

IUSSP seminar *Patterns of Economic Development, Social Change, and Fertility Decline in Comparative Perspective: Analysis and Policy Implications*, Shanghai, 24-26 May 2012

Summary of presentations and discussions

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The seminar distinguished itself by a number of special contributions. Several analyses lead to the conclusion that replacement level fertility is not necessarily the best alternative for sustained societal development. A common thread in these papers was that a number of factors may render various degrees of below replacement fertility compatible with long-term societal prosperity. Two papers illustrate the significance of migration, another elucidates the possible effects of education, and yet another emphasizes the importance of economic productivity when considering the level of fertility required for securing optimal wellbeing of future generations. This amounts to a significant theoretical and empirical development challenging the long held notion that replacement level fertility is the indispensable condition for a prosperous future of contemporary advanced societies. This is an area of investigation calling for serious attention.

That a proportion of the income of the elderly should depend in part on contributions of their own children and that this might function as a pro-natalist incentive is another idea that deserves to be considered as a potential policy alternative.

Several of the other papers provided important additions to scientific knowledge and policy implementation practices. Most notably, the collection of papers dealing with the People's Republic of China presents a comprehensive picture of the entire scene and of the factors contributing to contemporary fertility trends and suggests the option of adjusting policies that have been in place for several decades.

Introduction

The IUSSP Scientific Panel on Below Replacement Fertility: Causes, Consequences and Policy Responses in collaboration with the School of Social Development and Public Policy of Fudan University organized a seminar on *Patterns of Economic Development, Social Change, and Fertility Decline in Comparative Perspective: Analysis and Policy Implications*, Shanghai, 24-26 May 2012.

In the *call for papers* the organizers stated: "The aim of this seminar is to improve the understanding of the patterns and causes of fertility decline to below replacement level in different settings and paces of economic development and social change, and to consider their policy implications."

The demographic issues discussed at this seminar are directly related to crucial contemporary and future economic, social and political issues. The "big recession" of the late 2000s and early 2010s was undoubtedly triggered -- and its resolution is being hampered -- by misconceived actions of governments, regulatory agencies and major financial institutions.

The basic demographic trends of our times, however, are so fundamental that societies have to deal with their impact and consequences, no matter what else is transpiring. These demographic trends are interwoven with the major challenges contemporary societies are confronted with.

By the beginning of the 21st century, the combination of inherent basic long-term social, economic, and technological developments and given cultural conditions has generated a new and historically unprecedented demographic landscape. About 45 percent of the world population lives in countries with fertility below the replacement level (PRB 2011). This state of affairs had developed in the 1930s in about half of Europe as an intrinsic feature of the demographic transition (Kirk 1946). The secular downward trend in fertility was interrupted by the Second World War and the baby boom of the 1950s and 1960s. What stands out now is the extent to which below replacement fertility has spread around the globe and the potential for involvement of additional countries. At present not only virtually all countries of Europe, North America and East Asia are experiencing below replacement level fertility, but also countries such as Cuba, Brazil, Chile, Iran, Thailand and Vietnam (PRB 2011).

Below replacement fertility generates changes in the age structure of populations that are unprecedented. The combination of declining and low fertility and declining mortality leads to a shrinking of young age groups, to a prospective diminution of age groups in the reproductive and productive ages, and to proportions of old population larger than ever before. In short, populations are ageing (Table 1). It is the dimensions of contemporary, and well-nigh unavoidable future, ageing that have never been experienced in human history.

Table 1: Real and projected population shares, age 60 and over, age 80 and over, selected countries, 1950, 2010 and 2030

<i>Year</i>	<i>Shares of population of age 60 and over (in percent of total)</i>				<i>Shares of population of age 80 and over (in percent of total)</i>			
	<i>Germany</i>	<i>Japan</i>	<i>Sweden</i>	<i>USA</i>	<i>Germany</i>	<i>Japan</i>	<i>Sweden</i>	<i>USA</i>
1950	14.6	7.7	14.9	12.5	1.0	0.4	1.5	1.1
2010	26.0	30.5	24.9	18.4	5.1	6.3	5.3	3.8
2030	36.2	37.1	28.8	25.3	8.0	12.7	7.7	5.2

Source: United Nations 2011

The extent of ongoing population ageing is something that was not anticipated when the principal properties of modern welfare states were designed and implemented in the post-World War Two years. The modern welfare state aims to minimize poverty by taxing incomes and wealth and providing both cash welfare benefits (such as old-age pensions or unemployment benefits) and in-kind welfare services (such as health or childcare services). Ageing and economic trends generate a relative shortage of population groups that are subject to the respective taxes and thus a shortage of resources for the smooth operation of welfare states.

The demographic changes are an inherent underlying cause contributing to the economic, political and social problems developed countries are currently experiencing. To alleviate the challenges brought about by demographic trends societies have to strive either to correct these or to learn how to cope with the consequences.

As will become obvious from the contents of some of the papers and the discussion towards the end of this article, the perception of “replacement level fertility” as a “*sine qua non*” for societal wellbeing might have to be revised. The effects of migrations on the age structures of populations have not been taken into account adequately. Other analyses indicate that technological developments require better recognition when thinking about the relationship between the working population and the strata they support. Various levels of below replacement fertility might very well be consistent with conditions in which a relatively small proportion of the working population can support the young and the elderly.

The purpose of this report is to identify scientific and policy contributions made by the papers presented at the seminar in dealing with below replacement fertility. We have classified the papers into a few relevant categories, although there are some that do not fit neatly. Two papers are not included in this review as the topics were deemed irrelevant with regard to the substance of the seminar.

- Global low fertility trends and patterns
- China as a focused case of a low fertility country
- Specific strategies and policy options to cope with low fertility

A final section of this report will discuss what appear to be the more meaningful ideas and findings emerging from this seminar.

Global Low Fertility Trends and Patterns

Several papers deal with the fertility trends and issues either of one specific population or with certain groups of countries (Hosseiji-Chavochi, Punpung).

A principal circumstance on the path to below replacement fertility in South Korea was the growth of women’s involvement in the labor market from a very low level in the 1960s to over half being economically active at the end of the first decade of the 21st century (L. Ma). While there are many complexities involved in the effects of employment on fertility, in principle female employment exerted a dampening effect on childbearing. Significant reforms of the female related welfare system have been implemented. However, the institutional support is still not sufficient enough to substantially reduce the level of incompatibility between women’s work and favorable conditions for childbearing.

Decline in Japan’s fertility to below-replacement levels has been caused largely by decreasing rates of marriage and, with little out-of-wedlock childbearing, declining marriage has driven fertility to very low levels (Tsuya). Two factors are primarily associated with declining first marriage rates and low fertility, a lack of regular employment possibilities for men and women, and rising educational attainment. Job security, good career prospects, and financial stability that regular employment brings greatly enhance the likelihood of first marriage. Women's higher education strongly reduces the likelihood of first marriage. Because increasing delay of marriage and non-marriage in Japan are likely owing, at least in part, to increasing educational attainment of young women and diminishing employment prospects among young men in the context of economic globalization, increasing individual choice, changing normative orientations about marriage and the family, Japan's first marriage rate may further decline and its fertility may remain at very low levels for some time to come.

Since the early 1990s the Japanese government has formulated and expanded various policies and programs to address low fertility. These direct policy interventions appear to have so far been largely ineffective in the sense that the rate of first marriage has been declining and fertility has remained very low. The gravity of the issues is likely to lead the Japanese government to strengthen policy and society-wide efforts to help young men and women have more employment opportunities and, consequently, make work and family life compatible.

Following a 30-year decline of the total fertility rate from around seven births per woman in the mid-1970s to 1.95 in 2005 in Mongolia, the TFR increased to 2.69 in 2009, a difference of 38 percent (Byambaa). In 2005 a series of social assistance and allowance programs aiming to increase household income and to encourage population growth was introduced. A number of existing measures were expanded, such as free medical prenatal care, a four-month paid maternity leave (extendable up to two years without pay), a one-month paid paternity leave, and labor laws protecting pregnant women and breastfeeding mothers. Also new measures were introduced, namely a one-time cash transfer for newlyweds and newborns, and monthly and quarterly allowances for each child under the age of 18. Clearly these measures motivated women and couples to raise their immediate childbearing. At the same time, it is too early to analyze whether fertility quantum, i.e. cohort fertility, will increase. It is conceivable that women were just advancing their childbearing and that in future years fertility might be lower. The authors present several arguments to substantiate the success of the policy measures in raising fertility. They argue that the authorities could capitalize on very favorable and conducive factors for increasing fertility rates in the socioeconomic, historical and cultural, and demographic contexts of the country. In Mongolia pro-natalist policies were implemented as an immediate response to below replacement fertility, whereas in a number of East Asian countries it took many years for governments to introduce such policy measures. Also, historical and cultural factors have contributed to shaping a very different status of women in the Mongolian society compared to other East Asian societies. The nomadic pastoral life has contributed to value the status of women who have always played an important economic role in the family, Tibetan Buddhism practiced in Mongolia does not discriminate against women, and women enjoyed a high status under decades of socialist rule. It remains to be seen whether the success in raising fertility in Mongolia will be long-lasting or temporary.

Fertility was around, mostly below, replacement for four decades since the late 1960s in what is now the Russian Federation and this state of affairs engendered considerable concern (Frejka). Two pro-natalist campaigns were designed and implemented. The first one during the 1980s and the second one which started in 2007 was still in progress in the early 2010s. Pro-natalist policy measures of the early 1980s advanced childbearing and raised period TFRs between 1981 and 1987 from 1.9 to 2.2 births per woman. But the quantum of fertility remained unchanged among the 1950s birth cohorts around 1.9 births per woman. Preliminary analyses indicate that the result of the 2007 policies was again to advance childbearing. The TFR increased from 1.3 to 1.6 between 2007 and 2010. It is too early to ascertain the real impact of this latest round of pro-natalist measures. In both cases the main emphasis of the policy sets was on material birth and child benefits, parental leaves and child care. Apparently insufficient attention was devoted to improving general social and economic conditions of young people, such as employment and living conditions, and promoting gender equality at home, at work and in other societal institutions. The question arises whether the efforts of the government and other entities to raise fertility during the 2010s will be strong enough and

sufficiently effective to offset economic and social forces challenging childbearing. As of 2012 the outlook for a future fertility increase does not appear hopeful.

Based on a sample from 23 countries a paper exploring parity distributions has confirmed substantial differences by gender and class for childlessness and for having three or more children (Jensen). Men are much more likely than women to remain childless both in high and low fertility countries while upper middle class individuals in high fertility countries are more likely to be childless. On the other hand, women and workers have more children than men and upper middle class individuals. Among others, this paper strengthens the evidence that it is desirable to implement policies allowing mothers of all classes to combine the upbringing of children with the possibility of being employed.

The conclusion of a study of western OECD countries suggests that economic development, measured by GDP per capita, is a driving factor for fertility in the majority of these countries to increase, and further economic development is likely to induce a fertility rebound in the richest societies. This finding has been contradicted by analyses of other authors (Bongaarts and Sobotka 2012, Frejka 2011, Frejka and Sardon 2009) who have concluded that the recent period fertility upturns were largely explained by a decline in the pace of fertility postponement and not by an increase in fertility quantum. The OECD study also concludes that in a number of countries there was a positive impact of family policies (including childcare measures) on fertility. This shows that countries have the possibility of modifying the association between fertility and female employment by implementing policies that provide favorable conditions for women to balance employment and childbearing (Luci).

Then there is a study aiming to explain the wide variation in fertility levels among countries that have had fertility at or below replacement level for two or more decades (Rindfuss). A majority of women in advanced countries work outside the household and tend to have at least one child. In practice this manifests itself as a powerful incompatibility between worker and mother roles and the resolution of this tension has a dominant influence on fertility. Country level differences in fertility can be explained by institutional differences. The paper explores the complex impact of seven main institutions: education, labor market, child care system, housing, transportation, gender equity structure, and welfare state policies. Each country has a package or basket of these institutional factors and it is the mix in a given country's basket that influences fertility. A considerable fertility variation is likely to continue for decades as each country has a specific basket of institutional factors rooted in a country's culture and shared history, which tend to be resistant to change. It is a country's entire basket across the seven major institutions that contribute to a country's level of worker/mother incompatibility. Thus, change would be needed in a variety of institutions across numerous countries to produce fertility convergence, and this seems unlikely.

The paper "The future of fertility" provides an overview on experts' estimates of fertility in 2030 and 2050 (Basten). The extremely extensive survey provides not only numerical estimates but deals also with the presumed factors generating future levels of fertility. An analysis of these factors is too complex to summarize for this review article, nonetheless the estimates of future fertility levels are pertinent. The mean projected TFR across all respondents is 1.59 in 2030 and 1.55 in 2050. Most populous low-fertility countries are expected to see significant declines in period TFRs (Brazil, Iran, Mexico) or to retain low TFR levels not much different from the present ones (China, Japan, Russia). In 26 out of 30 countries examined here, the experts expected lower fertility rates in 2050 than the UN medium variant of global population projections. The overwhelming message from the

survey is that the experts expect fertility to stay below the replacement level in the future, even in a long-term horizon when current negative tempo effects should eventually lose relevance.

China as a Focused Case of Low Fertility

With its share of the world's population, its unique history of fertility decline, and with it being the host site of this seminar, China was examined as a focused case of low fertility. The four papers dealing with fertility trends in the People's Republic of China in recent history complement each other fittingly (Li, Liu, X. Ma, Zhai). Together they provide a comprehensive portrait of what has led to the current state of affairs and they indicate some of the most important present challenges. The following findings and conclusions are noteworthy.

As of 2010 the total fertility rate is apparently well below 1.5 births per woman; a sharp fertility decline among rural women has resulted in a TFR = 1.6; and the urban TFR appears to be a sustained "ultra-low fertility" of 1.1 births per woman. More precise estimates will become available once results of the 2010 census are fully processed.

The current fertility level is due to a combined effect of a strong enforcement of fertility policies and rapid social and economic development; cultural factors also played a role.

There are indications that this level of fertility in China will not only be maintained but fertility decline, especially of rural women, is likely to continue.

Social and economic conditions have created an environment in which average ideal family size among the urban population is very low, around 1.3 children. Findings of reasonably representative samples of urban and rural, resident and floating populations in the Beijing area suggest that a majority of around 60 percent wish to have no more than one child, even in the absence of policy restrictions.

Rapid social and economic development in the urban areas has generated a massive influx of the rural population, among them single and married women seeking off-farm jobs with a strong desire to earn sufficient amounts to remit home.

Young and single rural women usually migrate to cities after finishing junior high school to earn some cash for supporting their aging parents' health care needs, their younger brother's senior high school tuition fees, and savings for their own wedding and marriage. Their delay in marriage caused by their off-farm employment to earn some savings is not required by the fertility policy but driven by the economic reality of an open labor market.

Married rural women are motivated to migrate and work in urban areas by a hope for a better future for their children and their families (Wu). They see the off-farm jobs far away from home in cities as a means of making ends meet for supporting senior high school tuition fees of their children and the needs of their families. Although their early departure for cities to join in their peer groups by leaving their only toddler behind at home cared for by the elderly is presumably in part influenced by the new small family size norm required by the fertility policy, the rural-to-urban temporary migration of rural mothers per se is not required by the fertility policy but driven by the "family survival strategy."

Educational levels of the population have been increasing rapidly and apparently there is a negative education-fertility gradient. For instance, the total fertility rate of rural women with senior high school education is currently at 1.3 births per woman. If, as planned access to senior high school enrollment will be at 90 percent by 2020, a further fertility decline will take place (Chen).

It is important to examine the fertility transition in China not only on a provincial level, but also on a county level. Overall, the regional variation of fertility diminished over time. It might, however, be misleading to conclude that the fertility transition in China has been largely completed as suggested by the changes of provincial TFRs. In 2000, the county-level¹ TFR in China ranged from 0.41 (in *Xiangyang* District of *Jiamusi* City, *Heilongjiang*) to 5.47 (in *Baqing* County of Tibet), although the variation at the provincial level is much smaller (from 0.67 in Beijing to 2.19 in *Guizhou*).

The county level analysis of the fertility transition showed that cultural and social factors played important roles in fertility dynamics. The promotion of women's education was significant in bringing down the regional fertility rate and accelerated the fertility transition. Furthermore, the regional fertility transition in China has benefited substantially from the extensive use of mass media such as radio and TV. These media have been very important channels for the spatial diffusion of the fertility transition between counties (Niu).

One study examines the future implications of the well-known imbalances in the marriage market (Jiang). Age at marriage is projected to increase 1.5-2 years for males and females, respectively, by 2025. At the same time, the share of unmarried females is projected to increase from less than 1 percent to 2.5 percent; up to 10 percent of men might be unmarried, and fully 15-20 percent of males age 30-39.

Findings based on two surveys conducted in 2008 and 2011 in Beijing urban and rural areas with 3000 respondents ages 20-39 indicate generally low images of ideal family size of urban and rural residents and of the floating population ranging between 1.3 to 1.5 children per couple. Furthermore there appears to be a low desire to have a second child (X. Ma).

The Beijing surveys found that young people no longer depend on parents' opinions about childbearing. Son preference is no longer an issue, i.e. there is no longer any sex discrimination concerning descendants, either gender is acceptable. This implies that the sex ratio at birth is likely to normalize in current birth cohorts.

A number of papers suggest that it might be the time to reevaluate China's fertility policies. There might not be any need for varying fertility policies. Also, given the views on childbearing of the young generations it might be acceptable to substantially relax the strict one-child family policies (Zheng).

Strategies and Policy Options to Cope with Low Fertility

A paper entitled "Migration, fertility, and population replacement in the developed world" reports on remarkably comprehensive research on the role of migration on intergenerational replacement (Sobotka), i.e. on the extent to which migration may counterbalance the effect of

¹ County-level units in China include counties proper (*xian*), county-level cities (*xianji shi*), and districts of prefectural and provincial level cities (*qu*).

low or declining fertility, or exacerbate this effect. Intergenerational replacement can be examined as birth replacement, i.e. migrants raising the numbers of births and thus making up for the birth ‘deficit’ caused by low fertility, or as population replacement, i.e. the extent to which a cohort of daughters replaces a cohort of mothers both measured at the same age, say 30. Methods that can be used to measure the marginal impact of migration on population and birth replacement are outlined. In the second part of this paper an empirical analysis is conducted demonstrating the effect of migration. Average Total Fertility Rates (TFR) for the period 2005-2009 in 23 out of 26 developed countries had a below replacement value, i.e. below 2.07 births per woman. When the effect of migration is added by applying the Birth Replacement Ratio (BRR) the number of countries below the 2.07 threshold shrinks to 16 out of the 26, and if a threshold of 1.90 is considered, the number of countries below that threshold is 11. According to this calculation, with the combined power of fertility and migration, 58 rather than 12 percent of these countries have sufficient “births” for replacement. On the other hand, in 42 percent of countries even the combined effect of fertility and migration is insufficient for birth replacement. Among them some had a negative migration balance thus resulting in an even lower BRR than the TFR. Overall, these and other analyses in the paper show the significant impact of migration on birth and population replacement. Immigration enhances replacement, emigration impedes replacement. As most contemporary low fertility countries tend to attract migrants, migration is a positive factor enhancing replacement in these countries. There are, however, several countries experiencing low fertility and emigration. Such a state of affairs generates justified concern and requires measures to cope with the potentially difficult societal consequences.

The paper “Rules in change? Births, migrations, cohort replacement and homeostasis in world population: 1950-2100” explores the issue of how fertility, survival and migration contribute to cohort replacement using United Nations data for the world and its regions (Dalla-Zuanna). Inertia and fertility have played the key role at the global level, but in specific regions of the world survival and migration have significantly contributed to shaping replacement dynamics during 1950-2010. In particular, survival has played a role in countries lagging behind in the demographic transition, while fertility has played an important role in some countries characterized by the decline to very low fertility levels. This paper also documents that during the 1950-2010 period, the relationship between the components of demographic change has followed, at least partially, a homeostatic principle. When dealing with contemporary populations it can be hypothesized that populations in which cohorts are sub-replaced, these attract migrants (when they are available), while populations in which cohorts are super-replaced, these create out-migrants. As survival progresses, the key element of homeostasis in populations will become the relationship between fertility and subsequent migration—where even small differences in fertility, echoed by the size of successive birth-cohort, will have an impact on migration. The empirical analyses document this for the 1950-2010 period, and they cast some doubts on a potential underestimation of future migration flows in the medium variant of UN population prospects for the period 2010-2100.

In the paper “Optimal Fertility” the wide-spread view that replacement level fertility perceived as a total fertility rate of 2.07 births per woman in low mortality countries is the most desirable level of fertility both for countries currently above and below this level is challenged (Striessnig). The research reported on in this paper is based on the premise that a person’s contribution to societal wellbeing is positively correlated with the degree of education s/he has received, i.e. people with higher education are more productive. Costs of education and of old-age support are taken into account in the innumerable simulations of

dependency ratios using input data based on contemporary reality conducted to estimate the optimal level of fertility (OLF), that is, the TFR which shows the lowest level of education-weighted dependency with a long-term horizon for the entire 21st century. Subsequently environmental considerations, i.e. minimizing the possible deleterious impact of human activities on the environment, are internalized in the simulations. The results imply that total fertility rates below the replacement level fertility of 2.07 would be sufficient to support optimal dependency ratios. These optimal levels of fertility are estimated as a TFR of 1.78 for the European Union (27) and 1.68 for China when only the educational parameters are included. By adding specific environmental considerations these TFRs decline even further, namely to TFRs of 1.51 for the EU 27 and 1.42 for China.

In contrast to most of the papers presented at the seminar in which the concern for the dependency cost of the elderly dominates, the paper “Is Fertility Too Low? Capital, Transfers and Consumption” deals not only with the dependency cost of the elderly *but simultaneously also with the dependency costs of children* (Lee). The authors devise a series of comprehensive models building on economic research conducted since the 1950s, for instance, by Nobel Prize laureates Samuelson and Solow, to demonstrate levels of total fertility rates that would be sufficient to support the wellbeing of contemporary populations. Data to enable these calculations are provided by age profiles of consumption and labor income from National Transfer Accounts currently being produced by teams in 32 countries, developed and developing, around the world. The models incorporating realistic demographic and economic coordinates demonstrate that if only fiscal relationships are taken into account relatively high TFRs in the order of 3.0 births per woman would be required. If the productivity of capital with a realistic capital-output ratio of 3.0 is taken into account, the fertility that maximizes lifetime consumption is much lower, generally between 1.5 and 2.0 births per woman. Furthermore, in almost all rich countries there is a choice of both fertility and saving rates that maximizes lifetime consumption, and in this case fertility typically lies between 1.0 and 1.6 births per woman. These results suggest that countries should not be overly concerned about below replacement fertility, at least from the point of view of costly intergenerational transfers.

A paper entitled “A fourth pillar for old-age pensions: A radically novel pronatalist reform” argues that the motivation for childbearing could be enhanced by reestablishing “the positive material link between individual fertility behavior and individual old-age security” (Demeny). At present old-age material security is provided through a “three-pillar” system consisting of 1. A state administered transfer of taxes levied on the economically active population to pensioners; 2. Mandatory savings for retirement in individual accounts; and 3. Voluntary private savings. A re-linkage is proposed through a reform of state managed pay-as-you-go social security systems that would provide a direct transfer from children’s contribution to the social security fund to their retired parents. Such a transfer would not affect the level of contribution to the fund by children with retired parents but only its allocation. Parents receiving such transfers would not incur personal obligation to their children as parents’ demise would leave children’s social security contributions unchanged. The size of the pension of pensioners who raised children would be directly related to the size of their children’s contributions and would be proportionately larger than that of pensioners who did not have any children. Couples would have a potentially strong incentive both to raise more children than would otherwise be their intent and to raise them to be highly productive members of the labor force as adults. The reform, which needs to have a quasi-constitutional guarantee as a long-term system, can be justified not only as a measure aimed at inducing socially more desirable levels of aggregate fertility but also on the grounds of economic and

ethical considerations unrelated to demographic responses. Such an arrangement would constitute “the fourth pillar” for old-age pensions.

Summary and Overall Evaluation of Seminar Results

Global Low Fertility Trends and Patterns

Virtually all papers support the conclusion that below replacement fertility is widespread in economically and socially advanced countries, it is continuing to spread to more countries, and is likely to dominate for several decades. According to a survey of professionals, the average TFR in the ± 30 countries covered is estimated at almost 1.6 births per woman in 2030 and in 2050, and the most populous countries will either retain their current low fertility or experience declines during the coming decades. Another study concludes that a considerable fertility variation is likely to continue for decades as each country has a specific basket of institutional factors rooted in a country’s culture and shared history, which tend to be resistant to change. Convergence of fertility levels across countries appears unlikely.

The country studies presented at the seminar illustrate that often efforts to raise below replacement fertility once it has been reached are not strong enough to reverse the trend. The applied policies are apparently not sufficiently comprehensive to counter the forces that have generated low fertility. The mother/worker incompatibility is at the core of the issue. The desire and need to be gainfully employed in highly educated societies is a powerful counterbalance to the desires to have children. At times following the introduction of pro-natalist policy measures an immediate increase in period fertility is experienced, however this tends to be an expression of advancing childbearing rather than increasing it. In Russia and Mongolia it is too early to evaluate the pro-natalist policy measures of the mid-2000s.

An analysis of OECD populations claims that GDP per capita growth is having and will have a positive effect on fertility. Recently published papers reveal that such fertility increases tend to be influenced by timing of childbearing and hardly ever result in an increase of fertility quantum. This same study also claims that the introduction of family policies may have a positive impact on fertility. This finding might be applicable only to a narrow range of countries with a long history of successful welfare policies and with fertility relatively close to replacement.

China as a Focused Case of Low Fertility

Historical changes in fertility levels and attitudes, as well as in the forces driving fertility change, have occurred and are still continuing. It appears that as of 2010 the total fertility rate was around 1.5 births per woman, down from 6.0 about four decades ago and 3.0 thirty years ago. This is only in part the result of a strict enforcement of the one-child state policy, albeit with some regional waivers, and is increasingly driven by unprecedented social and economic development. There are a number of indications that fertility is likely to decline further.

- Ideal family size appears to be as low as 1.3 children per family with large proportions of couples not wishing to have more than one child, i.e. there is a low desire for second children.
- Increasing proportions of men are remaining unmarried due to an imbalance in the marriage market.

- There is a massive influx of the rural population into towns, among others of married women, who desire to remit funds to families back in the villages.
- Increasing educational attainments are negatively associated with declining fertility.
- Altogether cultural and social factors are important in the diffusion of the fertility transition, ranging from increasing women's education to utilization of mass media, such as radio and television.
- The influence of parental generations is diminishing and thus the attitude of son preference is substantially weakening.
- The variation of the regional variation of fertility is narrowing, with counties of relatively high fertility trending towards lower childbearing.

A consensus is emerging that it is time to re-evaluate fertility policies. Conceivably the relaxation or even abandonment of the one-child family policy might not lead to any change in the on-going fertility trend.

Strategies and Policy Options to Cope with Low Fertility

A principal concern of contemporary societies is to have adequate resources to secure a reasonable wellbeing of the population in retirement age. A balanced age structure with a sufficient inflow of young people replenishing the population of working and reproductive age and thus having the potential to support the population in retirement was perceived as the optimal path to guarantee such resources. And a total fertility rate around 2.1 births per woman in modern societies was perceived as instrumental to generate and maintain the desired age structure. Roughly forty years ago there was a consensus belief that the fertility transition was aiming towards childbearing patterns with a TFR of roughly the desired magnitude. This has not occurred. With very few notable exceptions advanced countries are experiencing TFRs below this threshold. The average TFR for the 27 countries of the European Union, for instance, was 1.59 births per woman in 2010, i.e. 30 percent below the "replacement level."

Analyses and reflections presented at the seminar delineate different mechanisms how resources needed to support the old-age population can be secured often with TFRs below 2.1 births per woman. Two papers, each in somewhat different ways, document and analyze how migration can be a meaningful force in replacing births and/or generations needed to generate desirable age-structural balances. Moreover, it is shown that the relationship between the components of demographic change has followed, at least partially, a homeostatic principle. Populations in which cohorts are sub-replaced attract migrants, while populations in which cohorts are super-replaced create out-migrants.

Another recipe to rectify age-structural imbalances is deemed possible by raising educational attainment. Presumably a person's contribution to societal wellbeing is positively correlated with the degree of education s/he has received, i.e. people with higher education are more productive. Thus fewer well educated people of working age can support a proportionately larger number of people of retirement age. A total fertility rate below 2.07, an "optimal level of fertility," will generate a sufficiently large generation to support retirees.

A thorough economic analysis combined with convincing simulations illustrated the levels of total fertility rates that would be needed to support dependent young and old people. In the rich countries economies with realistic capital and labor productivity would be sufficient to support the wellbeing of contemporary populations with TFRs well below replacement.

Another strategy to secure reasonable old-age support is based on the idea to recreate under modern conditions the direct link of support within the family. Part of older people's income would be directly dependent on the number of children growing up to have productive lives. Couples would have a potentially strong incentive both to raise more children than would be otherwise their intent and to raise them to be highly productive members of the labor force as adults.

An Overall Evaluation of the Seminar

The contributions to the seminar not only met expectations as outlined in the call for papers, but exceeded them. There were many ways in which "the understanding of patterns and causes of fertility decline to below replacement level" was improved, and "their policy implications were considered." In addition, the seminar yielded some unforeseen significant results demonstrating that "below replacement fertility" as traditionally perceived can be sufficient to attain the goal of reasonable economic support for the elderly. There were, however, a few papers that turned out to be of marginal value.

As a whole the mechanisms generating China's fertility trends are increasingly better understood. Thus, the likely developments following a conceivable change of official policies are becoming quite predictable.

In other countries the general principles that generous pro-natalist measures are unlikely to succeed unless they are embedded in a family-friendly culture nurtured by the state over extended periods of time are being confirmed.

The analyses pointing to the importance of migration and education when considering replacement level fertility were a most welcome meaningful and significant addition to the seminar. Immigration enlarges the population of reproductive and working age. Higher education enhances the productivity of the labor force and thus its ability to support the old-age population. Of equal, if not more, importance is the recognition that modern labor and capital productivity might render contemporary rich countries capable of supporting the dependent age groups with a relatively small proportion of population of working age.

To make sure the achievements of the seminar are seen in the right light, it needs to be said that much of what was presented at the seminar builds on the varied output of demography and the social sciences in general accumulated over the years. For instance, as pointed out by the authors of the document accentuating the role of education, the focus on human capital is not new in the history of demographic thinking. Alfred Sauvy in 1958 showed that the German post World War Two economic miracle was enabled by the return and/or immigration of a highly skilled work force, but "mainstream demography has not really incorporated this important line of thinking" (Sauvy 1953).

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