Summaries

Very Low Fertility and the High Costs of Children and the Elderly in Japan and Selected Asian Countries: An NTA Approach

Naohiro Ogawa

In the first half of this paper, we have examined the relationship between the cost of raising children up to self-supporting ages and the number of children parents have, by drawing heavily upon the computed results for the following six Asian economies: Japan, Taiwan, South Korea, China, Thailand, and the Philippines. The results suggest that the two variables in question have a negative association in the case of the six Asian economies, and that the calculated elasticity is -0.69, which implies that lower fertility has been accompanied by a slight decrease in the total cost of childrearing per adult. More importantly, as regards the per capita child human capital costs and the TFR, the calculated elasticity amounts to -1.48, which suggests that, in the six economies under examination, the health and education component of the per capita child lifecycle deficit (LCD) is more closely linked to fertility change than the other components of the per capita child LCD.

In the second half of this paper, we have investigated the trade-off relationship between the cost of children and the number of children not only in terms of formulating effective fertility policies, but also from the standpoint of generational equity. As hypothesized by Preston in 1984, population aging induced by reduced fertility and extended longevity should lead to a decline in the welfare of children relative to the elderly. However, contrary to this, one of the conclusions derived from our study is that, in the six Asian economies examined, the "crowding out" phenomenon between children and the elderly cannot be observed.

Japanese Demographic Changes and Macroeconomic Performance in the Coming Decade

Makoto Kondo

Chapter 1 examines the kinds of impacts a declining birth rate and aging population will have on the growth potential of the Japanese economy from the perspectives of manpower supply, capital stock, and technological progress. By 2030, the working population will decline by around 10 million compared to its current level, and making up this difference by increasing the percentages of the labor force accounted for by women and the elderly will entail significant difficulty. In addition, there are concerns that the heavy cost companies will bear for incentivizing labor participation will eventually add to the forces driving them to move production facilities overseas. Accepting foreign workers gives rise to worries about the emergence of Western-European-style political and social problems if the number of workers becomes large, and so discussing this means of increasing the workforce from a purely economic perspective is extremely risky. The idea of addressing the labor shortage by boosting labor productivity with an increased capital equipment ratio offers significant hope, but is faced with the problems of gradually declining capital efficiency and how to secure capital investment funds given the falling savings rate that will accompany an aging population, and the swelling fiscal deficit. Regarding technological progress, a look at Japan's trend toward lower total factor productivity growth in recent years shows that not much can be expected. In sum, the effort required to have the Japanese economy maintain or increase per capita income going forward is greater than imagined.

The problems posed by the Japanese economy's declining growth potential are enormous, but there is a problem of even greater urgency. That problem, the world's worst fiscal deficit, is addressed in chapters 2 and 3. Public debt, the total amount owed by the national and regional governments, has already grown to double the size of Japan's GDP and is approaching the limit of private-sector savings, which has funded public debt to date. Ignoring this problem will lead to a situation in which default could happen at any time. The primary cause of the expanding fiscal deficit is the growth in social security transfer payments resulting from population aging, and the political instability that took hold in the mid-1990s has paved the way for near total lack of significant policy shifts for fiscal reconstruction. An increase in the consumption tax was passed in the summer of 2012, but, as demonstrated by the simulation in Chapter 3, a policy shift of that scale will have little if any effect, and more far-reaching changes in payments and burdens are required. Without them, a major tragedy may very well be in the offing for the Japanese people.

Perspectives on the DSGE Analytical Framework and Some Issues that Arise in its Application to Monetary Policy Analysis

Zenta Nakajima

This paper considers general problems concerning DSGE model analysis and the problems that arise when applying the DSGE approach to monetary policy theory. There are two general problems and both have to do with calibration. The first is the question of whether the fundamental idea underlying the concept of calibration – that the more faithfully a model mimics facts, the more accurate it will be – is logically sustainable. The second problem is the concern that the process of collating the behavior of theoretical models with that of real data in calibration exercise that are currently performed is extremely ad hoc, casual, and informal.

The problems that arise in applying the DSGE approach to monetary policy analysis have to do with simulations that diverge excessively from actual monetary policy management practices. In these simulations, certain policy rules, like the Taylor rule, are supplemented with a random error term, v_t, in an additive fashion, and, based on the premise that information through the end of the previous period (beginning of the current period) has already been revealed, have an external shock of 0.01 applied to them (for one period only). Policy rules, as represented by the Taylor rule, attempt to endogenize monetary policy, and changes cannot be implemented without sufficient prior enlistment of the support of market participants and citizens. The monetary policy change simulations currently performed with DSGE analysis are nothing more than depictions of special cases, such as ones in which unforeseen operational mistakes have arisen in policy implementation. And the question of how the DSGE-based policy change simulation should be performed remains unresolved.

Macroeconomic Indicators for Determining Sovereign Credit Ratings

Yoshitaka Kurosawa

Sovereign credit ratings (ratings of foreign-currency denominated government bonds) by credit rating agencies were first assigned in the 1920s in America for purposes like securing the national government's foreign currency procurement and securing bonds issued by government agencies. In the 1980s, however, the importance of sovereign credit ratings grew with the rising level of international capital movements. Among the quantitative determinants of sovereign credit ratings – macroeconomic indicators, balance of international payments, government finances, and external debt – it is the macroeconomic indicators that were traditionally regarded as most important. With the Asian currency crisis (1997-1998), however, attention shifted to international capital movements, and, as a result of euro-zone government debt rating downgrades following the Lehman shock (2008), there is now demand for the objectivity of a rating approach that is not overly influenced by macroeconomic indicators. On the other hand, qualitative indicators, which cannot be expressed with numbers, are also important as sovereign credit rating determinants. That bonds issued by the U.S. government, which is wrestling with current account and fiscal deficits, kept their triple-A rating for 90 years (S&P recently downgraded U.S. government bonds to AA+) on the strength of the dollar's being a key currency, and bonds (yen-denominated) issued by the Japanese government, which has outstanding debt exceeding 200% of GDP, have garnered AA-class ratings because of the steadfast faith of Japanese investors, are only two examples of why this is so. This paper considers the sovereign credit rating approaches used by credit rating agencies (mainly S&P), provides an overview of the shift away from reliance mainly on macroeconomic determinants and toward the assignment of greater weights to other determinants, including the balance of international payments, government finances, and external debt. It then confirms the shift statistically through the use of fixed-effect model analysis of S&P sovereign credit rating data. Given the concerns – including ones focused on the acceptability of the activity of assessing sovereign states, the pro-cyclicality of ratings, and methods for evaluating the accuracy of sovereign credit rating information – raised about sovereign credit ratings, and that international institutions, such as the IMF and EU, have said that sovereign credit ratings should not be assigned to countries receiving financial support, it is possible that the treatment of, and methods for determining, sovereign credit ratings will change going forward.

A Simplified Barro-Becker Dynastic Model and the Time Constraint of Life

Sadao Kanaya

This paper considers the Simplified Dynasty model and the time constraint of life. It re-examines the research of Barro and Becker on population growth and then discusses the kinds of impacts that result to model implications from the introduction of household production and the addition of an equation for the time constraint of life. For the Barro-Becker model, it has been concluded that the model does not apply when altruism toward children is defined in relation to the number of children. Recent research by Jones and Schoonbroodt, however, raises the possibility of considering economies in which capital does not exist. When that is done, it is natural for individuals to make the same decisions across time periods. And in that case, it is possible for the model to produce a solution even when altruism toward children is defined in relation to the number of children. Focusing on the steady state under those circumstances, this paper introduces household production and adds an equation for the time constraint of life. When the wage rate, a model parameter, is increased the optimal number of children in the steady state gradually decreases to a certain number. This indicates that in economies where capital does not exist, demographic changes accompany changes in wage rates. In other words, in economies with low wage rates, the budget constraint equation takes on greater significance than the equation for the time constraint of life. In the steady state of such economies, numbers of children are large. The rate of population growth, in other words, is high. In the steady state of economies with high wage rates, numbers of children are small. To wit, the rate of population growth is low. That the rate of population growth declines, in general, as economies transition from developing status to industrialized status, under the theory of demographic transition, is widely observed. The above implications, raised by this paper, are seen as providing new leads for research on demographic transition theory.

The Effects of Economic Globalization: From the Perspective of Nonlinear Macroeconomic Dynamics

Hiroyuki Yoshida

The debate over whether economic globalization has generally favorable impacts has gone on for many years. One can now point to comparative advantage as one of the most important fundamental theories of economics. And Ricardo's discovery of trade benefits has become a major force behind efforts to justify the promotion of free trade.

This paper considers the consequences of economic globalization from an economic perspective. It begins with an explanation of the theory of comparative advantage, which emphasizes the benefits of trade. That theory holds that individual states pursuing efficient production through specialization and then trading their products for goods produced by other states results in the enrichment of consumption.

Providing a simple explanation of the theory of coupled oscillators is the next task of this paper. This theory uses dynamical systems theory to analyze relationships of interdependence between individuals and groups. Through numerical calculation, it confirms that chaotic behavior arises for certain given coupled oscillator systems. Chaotic behavior often arises in coupled oscillators. This result is supported by the Newhouse-Ruelle-Takens theory（1978）.

The main purpose of this paper is to use nonlinear macroeconomic dynamics to draw attention to two models of increasingly complex and chaotic economic conditions in individual states as a result of economic globalization. The first model is the Lorenz (1987) model, an IS-LM analytical model considering trade among three economies. In mathematical terms, this is an applied model of a coupled oscillator system. Lorenz succeeded in demonstrating the emergence of chaotic economic cycles from international trade. The second model is the Saiki-Chian-Yoshida（2011）model, which is a Goodwin model focusing on investment activity by global companies. In their model, which is also an applied model of a coupled oscillator system, Saiki, Chian, and Yoshida show that investment activities by global companies give rise to strange attractors.

It should be noted that the economic instability that can arise from economic globalization can be sufficiently overcome through the appropriate use of economic stabilization policies by government. The author would like to address related points in future research.

The Impacts of Large Trader Soundness on Currency Crises

Kenta Toyofuku

This paper examines the impacts of the soundness of large traders on currency crises. It looks at the kinds of impacts large trader soundness has on the problem of coordination with small investors and at secondary impacts to ex-ante and ex-post efficiency. In this paper, it is shown that once the soundness of large traders is lost, there arises a conflict of interest between large traders, who want the government, as a currency holder, to take risky actions, and small investors, who want the government to take safe actions. An ex-post coordination failure develops as a result, and ex-post efficiency is lost. Governments raising funds (ex-ante activity) amid such ex-post impacts were observed having to pay high interest rates. The result, in other words, was the promotion of risky ex-ante behavior by governments and the loss of ex-ante efficiency.

A Trade Cycle Model with a Sticky Long-term Interest Rate and Monetary Policies:
Consideration from the Perspective of Keynes' Normal Backwardation

Masahiro Ouchi

At present, there are occasions when financial adjustments that change short-term interest rates are not, by themselves, sufficiently effective for a central bank trying to rapidly move long-term interest rates through risk premium intervention. This paper considers the introduction of sticky long-term interest rates into a trade cycle model. It begins by deriving a positive yield curve (where long-term interest rates are higher than short-term rates because of the existence of a risk premium). We adapt Keynes's "normal backwardation," in which futures prices are lower than expected future spot prices, and a financial theory framework, as a way to examine the ambiguous risk premium and long-term interest rates. The risk premium, here, is the required rate of return for economic fluctuations (systematic risk). The long-term interest rates used in this paper, therefore, have a stickiness that derives from the risk premium addressing economic cyclicality and resists even the implementation of counter-cyclical short-term interest rate policies.

This paper introduces this type of sticky long-term interest rate into a trade cycle model and investigate the dynamic stability, instability, the existence of cyclical fluctuations and economic stabilization policies (monetary policy programs comprising various financial parameters). It uses a simple two-variable Kaldor model in which trade cycles are generated endogenously. As a consequence of its use of the usual Kaldor model hypothesis, the model will have the properties of global stability or limit-cycle dynamical properties, depending on the monetary policy program employed. Long-term interest rate

stickiness causes the loss of system stability. The conclusion in our analysis is that, given the goal of bringing down persistently high long-term interest rates during a period of economic decline, the pursuit of a monetary policy program, together with an appropriate combination of a policy commitment to future short-term interest rates (policies that will bring about a time-axis effect) and a financial prudence policy, among other tools, is effective for bringing about dynamical stability.

Social Security and Growth
in Overlapping Generations Economies with Human Capital

Mariko Yoshida

This paper considers a three-periods-overlapping generations model wherein individuals live for three periods: that is, a young stage, a middle age and an elderly stage. Each individual has an education in the first stage, works in the second one and retires in the third one. This paper supposes that individuals are given the human capital of the parental generation level as the initial endowment when they are born, and that they obtain even more human capital than the parental generation by getting education during the young period. I assume that the educational investment during the young age is provided for through loans the capital market, and that these are amortized, with interest, during the middle-age stage.Using the above assumptions, I can build a three-generation overlapping model with the human capital accumulation process whereby the human capital level rises during each period. In addition, based on these assumptionsthe following generations co-exist in each period: a youthful generation that makes educational investments, a middle-age generation that obtains wages and income through labour, and an elderly generation that lives by paring down its post-retirement savings. Therefore, it is possible under this framework to analyze the governmental social security policies of levying taxes on the working generation, and the pension benefits for the elderly generation and educational subsidies afforded to the youthful generation, both funded by these taxes.

The objective of this paper is, first of all, to present sufficient conditions for the stationary equilibrium of the three-generation overlapping economies, and then to analyze the growth effects of governmental social security policy in the stationary equilibrium. In this paper the economic growth path under the stationary equilibrium is defined as the Balanced Growth Path (BGP). In terms on the conclusions concerning growth effects, I elucidate the fact that under a stationary equilibrium in which taxation upon the middle-age generation is at a certain constant level, the increased subsidy amounts for the education of the younger generation – accounted for by the reduction of pensions for the elderly generation – boosts the growth rate along the BGP. It is then shown that, under a certain constant level of pension payments to the elderly generation, raising educational subsidies for the younger generation by increased taxation on the middle-age generation results in a positive effect on growth along the BGP, while on the other hand reductions in educational subsidies through tax cuts imparts a negative effect upon economic growth along the BGP.