Fertility Change and Economic Growth: East Asia and the Philippines

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Introduction

A number of observers have generally noted the sustained economic growth and the rapid pace of fertility decline in East Asia during the last three decades.[1] For example, during the period 1965-95, the average annual GDP growth per person was 6.6 percent in East Asia (excluding the People's Republic of China), 5.6 percent in the People's Republic of China, and 3.9 percent in Southeast Asia. By contrast, South Asia grew at an average rate of only 1.9 percent during the same period. By 1995, the total fertility rate in East Asian Economies including People's Republic of China was below replacement level. A rapid decline in total fertility rate was also noted in Southeast Asia, with Thailand achieving close to replacement fertility in 1995 (See Table 1).

When one looks at the data more carefully, one finds that one country does not fit this general characterization – the Philippines. In sharp contrast to East Asia, particularly Thailand, the Philippines is characterized by slow economic growth and slow fertility decline.

This paper explores the idea that the rapid fertility declines in East Asian countries (with the exception of the Philippines) in the past three decades is related to sustained economic growth. Where crises occurred, they were

[1] For purposes of this paper, "East Asia" refers to the economies of Japan, South Korea, Taiwan, Singapore, and Thailand. Recent accounts of the economic growth in Asia include World Bank (1993) and ADB (1997). Recent studies describing the rapid fertility transition in Asia include Caldwell and Caldwell (1997) and Leete and Alam (1999).

not so severe or recovery was rapid such that the long-run economic growth trajectory is one of sustained boom. Under this situation, households are able to make a number of household decisions based on a more certain and bright economic future. In the case of fertility, such decisions are likely to be consistent with a smaller family size.

In contrast, the slow fertility decline in the Philippines is related to unsustained economic growth characterized by a cycle of growth spurts (but at a relatively lower rate than that of East Asia) followed by a period of crisis in what is now commonly known as the "boom-bust" cycle. When booms are not sustained and recovery from crises is long, the typical impression among households is one of little economic change, and these households would view the future as more uncertain and the economic prospects less bright. The fertility decisions of households based on such expectations are likely to be consistent with a family size larger than replacement level.

The "boom-bust" phenomenon does not only apply to the economy but also to the character of governance. In the other countries of East Asia, there was sustained political commitment to an outward-looking economic policy that promoted efficiency and rapid economic growth, and to a population policy designed to achieve demographic goals. In contrast, in the Philippines, such commitment to an outward-looking economic policy and a policy of population growth reduction was late and lacking, respectively.

FRAMEWORK

The paper adopts the familiar analytical framework of the determinants of fertility change based on the work of Easterlin (1975), whereby actual fertility is determined by the demand for children, the potential supply of children, and the cost of fertility regulation.[2] The difference between potential supply

[2] In this framework, the demand for children refers to the number of surviving children parents would want if fertility regulations were costless. The factors that affect the demand for children are child survival and the value and disvalue of children. The potential supply of children refers to the number of surviving children that couples would have if they did not deliberately limit fertility. The factors that affect potential supply are natural fertility and child survival. Natural fertility refers to the number of children couples would have if they did not limit their fertility. Natural fertility depends on a number of factors but principally on the length of the reproductive span and fetal mortality. The cost of fertility regulation includes the money cost (cost of contraceptives and transportation expenses to the clinic and professional fees for services), time costs (value of time to learn and use contraceptives, travel time, waiting time at the clinic), and psychic costs (anxiety about morality of contraceptive use, fear of side effects, etc.). Underlying these proximate determinants of demand, potential supply, and cost of fertility regulation are economic (income, prices, employment), social (education of mothers), and cultural (religion, status of women) factors.

and demand determines the motivation for fertility regulation. If demand is more than what can be potentially supplied, then there is no need for fertility regulation. If demand is less than what can be potentially supplied, then there is motivation for fertility regulation. Actual fertility regulation (and extent of regulation) depends on the motivation for, and the cost of, fertility regulation. Regulation would be less than perfect if cost is positive. The higher the cost, the less perfect the regulation. Actual regulation determines actual fertility.

How do economic booms and cycle of "boom-and-bust" affect demand, potential supply and the cost of fertility regulation, and in turn affect the pace of fertility decline in the affected countries? The standard microeconomic theory of the demand for children emphasizes several aspects about children that help us understand the impact of social and economic changes associated with economic booms and crises on fertility operating on the demand side.[3]

First, a major cost of children to parents is the opportunity cost of the time of mothers. Increases in women's wages and education (that are associated with sustained economic growth and social development) have a negative impact on fertility, even larger than increases in men's wages and education. Nonhuman capital, on the other hand, is expected to have a positive impact on fertility. It is not only the overall level of income that is important for the decline in fertility but also the changing composition of income between labor and nonhuman, and between males and females.

Secondly, as the returns to human capital investment in the education of children increase (due to greater demand for higher education in the changing labor market), parents invest more for the schooling of their children and at the same time reduce their own fertility. A recent study by Montgomery, Arends-Kuenning and Mete (2000) provides support for this "quantity-quality" of children tradeoff in the Asian context.

Thirdly, the increasing shift from rural to urban living makes the net costs of children higher because there is less productive work for children within the family and the costs of living in urban areas are relatively higher than in rural areas. Finally, actions by government particularly in providing publicly subsidized old age support and health care, through social security systems and national health insurance programs, reduce the demand for children to perform these functions within the family.

[3] For a comprehensive review of the factors affecting the demand for children in low-income countries, see Schultz (1997).

Through the above mechanisms, rapid economic and social changes associated with sustained economic growth are expected to hasten the pace of fertility decline. It should be noted, however, that large-scale economic and social changes are not needed to initiate and sustain fertility declines. Rather what is important is the change in economic aspirations and expectations engendered by the emerging economic and social changes. Writing in 1979, Friedman suggested that "(1) subsets of objective development alterations, much smaller than those that characterized the West, can provide motivation for lower fertility today; and (2) under modern conditions, ideals and aspirations for a different way of life transcending what is actually available are also important in motivating lower fertility" (p65). More recently, Casterline (2001), after reviewing the fertility trends in Asia, Africa, and Latin America, upheld the importance of the economic factors affecting the demand for children.[4] He also emphasized the role of the pace of change in economic aspirations and expectations in explaining inter-country variation in the pace of fertility decline.

The role of the state is also seen as affecting not only the demand for children but the other proximate determinants as well, particularly the cost of fertility regulation, through its efforts in promoting access to and reducing the costs of birth control methods. McNicoll (2001) argues that the state is not merely a manager and funder of family planning programs that seek to influence fertility: "In addition to programs explicitly directed at changing fertility – the effectiveness of which governments are prone to overestimate – there is a wide range of other government actions that probably impinge on fertility" (p.130). The main categories of state action that affect fertility behavior and outcomes are as follows (p.139):

- The state develops, funds and manages programs that seek to influence family-size outcomes through information, advocacy, economic inducement, or political pressure.
- The state has a part in determining access and opportunity in the society – social mobility, returns to effort, distributional equity – particularly through the social stratification and gender systems, thereby affecting the fertility calculus of individuals and families.

[4] Casterline (2001) notes: "Rapid fertility decline is often cited as evidence against the theories of fertility transition that revolved around reduction in the demand for children, itself a response to changing social and economic circumstances. This argument does not hold up. In fact, nonlinear and possibly rapid decline should be the usual response of fertility to structural change, for several reasons: because of the interaction between quantity and quality of children, because of lags and leads in economic aspirations and expectations, and because period fertility does not perfectly tract trends in desired fertility." (p. 43)

- The state designs and undertakes public sector expenditures, both infrastructure investments and transfer payments keyed to age or family status, that affect the private economics of fertility.
- The state wields the symbols of national identity and cultural continuity that take the place of local beliefs and traditions, setting individual expectations and behavior in a wider national and even global cultural network.

It might be noted that the last three categories of state action are those that not only influence fertility but also economic and social change primarily. Hence, governments that succeed in undertaking these actions effectively and efficiently are likely to engender more rapid and sustained economic growth and social transformation, as well as more rapid fertility decline.

Our framework is not complete if we do not include the idea of "cumulative causation", namely, that rapid economic and social change resulting from economic booms lead to rapid fertility decline; rapid fertility decline in turn contributes to more rapid economic growth, thus fueling more rapid fertility decline. The rapid fertility decline in East Asia has been suggested as a major contributing factor in its rapid economic growth (World Bank, 1993; Bloom and Williamson, 1998). However, the mutually reinforcing impacts of fertility decline and economic growth on each other has not often been emphasized. Recently, Bloom, Canning and Melaney (2000) have shown empirically "the existence of strong two-way linkages between demographic change and economic growth". They elaborate as follows:

> These linkages suggest that a multiplier mechanism partly determines both demography and income. Within this framework, policy-induced changes in demographic or economic variables can promote a virtuous cycle of cumulative causation in which economic and demographic characteristics interact in a mutually reinforcing way. Even small initial changes can lead to a growth spurt that will continue until fertility rates stabilize at a low level. The same mechanism can also create the poverty traps that seem to have regions like Africa and South Asia in the grip (p.283).

Economic Booms, Other Factors and Rapid Fertility Decline in East Asia

A number of studies have shown how specific aspects in the above framework actually worked in effecting economic and fertility transitions in selected countries. We review the studies below that illustrate the dynamics of one or more factors explaining the link between economic booms and fertility decline. The first study is the industrial and fertility transition in East Asia by Oshima (1983) where he examined the record of economic growth and fertility change (and the connections between the two) of Japan, Taiwan and South Korea in particular. The second study is by Cheung (1989) on the role of government policy in effecting significant and rapid fertility decline in Singapore as the economy grew. One might conjecture that strong governance can achieve both high economic growth and rapid demographic transition. The third study is by Knodel, Chamratrithirong, and Debavalya (1986) on the role of culture in facilitating Thailand's fertility decline in the face of rapid economic growth but even without completing the industrial transition.

Economic Transformation and the Demand for Children in Japan, South Korea, and Taiwan

Oshima's interpretation of the linkage between economic growth and fertility change in Japan, South Korea, and Taiwan follows essentially the demand for children framework in the context of the transformation of an agricultural society into an industrial society. The following processes involved in the transformation were identified: (1) the emergence of full employment and rising wages; (2) the spread of mechanization; (3) the rapid rise in family income; and (4) the shift in labor force from agriculture to industry, and the parallel shift from rural to urban society.

Associated with full employment and rising wages were the increased labor force participation, and rising earnings of women. These raised the opportunity costs of rearing children, thus creating incentives for reduced fertility. The spread of mechanization of what formerly were highly labor-intensive operations, partly as a response to full employment and rising wages, made the labor of children redundant, thereby lowering their value to parents. To enable their children to obtain good jobs in a changing economy, families invested in the education of their children beyond the primary level. Higher incomes enable parents to bear the costs of education and to forego the incomes of children if they had started working after primary schooling. Oshima indeed found a close association between the timing of fertility

decline and secondary enrollment. For example, the acceleration in fertility decline in Japan occurred in the 1950s when over one-half of the households had children enrolled in secondary schools. In Taiwan, the decline in total fertility rate from around three to two occurred when half of the households had children in secondary schools. This "quantity-quality" tradeoff is supported by the econometric study done by Montgomery, Arends-Kuenning and Mete (2000) mentioned earlier.

With respect to the effect of increased income on fertility behavior, Oshima stressed that:

> To be relevant for long-term behavior, the higher levels must be – and be perceived to be – long-term. They must originate from such self-perpetuating changes as improved institutions and technology; shifts to crops with higher cash values and to multiple cropping; rural industrialization, mechanization, irrigation, drainage, improved roads, and transport systems; and higher levels of education and health. Long-run full employment with rising pay sustained over one or two decades assures parents that their incomes will continue to be high in the future (p.593).

As the labor force moved from agriculture to industry, there was a parallel shift from rural to urban settings. The higher costs of urban living, fewer work opportunities for children, and the need for higher education for children, all tended to increase the costs of children. Likewise, the wider availability of pensions and health insurance, and extended opportunities to save and invest in assets for the future reduced the long-run benefits of children as a form of insurance.

In summary, Oshima notes that:

> In the transition to an industrial economy, parents began to experience a number of changes that affected their views about the number of children they desired – the rising opportunity costs to women of childbearing; the loss of earnings of teenagers at school; the diminishing usefulness of children on the farm, in stores, and in homes, as machines substituted for child labor; the increasing demand for more educated labor; the reduced need to depend on children for support in old age; and the higher costs and lower values of children in urban settings (p. 603).

Economic Transformation and Strong Population Policy in Singapore

Cheung (1989) reports that Singapore is one of the first Asian countries to have adopted a vigorous population program as part of its socio-economic development strategy. In 1966, the Singapore Government established the Singapore Family Planning and Population Board (SFPPB) to offer family planning services and to advocate the small family norm. At that time the population was growing at about 2 percent per year and the total fertility rate (TFR) stood at 4.7. The government saw the need to reduce rapid population growth to help in balancing the available economic resources with the demands of an increasing population (pp.35-36).

Industrialization has proceeded rapidly; double-digit growth in GDP was achieved; unemployment declined from 8.9 percent in 1966 to two or three percent annually in the 1980s. Cheung further reports that with rapid economic growth, significant improvements were made in housing conditions, public health, transportation, and educational opportunities. The government was also able to deliver efficient family planning services through a network of maternal and child health clinics as part of its population program. Social policies were introduced to provide incentives and disincentives to reinforce the small family norm. Replacement fertility was attained in 1975; however, the level of fertility continued to fall steadily reaching 1.8 in 1995. The government currently adopts measures and incentives to promote high fertility under the "New Population Policy" adopted in March 1987 to arrest the continuing fertility decline at that time.

Economic Growth and the Role of Culture in Fertility Change in Thailand

Knodel, Chamratrithirong and Debavalya (1986) reports on the sustained fertility decline in Thailand. What is of interest is that such decline occurred even when Thailand's level of industrial development is still low by Western or East Asian Standards. The fertility decline occurred in almost all major segments of Thai society.

In explaining such rapid fertility decline, the authors point to the role played by the "rapid and fundamental social changes that have been taking place which have caused couples increasingly to view large numbers of children as an economic burden, as well as the organized efforts to provide contraceptive methods, especially through the government's family planning program" (p.25). Moreover, they emphasize that the impact of social and

economic change and government programs on actual behavior is mediated through the cultural setting. These cultural values include:

- the expectations of parent repayment, which has persisted but reconciled with the desire for a smaller number of children where parents opt for small families because a small number of children, if "properly raised", would be sufficient to provide parents with old age security;
- relative independence of couples in decisions about marriage and subsequent childbearing; thus the cultural prop for high fertility present in some societies is absent in Thailand;
- female autonomy: the relatively high status of Thai women facilitates labor force participation, contraceptive use and lower fertility;
- a religion that stresses the primacy of individual action and responsibility.

The authors conclude that: "The recent course of fertility decline in Thailand becomes far more comprehensible once the cultural setting in which it has occurred is taken into account" (p.46).

These three illustrative studies highlight salient features of fertility transition under a situation of economic booms. The first shows how economic transformation resulting in full employment, and increased productivity and incomes, affect the demand for children. The second highlights the role played by strong governance in effecting both high economic growth and rapid fertility decline. The third highlights both the role of economic growth and the cultural factors that facilitated the acceptance of Thailand's population program.

In all three cases, if one factors in the mutually reinforcing effects of fertility decline and economic growth on each other, one gets a better explanation of the rapid and sustained pace in which both economic growth and fertility decline occurred.

Economic and Political "Boom and Bust" and Slow Fertility Decline in the Philippines

The contrast to the above experience is that of the Philippines: low and unsustained economic growth and slow decline in fertility. The economic

growth record of the Philippines is succinctly described by de Dios (2001) as follows:[5]

> The recent economic history of the Philippines for the past half-century has been dominated by a sequence of growth spurts followed by sharp to very-sharp downturns, or what has since become known as the "boom-bust cycle" (BBC). Taken together, all of these have added to a record of mediocre growth for most of the period. The Philippines, to be sure, is not unique in having economic cycles, which are a feature of many capitalist economies. What is remarkable, however, is that the episodes of growth have been relatively brief and show low average levels, and that the downturns have been severe and recovery periods extended. By way of contrast, other countries in the region have apparently been able to sustain longer periods of economic growth, for some lasting more than a decade (p.21).

The "boom-bust" cycle is rooted in the very structure of the Philippine economy, which in turn is a product of economic policy that has its origins in the import-substitution development strategy of the 1950s. Unlike countries in East Asia and Southeast Asia that have adopted a more outward-looking economic policy by relying on international trade to broaden their markets and promote efficiency in the economy, the Philippines continued with its import-substitution policy well into the 1970s, and remnants of such policy are still evident in uncompetitive industries. Given this economic structure, the generation of a "boom-bust" cycle may be roughly described as follows, using de Dios' summary description below: [6]

> ...coming out of a recession, government typically begins "pump-priming" until growth rates of 4-5 percent are attained and capacity is reached. Fiscal deficits and interest rates rise and inflation enlarge. Competitiveness worsens

[5] See also Fabella (1994) for a more detailed description.

[6] Using negative or near-zero GDP growth rate as the indicator, de Dios identified three such episodes of "boom-and-bust" cycle since 1946, namely, the 1984-85, the 1990, and the 1998 episodes. Using negative investment growth as the indicator, there are 10 episodes culminating in the 1998 crisis, namely: 1949-50, 1952, 1956, 1960, 1970, 1980, 1984, 1985, 1991, and 1998. Fabella (1994), using balance of payments crisis episodes, identified six episodes: 1949, 1957, 1969, 1980-83, and 1997-1999.

> as a result and current account deficit grows, but the financing gap is initially covered by drawing down accumulated reserves, foreign borrowing, or both. Indeed the latter would be attractive given rising domestic interest rates... As the current account continues to worsen and foreign borrowing fails to keep up, however, the currency becomes ripe for speculative attack and sooner or later, a drastic depreciation or devaluation is inevitable, combined with cost-push inflation and the high-interest rate cum tight-money regime that is the monetary authorities' typical response. Thus begins the bust period as investment slumps. As soon as the current account and foreign currency reserves have recovered in the bust regime, however, the cycle begins anew (pp.24-25).

The mechanisms described above suggest that the "fluctuations are self-induced and are the result of a failure to reform the structure of the Philippine economy" (p.25), particularly its heavy dependence on imports and lack of export orientation, which ultimately affect the exchange rate, and the relatively low saving rate as a proportion of GDP compared to other countries in the region.

The impact of low and unsustained economic growth engendered by the "boom-bust" phenomenon on fertility can be understood in terms of the impact of slow and unsustained economic growth and transformation on aspirations and expectations regarding the future, upon which households base their fertility and other human capital investment decisions. Based on the experience of successful countries mentioned earlier, it is important that economic and social change, even though initially small, must be perceived as permanent or sustained well into the future. A "boom-bust" cycle creates uncertainty about the future, and such uncertainty can slow down declines in fertility. And if the "bust" is severe as in the case of the 1984-85 episode, and recovery is slow, there will be an impression among household decision makers that things are not moving at all or are not likely to improve significantly in the foreseeable future. A status quo on fertility rather than a faster decline would be consistent with such a situation. It is of great interest to note that the 1984-85 economic crisis in the Philippines resulted in very large declines in output (around five percent in each year) that until now, with slow and uneven economic recovery, the current per capita GDP in 1985 prices is still lower than what it was in 1981-82 prior to the crisis. For many households, such economic performance is not likely to generate a bullish outlook about the future.

In addition to economic structure-related factors, de Dios proposed that BBCs also be viewed in light of political and governance factors, partly because of the observation that economic crisis is often associated with elections and change of government. There are at least two aspects to this, according to de Dios. The first is that in the desire of the incumbent or its party to be reelected, the government adopts an expansionary fiscal policy, which increases fiscal deficits, which then leads to trade deficits, and which when uncontrolled, leads to currency depreciation and crisis. The other aspect relates to the response of private investment when there is impending change in government administration. Such change is often accompanied by changes in the "rules of the game", and the uncertainty of the situation may lead to a decline in private investment. Thus a full explanation of macroeconomic instability must include, according to de Dios, the role of the weak economic structure resulting from economic policies and the political uncertainties of regime changes.

Political and governance factors also help explain why the Philippines cannot mount a sustained program of family planning. A recent review of population policies under different government administrations shows that "there has been constant shifts in policy with respect to fertility/population growth from a strong commitment to reduce fertility and population growth under the Marcos administration, to a lack of commitment if not outright rejection of the policy under the Aquino administration, to a resurgence of commitment in fertility/population growth reduction under the Ramos and Estrada administrations, and to an ambiguous commitment under the Arroyo administration" (Herrin, 2002, p.24).

Weak management in the economic sphere combined with inability of government to forge a stable consensus on fertility reduction partly explains why economic growth is slow and uncertain, on the one hand, and why fertility has not declined more rapidly, on the other.

Concluding Remarks

The experience of rapid economic growth and fertility decline of East Asian countries offers an instructive contrast to the Philippine experience. The usual factors affecting the demand for children (e.g., increasing opportunities of women's time, and quality-quantity trade off in children) are accelerated in situations of sustained economic growth. This partly explains the rapid pace of fertility declines in East Asia. Then there is the case of the mutually reinforcing impacts of economic growth and fertility decline that serve to

increase the pace of both. The opposite occurs in a situation of periodic economic crises viewed in the long-term, as in the case of the Philippines.

The presence of a strong population policy with clear demographic goals also appears to be an important characteristic of countries that have achieved rapid fertility decline in the context of rapid economic growth. Such cannot be said of the Philippines, which is characterized by a lack of a stable consensus on demographic objectives in the midst of persistent opposition by powerful stakeholders.

Finally, fertility decline is facilitated by cultural factors favorable to rational fertility decision-making even in situations where the level of socioeconomic development is still low by industrial country standards. There are both facilitating and constraining cultural factors in the Philippines. Like in Thailand, female autonomy is relatively high compared to other countries in the region. However, the influence of the Catholic religion on a large majority of the population tends to limit choices of couples with respect to contraceptive methods.

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Table 1: Economic growth and fertility decine in Asia

Region/Economy	Average annual GDP growth per persons (PPP adjusted) 1965-1995	First quinquennium of fertility decline*		
		Period	TFR during previous quinquennium	1995 TFR
East Asia	6.6			
Hongkong	5.6	1965-70	5.3	1.2
Korea, Republic of	7.2	1960-65	6.1	1.6
Singapore	7.2	1960-65	5.8	1.8
Taipei, China	6.2	1955-60	6.4	1,8
People's Republic of China	5.6	1970-75	5.9	1.9
Southeast Asia	3.9			
Indonesia	4.7	1970-75	5.6	3.4
Malaysia	4.8	1965-70	6.7	3.3
Philippines	1.2	1960-65	7.1	4.1
Thailand	4.8	1965-70	6.4	2.2
South Asia	1.9			
Bangladesh	1.6	1975-80	7.0	3.5
India	2.2	1970-75	5.6	3.4
Pakistan	1.6	n/a	-	5.6
Sri Lanka	2.3	1955-60	5.7	2.3

*The first quinquennium with a decline in the total fertility rate of at least 10 percent compared with the previous quinquennium.
Sources: GDP growth from ADB (1997) and TFR decline from Caldwell and Caldwell (1997).