relatively slower, increased by 1.72 years from 27.0 (1988) to 28.7 (2001).

Furthermore, in 1976, when TFR was 2.52, the first birth made 32.8 percent contribution, 29.1 percent from the second birth, and 38.1 percent from the third and higher-order births. However, this pattern has been gradually shifted. In 1996, TFR was down to 1.19, with 51 percent contribution from the first birth, 37.2 percent from the second birth, and the third and higher-order births only made 11.7 percent contribution.

In addition, the mean age at first marriage for HK females increased from 22.9 (1971) to 27.5 (2001) years while for males it increased from 27.8 to 30.2 years during the same period (Figure 3). HK females increased their mean age at first marriage by 20.1 percent during 1971–2001.

Thus, lowest-low fertility is not inevitably associated with a rapid delay of childbearing (Kohler and Kohler 2002). 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 second birth and 1.84 years for third 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, Billari and Kohler, 2002) experienced a significant increase in the period mean age at first birth during the 1980s and 1990s without substantial declines in period fertility levels.

The major issue concerned is how do period TFR levels below 1.3 affect cohort fertility? (Billari and Kohler, 2002) 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 and 1937 have been relatively stable and remained within the interval ranging from 4.7–4.4 children except 1935 cohort (4.1) and 1936 cohort (3.7), and no marked downward or upwards trends in HK. Hence, for HK women of these cohorts, they did not really reduce their fertility levels, just changed the timing of the fertility. After 1937 birth cohort, the cohort fertility steadily declined from 3.6 (1938 cohort) to 2.9 (1947 cohort) and further down to 2.1 (1952 cohort) (Figure 4). These cohorts did truly contribute to HK 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. An alternative is to study cumulated fertility, i.e., 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 (Frejka and Calot 2001a, b, c).

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 birth orders and 1961 for first birth). Figures 5 and 6 depict the difference in the cumulated cohort fertility, separately for the all birth orders combined and first births, between women born 1931-1981 and women in the reference cohorts born in 1931 and 1961 respectively.

The graphs in Figures 5 and 6 also reveal that at age 50 women in the cohort born in 1951 had on average 2.71 fewer children in total while at age 35 women in the cohort born in 1966 had on average 3.23 fewer children in total as the cohort born in 1931 and that at age 30 women in the 1966 cohort had 0.132 fewer first children as the cohort born in 1961. This differences in fertility level to the reference cohorts increase for younger women. At age 25, HK women born in 1971 had 0.106 fewer first children than the 1961 cohort and 1.104 fewer total children than the 1931 cohort. At age 20, HK women born in 1981 had 0.357 fewer total children than the 1931 cohort. It is likely that this difference further widens as the cohort reaches its late twenties.

Figures 5 and 6 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 1966 "lagged" behind the 1931 reference cohort and had on average about 0.914 fewer births at age 25. When the ages 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 and 6 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. If there is "perfect" recuperation, the difference will diminish completely, and partial recuperation implies a persistent difference also at the end of childbearing ages (Frejka and Calot 2001a).

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 (2001a) have denoted the difference in cumulated fertility to the reference cohort as a ***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 7 and 8 confirms that all HK 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.

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 (Lesthaeghe

and van de Kaa 1986; van de Kaa 1987). Almost all 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 (Kiernan 1999).

Traditionally cumulated fertility is inversely related to age at marriage. Variations in the age at marriage - an important explanatory factor of aggregate fertility changes (Henry 1976; Inaba 1996; Billari et al. 2000). Figure 9 shows that marriage and fertility were still paralleled with downward trends between TFR and both male and female period total first marriage rate (TFMR).

A similar relation occurs also with respect to fertility and divorce – a higher level of divorce (general divorce rate) was associated with lower levels of fertility (TFR). (Figure 10)

Figure 11 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 raised since 1999.

The emergence of lowest low fertility during the 1990s in Europe has been associated with fundamental shifts in the relationships between fertility and marriage. 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. However, these shifts are not quite observed in HK yet. Whether the patterns of these relationships will be changed in the near future remains to be seen, especially under strong influences of both Chinese and Western culture. How soon will the second demographic transition be occurred in East Asia is a significant demographic interest. The studies of lowest low fertility and its convergence in East Asia will shed theoretical lights to theories being proposed and discussed in European fertility changes (Mayer 2001; Reher 1998; Granovetter 1973, 1985; Watkins 1990; Lesthaeghe and van de Kaa 1986; van de Kaa 1987; Billari and Wilson 2001).

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, especially 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.

When fertility drops to a particularly low level below replacement and the mortality rate remains low, the pace of population aging inevitably quickens. The overall dependency ratio is projected to rise from 381 in 2002 to 562 in 2031. The elderly dependency ratio is expected to increase gradually from 158 in 2002 to 198 in 2016, followed by a marked rise to 380 in 2031 in HK.

The HK official population projections projected more deaths than births each year from 2023 onwards. The population would then experience negative natural increase and de-population would arise if there were *no net inward migration.* This scenario implies (a) an accelerated "graying" of Hong Kong; and (b) the onset in 2023 of a very painful process of de-population that could well last longer than half a century, resulting in a smaller and older population with significantly weaker economic potential.

Policy recommendations

HK government released their official population policy on February 26, 2003 (HKSAR 2003). The recommended measures aim to improve the overall standard of living and ensure the long-term sustainability of economy and specifically, strive to address the challenges posed by an aging population and shrinking workforce on economic growth.

In terms of *quantity*, the recommended measures help to rejuvenate progressively aging population by continuing the current course of one way permit scheme for mainland Chinese relatives, children and spouses; by increasing admission of mainland professionals and talent; and by granting permanent residents to persons who make substantial investment (HK$6.5 million) i.e., capital investment entrants, and to apply this extended policy initially to foreign nationals, residents of Macao SAR and Taiwan.

In terms of *economic sustainability*, the recommended measures are able to upgrade the productive efficiency and capability of workforce and are also able to enhance economic vibrancy and domestic consumption by continuing to pursue extensive programs to upgrade the educational attainment of our population at all levels; by promoting and facilitating skills upgrading and life-long education; and adopting a strategic, responsive and coordinated approach to manpower planning and development to meet the changing demands of the economy.

In terms of *social sustainability and integration,* the recommended measures facilitate integration of new arrivals from the Mainland and elsewhere with the community by continuing to provide and develop appropriate programs to address the training needs of new arrivals of different age-groups and fostering closer partnership between the Government and NGOs to identify and address the needs of new arrivals.

In terms of *fiscal sustainability*, the recommended measures are able to increase productivity and reduce elderly dependency by stepping up efforts to encourage Hong Kong people being educated overseas to return to live and work here and by granting the same level of tax deduction for all children irrespective of number.

Moreover, to address the problem of rising social expenditure and limited resources, the recommended measures help to provide a more rational basis for the provision of subsidized benefits to the residents and growing transient population by introducing a levy paid by employers for the employment of foreign domestic helpers (FDHs); by stepping up enforcement action against abuse of the FDH system and preventing exploitation of the workers, etc.

By adopting the principle of "seven-year" residence requirement for providing social benefits heavily subsidized by public funds; by tightening up the eligibility criterion for CSSA so that such benefits should be available only to residents who comply with the seven-year residence rule (except for children under the age of 18 and current residents in Hong Kong will not be affected by this rule.

And by applying the same principle in respect of public healthcare services to Two Way Permit holders and other visitors and considering how this policy could apply and be implemented for the rest of the population; and reviewing in the longer term access to subsidized benefits by residents absent from HK for a long period of time.

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Figure 1. TFR, Hong Kong, 1971-2001

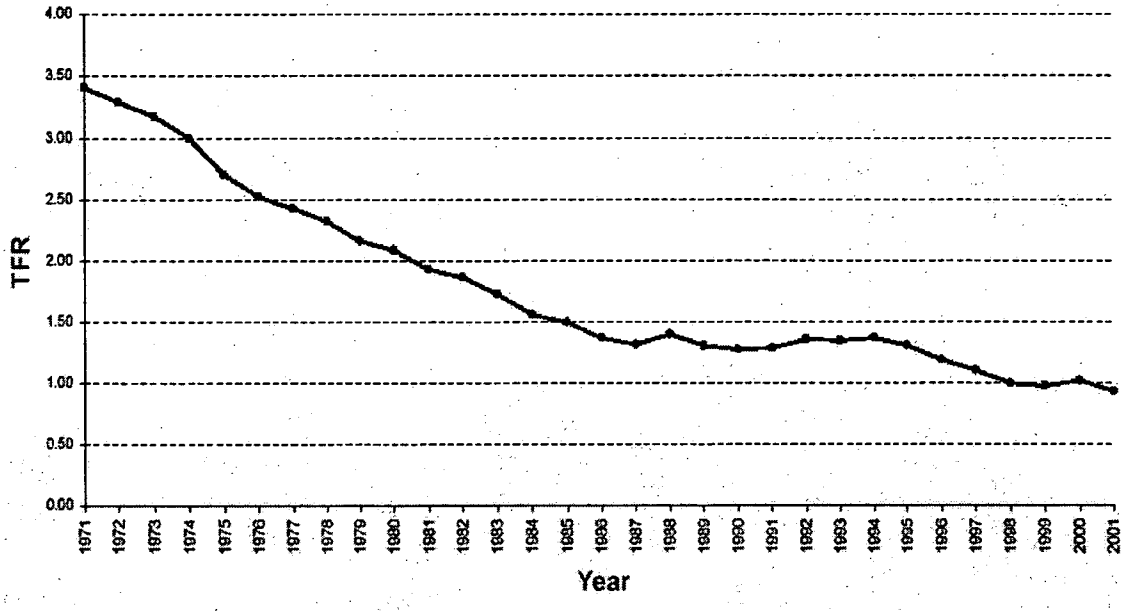


Figure 2. Mean Age at Birth, 1976-2001

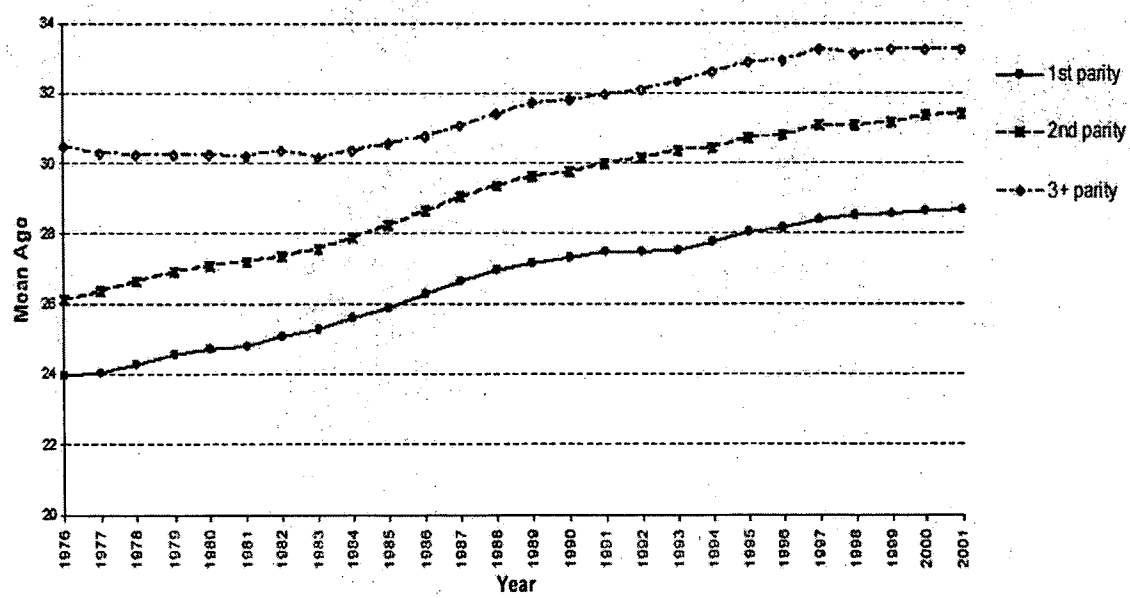


Figure 3. Mean Age at first marriage, 1976-2001

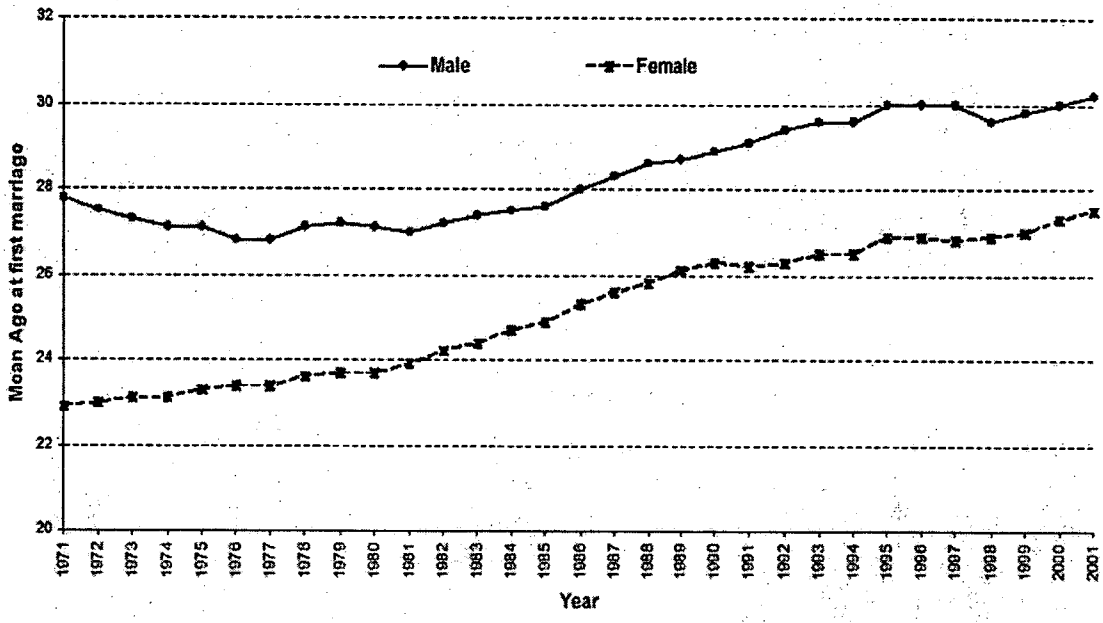


Figure 4. Completed cohort fertility, 1927-1952

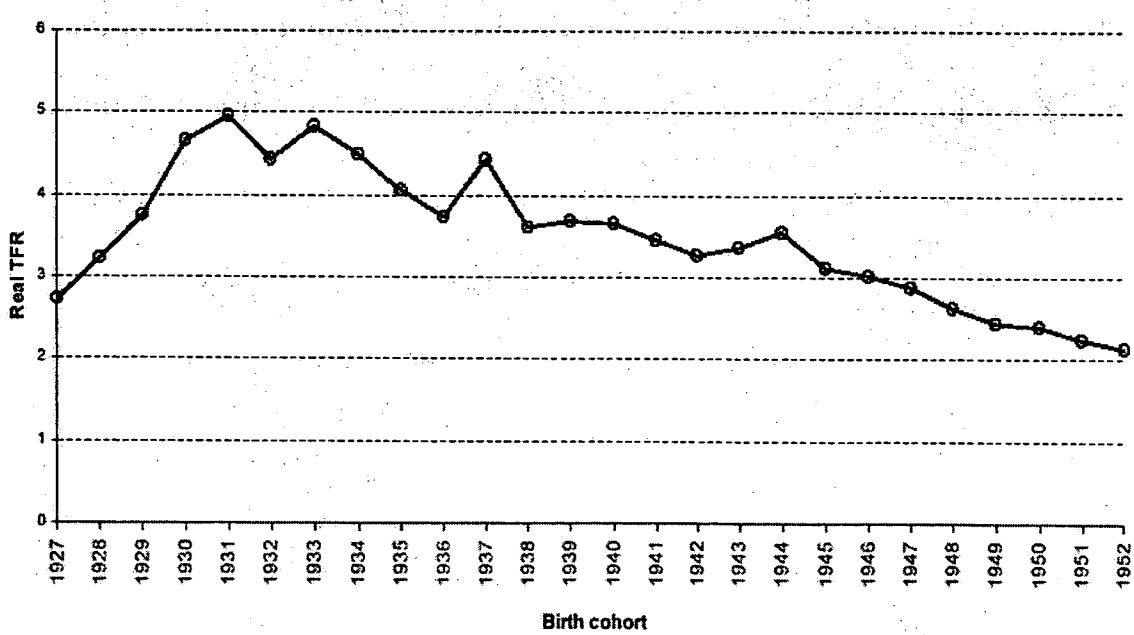


Figure 5. Difference in the cumulated fertility of cohorts (All birth orders), 1931-1981

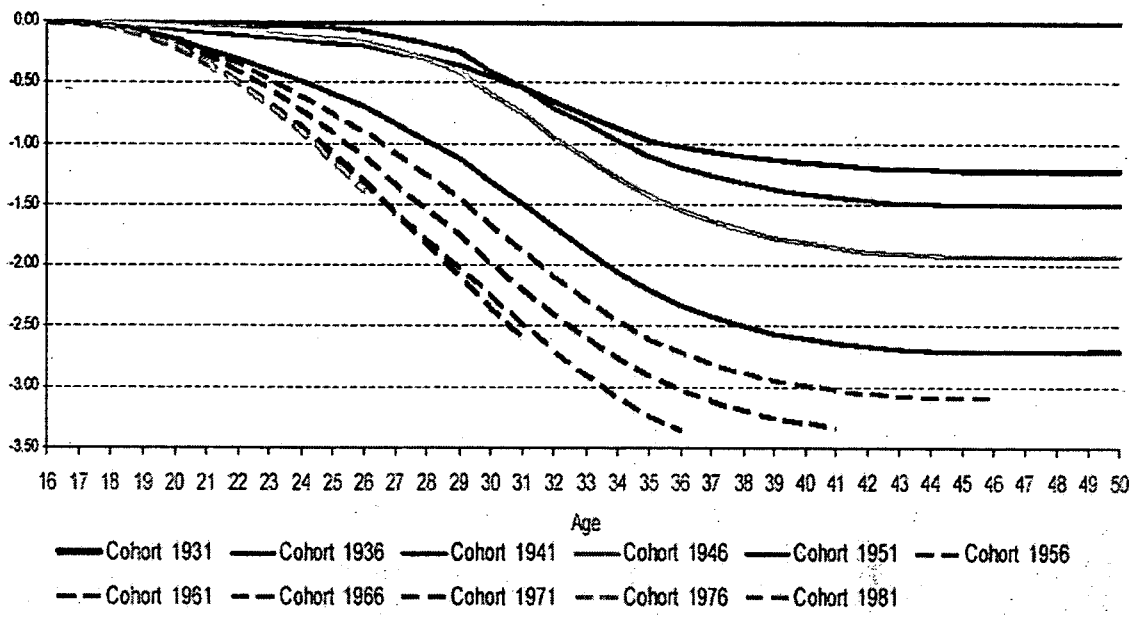


Figure 6. Difference in the cumulated fertility of cohorts (First birth), 1961-1976

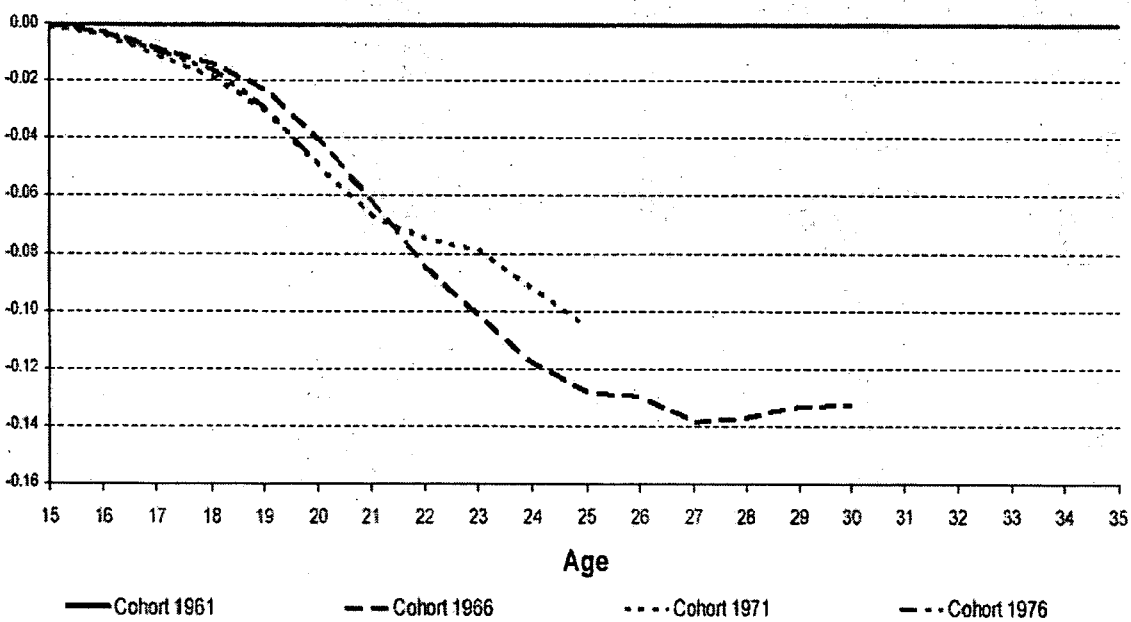


Figure 7. Cohort ASFR (All birth orders), 1931-1981

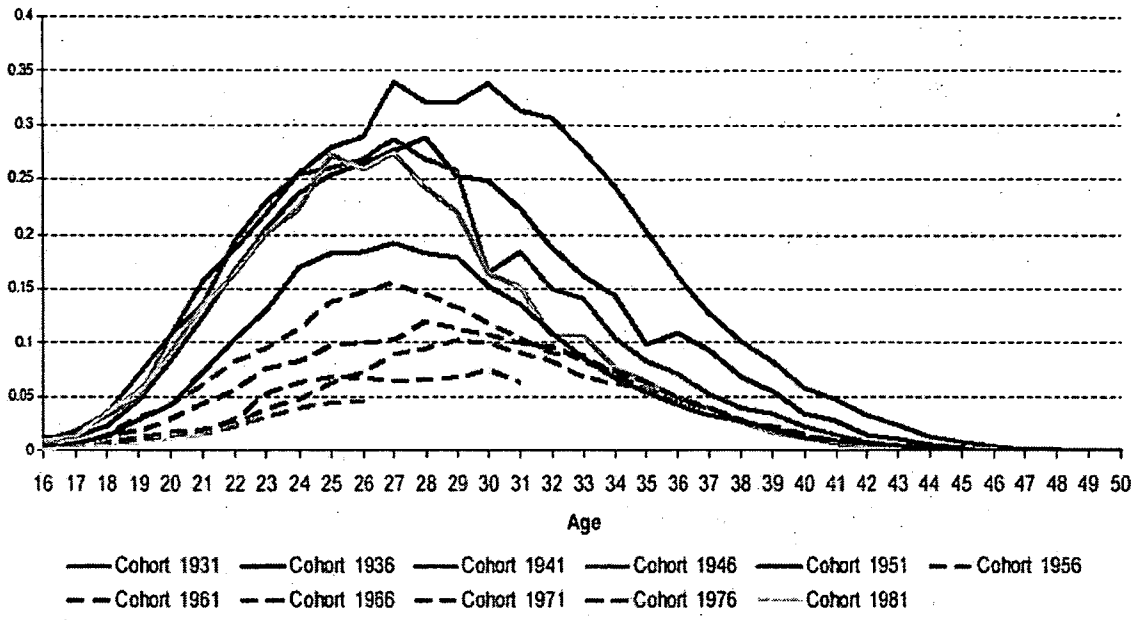


Figure 8. Cohort ASFR (first birth), 1961-1976

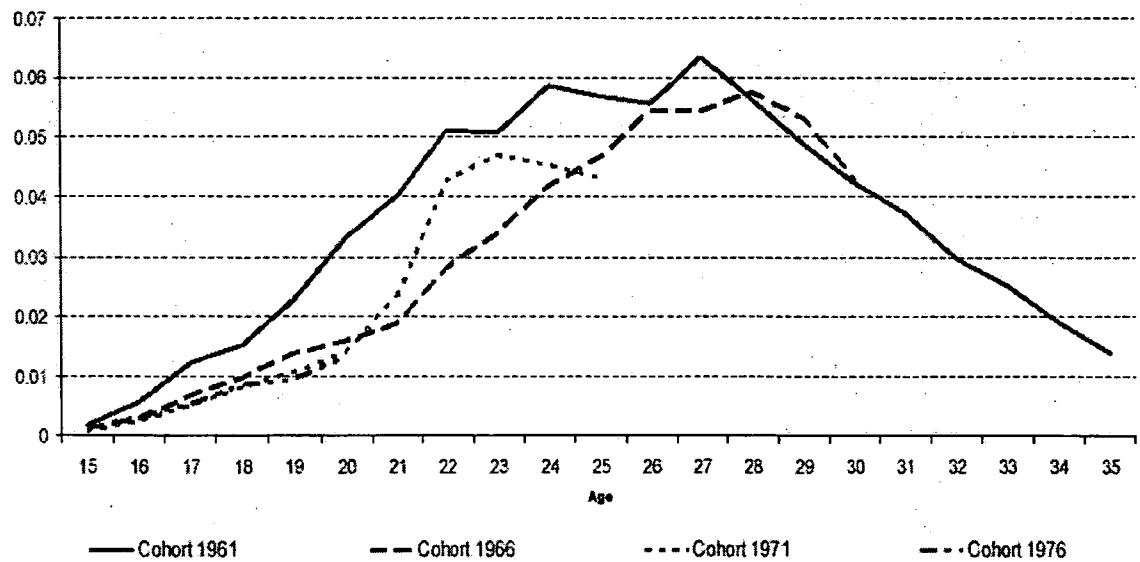


Figure 9. TFMR and TFR, 1976-1996

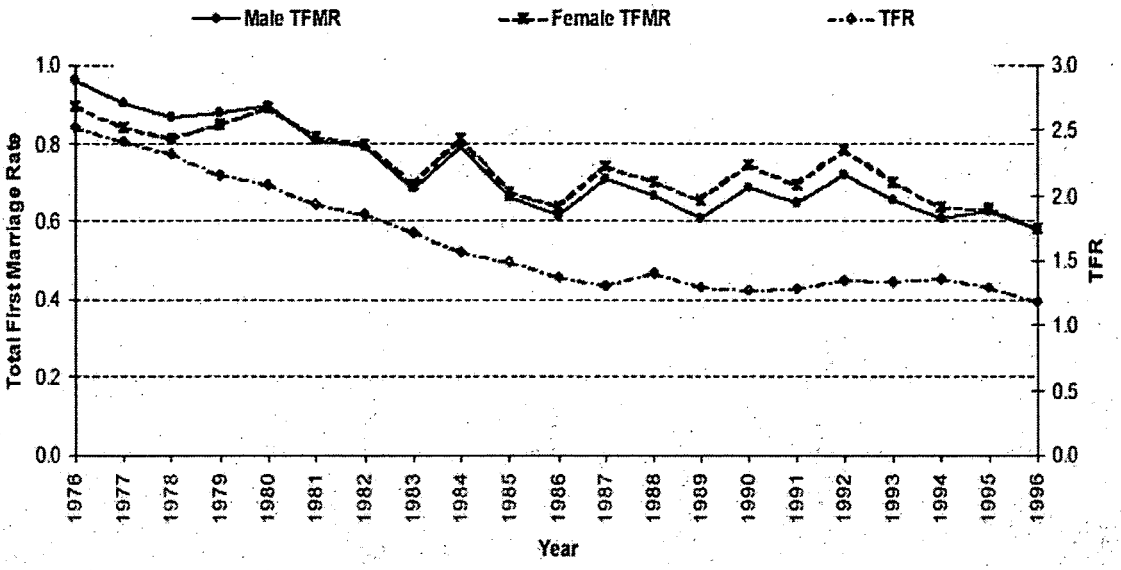


Figure 10. General Divorce Rates and TFR, 1976-2001

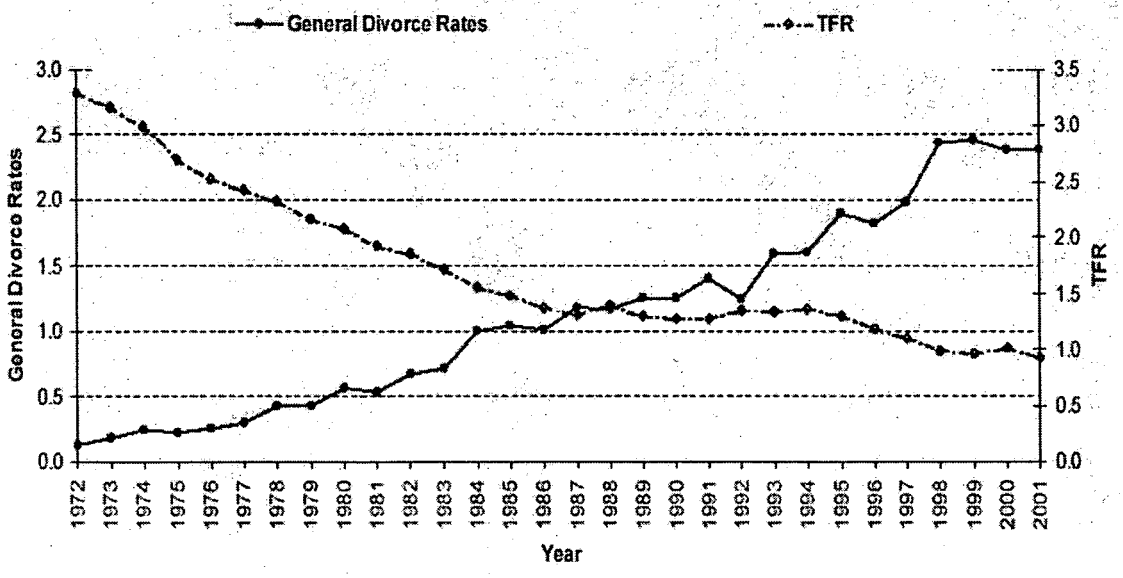
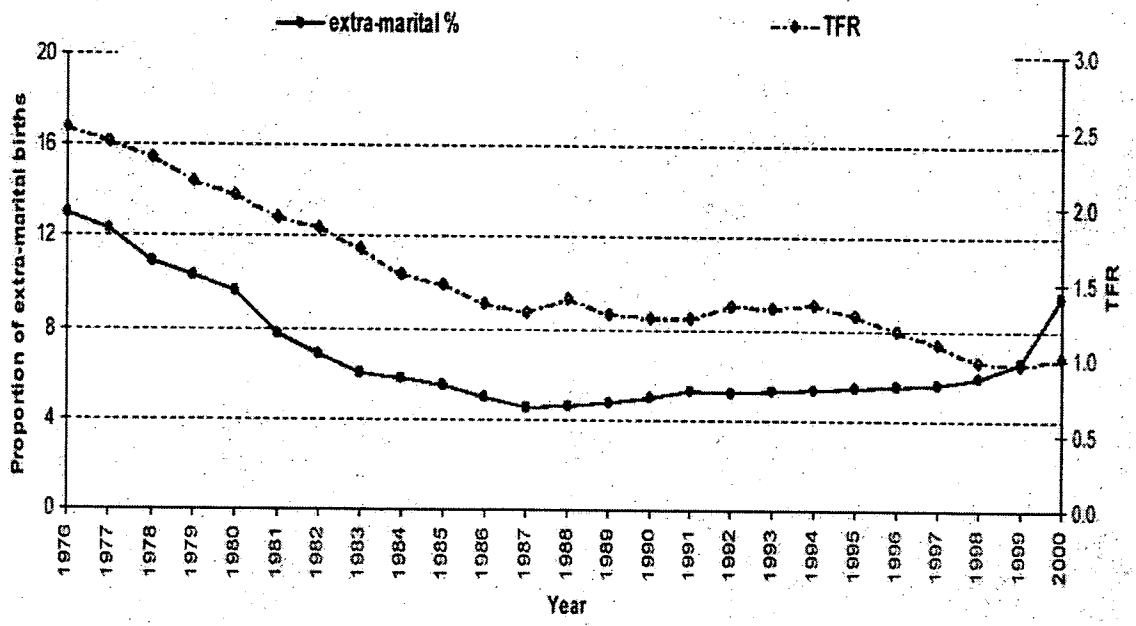


Figure 11. Proportion of extra-marital births and TFR, 1976-2000



第４部　国内（多子・少子地域）

第４部　第１章

日本における地方自治体の少子化

国立社会保障・人口問題研究所

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１．はじめに

本稿は、日本の市区町村別および都市圏別の出生力について、地域格差に注目して検討するものである。具体的な課題は以下の３点である。１点目は、市区町村別の出生力格差について、出生力を規定する夫婦の出生力、婚姻の格差も含めて検討する。２点目は、都市圏の規模別に出生力の変動および格差の推移を取り上げ、夫婦の出生力と婚姻がどのように影響しているのかを検討する。３点目は、日本の中で低出生力地域として知られる東京大都市圏を対象に、出生力格差の地域的な構造を検討する。対象とする時期は、いずれも 1960～2000 年である。

日本の出生率は、いわゆる出生力転換を終えた後の安定期を経て、1970 年代半ば頃から置換水準を下回って低下し始めた。途中、若干の上下動はみられたものの、期間出生力指標である TFR は減少基調のまま推移し、2003 年には 1.29 を記録した。これは、Kohler et al.（2002）のいう極低出生力（lowest-low fertility）に相当する。こうした中で、近年の地域出生力は、２つの注目すべき変化を示した。１つは、人口転換終了以前のいわゆる「東高西低」型の出生力パターンが薄まり、大都市圏で低く、非大都市圏で高い、という地域パターンが強まったことである（Nakagawa2003）。２点目は、出生力の相対的な地域格差が、1980 年代後半以降に再び拡大したことである（清水 2004）。この２つの現象は、主に大都市地域で出生力低下がより一層進んだために生じていた。では、このような出生力の地域格差やその変化はなぜ生じるのだろうか。また、大都市圏－非大都市圏に代表される都市規模と出生力はいかなる関係にあり、どのように規定されるのだろうか。

このような疑問に答えるためには、夫婦出生力指標および単位地域という２つの課題をクリアする必要がある。前者の夫婦出生力指標は、婚姻とともに地域出生力を規定する要因である夫婦出生力を探る上で必要になる[1]。夫婦出生力は、通例、出生数を年齢別有配偶女子人口で除したいわゆる年齢別有配偶出生率で表される。しかし、同指標は、年齢別有配偶女子人口が結婚持続期

[1] この他にも社会経済的、文化的な要因も考えられるが、これらは間接的な要因である。図式的にいうならば、社会経済的、文化的な要因は婚姻や夫婦の出生力を媒介して総体としての出生力を規定する、ということになる。このため、地域出生力を規定する要因を検討する場合、まずは、婚姻と夫婦の出生力に注目する必要がある。

間でコントロールされないため、女子の年齢別初婚率分布に変化が生じている近年の日本の状況では、夫婦出生力を適切に反映しない可能性がある（廣島 2001）。実際、全国と地域の出生力格差をとり、年齢別有配偶出生率と年齢別有配偶率とに要因分解した研究では、東京都の出生力の低さはもっぱら有配偶率に起因するという結果となった（石川 1992）。それに対し、廣島・三田（1995）は、年齢別有配偶出生率が孕む問題を回避するために、女子の既往出生力指標である同居児データを用いて地域出生力格差を検討した。その結果、大都市地域の低出生率は既婚率、既婚出生率がともに全国でもっとも低いために生じていること、既婚率の低さは大都市特有の現象ではないこと、を明らかにした。ただし、同居児データは、市町村単位では把握できないことや1970年代以前に関しては地域単位で得られないなど、データ利用上の制約が少なくない。

夫婦出生力の把握の難しさは、地域出生力の期間変動の要因を検討する上でも制約となっている。最近は、1970年代以降の全国の出生率低下において夫婦出生力低下の寄与が確認されており（廣島 2000、岩澤 2002）、同様の事態が地域出生力変動においても生じている可能性は高い。この点に関して、濱（2003）は、東京都などの大都市地域では、少なくとも1980～2000年の出生力低下において有配偶出生力低下が寄与したと指摘する。しかし、同研究は、各年次の都道府県の出生力順位と SMAM 順位を利用した分析であり、直接的に有配偶出生力の寄与を計測したわけではなかった。

一方、もう１つの課題である単位地域に関しては、既存の地域出生力研究がもっぱら都道府県を単位としてきたこともあって、市区町村を単位とした出生力分析の必要性という形で指摘されてきた（石川 2001、高橋 2002 など）。その理由は、都道府県という単位が婚姻を含む出生行動に影響を与える空間単位として、必ずしも適さない場合があるからである。例えば、人口動態保健所・市区町村別統計の市区町村別 TFR によって明らかにされた都道府県内部の出生力格差は、地域出生力を都道府県という単位のみで捉えることの限界を示すものである。また、市区町村を基本単位とすることで、複数の市区町村領域から形成され、社会経済的に一つのまとまりをもった実質的な領域としての性格を有する都市圏別の出生力を分析することが可能になる。これにより、都道府県別では大都市－非大都市といった区分でしか把握できなかった現象を、より詳細かつ実質的な意味を持った地域単位で把握することができるのである。

既存研究の中には、市区町村を単位とした出生力研究も存在する（上木ほか 1992；田中 2001、2003；高橋 1997；正木・鈴木 1982 など）。ただし、これらは、いずれも限られた地域・期間の分析であって、全国スケールで通時的に検討することはほとんど行われてこなかった。その理由として、取り扱うデータ量が膨大であるという研究遂行上の制約があったと考えられる。ところが、最近では、電子データの整備が進み、GIS ソフトが普及するなど、研究環境は大幅に改善された。

以上を踏まえ、以下では市区町村及び都市圏の出生力について検討する。次節では、分析に必要な指標、すなわち年齢別有配偶出生率を用いることなく有配偶出生力の把握が可能で、しかも市町村単位で計測できる出生力指標について、分析単位として利用する都市圏も併せて提示する。その上で、３節で第１の課題、４節で第２の課題、５節で第３の課題をそれぞれ検討し、最後に６節で若干のまとめを行う。

2．方法

（1）指標

出生力を表す指標の一つに子ども女性比（以下 CWR とする）がある。CWR は、15～49 歳女子人口に対する０～４歳人口の比の形で表され、静態統計である国勢調査の結果を利用する。同指標は、現代日本のように乳幼児死亡率が低く、出生関連統計が小地域単位で表章されない場合には最適の指標とされる（高橋、1997）。日本の地域出生力研究では、河辺（1976）や正木・鈴木（1982）、国土庁計画・調整局編（1998、79-89p）などで用いられてきた。

本稿では、CWR を応用した下記の指標を用いる[2]。

出生力指標　$$CWR=\frac{P_{0-4}}{P^{f}_{15-49}}$$　・・・ ①

夫婦出生力指標　$$CMWR=\frac{P_{0-4}}{P^{fm}_{15-49}}$$　・・・ ②

婚姻指標　$$MR=\frac{P^{fm}_{15-49}}{P^{f}_{15-49}}$$　・・・ ③

P：人口　　P^{f}：女子人口　　P^{fm}：有配偶女子人口

ただし、①～③の指標は、人口集団の年齢構造の影響を含むため、このままでは地域間・異時点間で出生力を比較するには不適当である。そこで、間接標準化の考え方に則って①～③を標準化することにした。次節以降の分析では標準化した指標である以下の④～⑥を用いる。なお、④～⑥の指標の詳細およびその有効性は、付論で検討する。

$$sCWR^{i}={}^{\blacktriangledown}CWR\times\frac{{}^{i}P_{0-4}}{\sum_{j=15}^{45}{}^{i}P^{f}_{j\sim j+4}\times\alpha_{j\sim j+4}}$$　・・・ ④

$$sCMWR^{i}={}^{\blacktriangledown}CMWR\times\frac{\frac{{}^{i}P_{0-4}}{{}^{i}P^{fm}_{15-49}}}{\frac{\sum_{j=15}^{45}{}^{i}P^{f}_{j\sim j+4}\times\alpha_{j\sim j+4}}{\sum_{j=15}^{45}{}^{i}P^{f}_{j\sim j+4}\times\beta_{j\sim j+4}}}$$　・・・ ⑤

[2] 市区町村別年齢５歳階級別人口には年齢不詳分を按分して含めたが、市区町村別有配偶女子人口には、年齢不詳分、配偶関係不詳分は含めていない。