 for all Taiwan birth orders and 1961 for HK first birth and 1960 for Taiwan first birth).

Figures 5 & 6 and 7 & 8 depicts the difference in the cumulated cohort fertility, separately for the all birth orders combined and first births, between women born 1931-1981 (HK) and 1935-1981 (TWN) and women in the reference cohorts born in 1931 (HK) and 1935 (TWN) and 1961 (HK) and 1960 (TWN) respectively.
The graphs in Figures 5 & 6 and 7 & 8 also reveal that at **age 50** women in the cohort born in **1951** had on average **2.71** (1.62 in **Taiwan** age 49 1950) fewer children in total while at **age 35** women in the cohort born in **1966** had on average **3.24** (2.26 age 35 1965 **TWN**) fewer children in total as the cohort born in **1931** (1935) and that at **age 30** women in the **1971** cohort had **2.3** (2.16 age 30 1970 **TWN**) fewer children in total as the cohort born in **1931** (1935).

This differences in fertility level to the reference cohorts increase for younger women.
At age 25, HK women born in 1971 had 0.106 (0.189 1970 TWN) fewer first children than the 1961 (1960 TWN) cohort and 1.104 (1.23 1970 TWN) fewer total children than the 1931 (1935) cohort.

At age 20, HK women born in 1981 had 0.357 (0.36 1980 TWN) fewer total children than the 1931 (1935 TWN) cohort.

It is likely that this difference further widens as the cohort reaches its late twenties.
Figure 5. Difference in the cumulated fertility of cohorts (All birth orders), 1931-1981
HK
Figure 6. Difference in the cumulated fertility of cohorts (All birth orders), 1935-1980
Taiwan
Figures 5 & 6 and 7 & 8 also reveal the extent to which differences in fertility levels across cohorts are due to either a postponement of fertility or a true reduction of fertility.

The HK cohort born in 1961 “lagged” behind the 1931 (1935 TWN) reference cohort and had on average about 0.914 fewer births (0.74 1960 TWN) at age 25.

When the age of those younger cohorts reached the late 20s and mid-30s, this gap was not reduced but even further widened.
The younger cohorts exhibit the same pattern – the lines in **Figures 5 & 6 and 7 & 8** representing the cumulated fertility of a cohort *initially declines* as the difference to the reference cohort grows, then *reached a trough*, but *never reverses and moves towards zero* as the difference to the reference cohort diminishes in HK. However, Taiwan displays a pattern very different from HK.

If there is “**perfect**” recuperation, the *difference will diminish* completely, and *partial recuperation* implies *a persistent difference* also at the end of childbearing ages.
Figure 7. Difference in the cumulated fertility of cohorts (First birth), 1961-1976 HK

Cohort 1961
Cohort 1966
Cohort 1971
Cohort 1976
Figure 8. Difference in the cumulated fertility of cohorts (First birth), 1960-1980, Taiwan
The HK cohorts born after late 1940s reflect a true reduction of fertility and are NOT necessarily due to a postponement of fertility anymore as earlier cohorts did.

The gradually increasing differences in cumulated fertility to the reference cohort in early to mid-twenties are exactly where union formation and first-birth childbearing has traditionally been concentrated.
Frejka and Calot (2001) have denoted the difference in cumulated fertility to the reference cohort as a \textit{fertility deficit}.

They have taken the increasing deficit during early adulthood in younger cohorts as an indication that cohort fertility is likely to remain substantially below that of the reference cohorts.
Figures 9 & 10 and 11 & 12 confirm that all cohorts born after the reference cohorts exhibit a lower cumulated fertility for both first birth and all birth orders in their young adulthood and adulthood than the corresponding reference cohorts.

This suggests that lowest-low fertility is definitely related to the fact that fertility rates in early adulthood until adulthood are truly low.
Figure 9. HK Cohort ASFR (All birth orders), 1931-1981
Figure 10. Taiwan Cohort ASFR (All birth orders), 1935-1980
Figure 11. HK Cohort ASFR (first birth), 1961-1976
Figure 12. Cohort ASFR (First birth), 1960-1980, Taiwan
After the emergence of low fertility in most European countries experiencing the Second Demographic Transition, marriage has lost its central role in being a precondition to childbearing, almost the totality of births take place within a co-resident partnership (either cohabiting or married), and the rise of extra-marital childbearing is mostly due to the diffusion of cohabitation.
Leaving home is a crucial node of the life-course and a central event in early adulthood.

First, it generally implies the formation of a new household and greater autonomy for young people in all aspects of social life and personal decision-making, including also many fertility-related decisions.

Second, childbearing in developed countries almost invariably takes place after young adults have left their parental home, and home-leaving constitutes a central correlate of fertility and union formation in Europe and other industrialized countries.

Patterns of home-leaving are therefore an important aspect of understanding contemporary fertility differences and trends, including also the emergence of lowest-low fertility during the 1990s.
There is an important regularity with respect to the relation of home leaving and lowest-low fertility.

In particular, the **timing of home-leaving** is quite homogeneously concentrated at relatively late ages among lowest-low fertility countries in Europe. For instance, Italy, which is the first country experiencing lowest-low fertility in the early nineties, has the highest age both for men and for women with 26.7 years and 23.6 years respectively.

For Taiwan females, the median age at home-leaving rose from 20.2 years in 1950 to 25.3 years in 1997.

**Figure 13** reveals a clear **negative association** between mean age at home-leaving and total fertility.
Figure 13. Taiwan Mean Age at Leaving Home for Female and TFR, 1950-1997
Fertility and Marriage

Traditionally, cumulated fertility is inversely related to age at marriage.

Variations in the age at marriage are an important explanatory factor of aggregate fertility changes.

Figures 14 & 15 show that marriage and fertility were still paralleled with downward trends between TFR and both male and female TFMR (period total first marriage rate).
Figure 14. HK TFMR and TFR, 1976-1996
Figure 15. Taiwan TFMR and TFR, 1976-1999
A similar relation occurs also with respect of fertility and divorce – a higher level of divorce (general divorce rate) was associated with lower levels of fertility (TFR) (Figure 16).

Figure 17 Illustrates that the relationship between the extent of out-of-wedlock childbearing and the level of fertility – HK has a relatively low share of extramarital births during 1984 – 1998 comparing with late 1970s but has been risen since 1999.
Figure 16. General Divorce Rates and TFR, Hong Kong and Taiwan, 1972-2001

- **General Divorce Rates-TW**
- **General Divorce Rates-HK**
- **TFR-TW**
- **TFR-HK**

Year:
- 1972
- 1973
- 1974
- 1975
- 1976
- 1977
- 1978
- 1979
- 1980
- 1981
- 1982
- 1983
- 1984
- 1985
- 1986
- 1987
- 1988
- 1989
- 1990
- 1991
- 1992
- 1993
- 1994
- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001

General Divorce Rates:
- 0.0
- 0.5
- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5

TFR:
- 0.0
- 0.5
- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5
Figure 17. HK Proportion of extra-marital births and TFR, 1976-2000

- **extra-marital %**
- **TFR**
Conventional economic theory predicts that increases in the wage rate of women lead to increases of female labor market participation on the one side, and decreases of fertility on the other side due to increased opportunity costs of children in combination with a low income elasticity of the number of children.

At the macro level, this relation has been translated into the hypothesis that the total fertility rate and the female labor force participation rate should be inversely related in cross-country studies.

Figure 18 finds a negative association over time between the TFR and the female labor force participation rate in Taiwan.
Figure 18. Taiwan Childbearing Age Female Labor Force participation Rates and TFR, 1964-2001

- **LFP Rates**
- **TFR**
In the near future there could be an increasing **disconnection** between **marriage patterns** and **fertility levels** after emergence of lowest-low fertility.

Marriage formation and dissolution **might NOT be important predictors** of fertility levels.

A possible **negative relationship** between the **timing of household and union formation/dissolution** and **the quantum of fertility** on the **cohort level** might also be observed.
In sum, the **initial decline** towards low fertility has been importantly related to **stopping behavior** – a reduction of higher parity births.

More recently, the **postponement** of fertility, esp. for first births, has emerged as a crucial determinant of differences in fertility levels.

And the lowest-low fertility truly reflects the **real reduction of fertility** levels in HK and Taiwan.
Reasons of such rapid delay of childbearing:

- Increased incentives to invest in higher education and labor market experiences,
- uncertainty in early adulthood due to high youth unemployment of up to 40 percent for women,
- general economic uncertainty and inefficient housing markets leading to high costs of establishing or expanding independent households make late childbearing a rational response to socio-economic changes.
The latter quarter of the 20th century saw a movement from an industrial to post-industrial economy rewarded by a highly mobile workforce composed of both men and women.

These changes greatly eroded institutional arrangements that provided support for mothers and their children.

Perhaps most important was the decline in marriage.
Within a context where women have labor force opportunities that approximate men’s and where long-term marriage contracts cannot be enforced, extreme specialization in home activities ceases to be a viable strategy for women.

Instead as insurance against union disruption, women, like men, invest in their own human capital and postpone childbearing.
The **contraceptive revolution** of the 1960s, and **several other recent social and economic changes**, create **a new scenario of opportunities and options for women**.

This is **a fundamental and radical change in women’s position** in society and the lifestyle choices open to them.

The contraceptive revolution gave women **independent control of their fertility**, if necessary without the agreement or cooperation of male partners, for the first time in history.
When women control their own fertility, it is their preferences and values that shape responses to public policy. And public policy has not, in practice, paid much attention to women’s wishes.

All the evidence is that most women in modern societies want two, or at most three, children. The large families and high fertility levels of the past were unavoidable rather than chosen, or were chosen by men, and are unlikely to recur naturally.
Women have now become the deciding factor, and replacement fertility levels will only be achieved if women are satisfied with the terms and conditions offered for their reproductive and childrearing role — an activity that spans 20 – 30 years rather than the 3 – 4 years that are the narrow focus of preschool childcare policy debates. Sharp falls in fertility even in familistic societies such as Spain, Italy, and Greece demonstrate that in many countries public policy has not yet produced the right terms and conditions for motherhood, once women can choose to avoid it.
The recognition of female heterogeneity in preferences for a life centered, like that of men, on employment or other competitive activities in the public sphere or else a life centered on the noncompetitive activities of private life. It is this heterogeneity of lifestyle preferences that impedes attempts to predict fertility after the contraceptive revolution and the equal opportunities revolution have given women genuine choices over the shape of their lives for the first time in history.
Women will not always want to have and rear children. Some do not.

There are women who want to pursue careers in the same way as men, but again they are a minority rather than typical.

The typical woman is adaptive and is highly responsive to social pressures and policy signals. At the moment, all the signals point to paid employment as the favored activity.
The equal opportunities revolution has hugely improved the rewards, terms, and conditions in the labor market.

In contrast, the social status and rewards of motherhood have stood still (at best) or, more often, declined.

The social stigma of solo motherhood has vanished, only to be replaced by the social and economic stigma of female joblessness.

In this context, work-centered women often choose childlessness, adaptive women are not encouraged to have children, and home centered women feel themselves to be ignored or belittled.
It is possible to reverse the decline in fertility in modern societies, but policymakers will have to start with revaluation of motherhood and reproductive work, and change the emphasis in public policy.

The bias toward support for working mothers needs to be balanced by new measures to support home-centered women. The emphasis on family-friendly employment policies should be replaced by a diversity of policies supporting all groups of women.
Can **institutions** evolve or emerge so that they **reduce the difficulty of childbearing** in a modern context? “yes”

Fertility is lowest in developed countries that feature **uneven/inconsistent institutional change** that places individuals in a quandary

For instance, how do women respond when they enter (or are pushed/pulled into) the labor market and there are **no compensating changes** to assist with domestic roles? The lack of compensating change in other institutions can be seen as a major antinatalist factor
If a society allows for *gender equality* between men and women, then this makes it easier to combine work and careers with childbearing.

Incoherence in the levels of gender equity across social institutions would produce *very low fertility* while coherence would lead to moderate fertility.

*Rational Choice* are always made within, and conditioned by, *social context*.

Along with biological predispositions, the social context determines the costs and benefits of having children.
Women at **parities one, two and three** were most likely to select explanations centering on **family building and sex composition** based on **stressed emotional** or **psychological rationales** (i.e., to have a child to love and care for, fun around the house, to carry on the family name, pleasure to watch children grow, to bring spouses closer together, to provide companionship for siblings and to have a boy or a girl)

Desire for births by **higher parity** women were associated with rationales that stressed the **economic utility of children** (i.e., help around the house, help in old age, economic help)
One way to explain the **long term decline in fertility** (e.g., the fertility transition) is that the **economic rationale for children** has become **anachronistic** as economic development and urbanization have proceeded, as educational expectations rise, and fear of child mortality declines.

Are rationales for childbearing often given by women at lower parities also becoming anachronistic?

Are **reasons for not having** a first and second child (desire to be “free” and to have “more time with spouse”) **gaining sway**?
From a rational choice approach, what utility is gained from first and second births? Is such utility likely to disappear?

Women at low parities infrequently chose economic rationales even in the past (i.e., in periods characterized by higher fertility) as reasons to have a first or second child.

The choice to have a child indicates an expected positive utility; but this utility need not be economic.

What values, other than a desire to maximize income or wealth, might be the basis for children’s value or utility?
“To have a child to love” and “joy that comes from watching a child grow” may provide the ultimate answer to “why have children?” --- It is as final an answer as one could imagine.

Two additional, recent arguments focus on the non-economic utility of children.

The first stresses how children, by activating extant institutional arrangements, generate social capital -- family behavior, including marriage and childbearing, remain classic examples of investment in social capital . . . (and) . . . the desire to possess social capital shapes individual behavior (Astone et al. 1999).
Schoen et al. (1977) argue that children “create access to critical material rewards through ties of kinship and other personal relationships” and parenthood can strengthen one’s position in certain networks.

In short: “children create social capital by establishing new relations among persons (parents, grandparents, aunts, uncles, siblings, friends) that are then available to parents as resources that they can use to achieve their interests.”

Thus while children may have lost all economic value, their value as a social resource may have persisted.
Second, children could promote “uncertainty reduction” in several ways, including greater marital solidarity, careers, and childbearing (Friedman, Hechter and Kanazawa, 1994). “The decision to have a child is one of the few resource allocation decisions that the couple makes that implies an essentially irrevocable commitment to a stream of expenditures over a long period of time. There is an essential difference between children and consumer durables, since, once the child arrives, there is no recourse to a resale market nor to a local humane society.” (Turchi, 1975: 44) Friedman et al. (1994: 383) argue that such a long-term obligation brings predictability and order to a life course.