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AS THE CENTURY TURNS: ANALYTICS, EMPIRICS AND POLITICS OF DEVELOPMENT

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As the Century Turns:

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Abstract

The paper celebrates John Fei's life and contributions to economics by viewing them in the context of recent theoretical and empirical literature on the economics and politics of growth. It summarizes the lessons from the literature and development experience since the end of the second world war on the roles of the state, markets and other institutions in the development process. It highlights a major lesson, on which there is substantial agreement if not a consensus, on the importance of openness to foreign trade, technologies and capital flows to growth and on the importance of participatory democracy for political sustainability of growth-promoting policies.

Keywords: Economic Development, Economic Growth, Openness and Growth, Foreign Trade and Growth, Technological Diffusion and Spillover, East Asian Economies, Political Economy, Authoritarianism and Development, Democracy and Development

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As the Century Turns:

Analytics, Empirics and Politics of Development

T. N. Srinivasan[1]

1. Introduction

I first met John Fei when I had just finished my graduate work in economics at Yale in 1962 and began teaching there. After returning to India in 1964, I came back to Yale in 1980, and joined John at the Economic Growth Center. During more than two decades of our association since, we used to tell each other often, not entirely in jest, that the only two developing economies that mattered were China and India, and each is the only relevant and appropriate comparator for the other! My interest in learning about Chinese development was warmly welcomed by John. Indeed, John and I visited China together in January 1989 with the support of the Ford Foundation to advise the People's Bank of China on a proposed collaborative research project on inflation in China. After our very enjoyable visit, during which I was witness to the respect that many senior officials in China paid to John, we put up a research proposal to the Henry Luce Foundation for financing. Unfortunately, the Luce Foundation did not choose to fund our research collaboration with the People's Bank. However, the failure to attract research support did not dim our enthusiasm for exchanging ideas with each other on problems of development in general, and of China and India in particular, until his retirement. In fact, I made a modest effort in comparing Chinese and India agricultural and foreign trade policies with contributions from Justin Lin and Yun Win Sung (Srinivasan 1994a).

John Fei's research covered a wide spectrum and even included exploration of Chinese culture, particularly as a foundation for industrial capitalism and unification.[2] One can, however, distinguish three broad areas in his research. The first, of course, is the theory of development and growth including his celebrated work on the dual economy in collaboration with Gustav Ranis. The second is the theory and measurement of inequality, with applications to Taiwan. The third is economic history. In many of his contributions, particularly those linking culture, history and economic performance, John insightfully looked at the role of institutions, broadly speaking, in development.

John's contributions to growth theory are many. Even now I vividly recall with pleasure the many discussions we had on the paper "Growth with Fluctuations" on which he was working with a graduate student, Deborah Reed, just prior to his retirement from Yale. I am sure he would have been pleased that, with its revival starting with the seminal papers of Lucas (1988) and Romer (1986), growth theory is currently at the frontier of research in theoretical and empirical economics.

Macroeconomic time series data for an increasing number of countries, in particular from the painstaking work of Summers and Heston (1988, 1991) on purchasing power parity (PPP) adjusted data, have become widely accessible. This has stimulated empirical research, starting with Baumol (1986) and Barro (1991), on the determinants of development and growth. Although John was not an applied econometrician, his work on Taiwan is certainly empirical. He would have been keenly interested in the expanding empirical literature on growth.

John's work on Taiwan and on China enriched our understanding of the economics of this ancient civilization. The growth performance of East Asian countries (Japan, Hong Kong, Korea, Taiwan and Singapore) and their followers (Indonesia, Thailand) in South East Asia has been outstanding in contrast to the lackluster achievements of the rest of the developing world. John would not have been surprised that East Asian experience has figured prominently, not only in the recent empirical literature on growth as is to be expected, but also motivated new theoretical approaches to growth as well, as for example, in the work of Lucas (1993).

John Fei would also have been enthused by the recent revival of institutional economics, a field that went out of fashion long ago because much of the analyses of institutions then was historical and anecdotal rather than formal (Lin and Nugent 1995). Transactions cost approach to economics, indeed goes back to the great institutional economist John R. Commons, who long ago insisted that "the ultimate unit of activity must include in itself the three principles of conflict, mutuality and order. This unit is a transaction" (1934, p. 4). This approach proved fruitful in studying the contrasting economic performance in their history of erstwhile colonies of Spain and Portugal in the Western Hemisphere and that of the former British colonies such as Australia, Canada and the United States, as well as the role of institutions and their change in economic performance (North 1990a and Olson 1982) such as Australia, Canada and the United States. Analytical rigor was brought to bear on transactions cost approach in formal modeling of analysis of organizations (e.g. Milgrom and Roberts 1992, Tirole 1994). This approach is now being applied to the analysis of politics as well (North 1990b, Dixit 1996). Again it is no surprise that East Asian

development has been analyzed from the perspective comparative institutional analysis (Aoki, Kim and Okuno-Fujiwara 1997).

Among the factors that might affect growth is the distribution among the relevant socio-economic groups of the gains from growth and the costs of bringing it about. For example, the vastly over-rated study of the World Bank (1993) claims that the authoritarian and paternalistic regimes of the high performing East Asian economies followed "the principle of shared growth", in order to legitimize themselves and to win the support of the society at large. John, who in his work on Taiwan emphasized its egalitarian growth, would certainly have approved the attention paid to distributional issues in the recent empirical literature on growth. However, the good theorist and an admirer of Simon Kuznets that he was, he would have also noted that in economic theory one cannot find an unambiguous and unidirectional causal relation between income and social inequalities and economic growth. One can easily postulate that, through the mechanism of savings and investment, greater inequality would promote greater growth; just as easily, one can postulate that, as the World Bank (1993) suggests, greater equality promotes more rapid growth. Of course, the famous Kuznets hypothesis is about causation going the other way--as incomes increase with growth, inequality first increases and then decreases. Indeed, notwithstanding the tall claims about "shared growth" in East Asia, as I note below, in the empirical growth literature the influence of inequalities on growth is often statistically insignificant or ambiguous, and tests of the Kuznets hypothesis have yielded ambiguous results as well.

In celebrating John Fei's life and contributions to economics of growth and development, I thought that it would be appropriate to reflect on how the recent theoretical

and empirical literature on economics and politics of growth has changed our earlier understanding of the development and growth process and its determinants. In particular, what are the lessons from the literature and development experience of the last five decades on the roles of the state, market and other institutions in the development process? What have we learned about the importance for rapid growth of openness to foreign trade, technology and capital flows? Does the accumulated evidence suggest that a democratic political framework is not an impediment to growth as it was once thought to be?

In what follows, first, I relate the 'new' growth theory to its neo-classical antecedents and argue that at least some of the implications of neo-classical growth theory that the 'new' growth theorists wished to escape from arose from a misleading characterization of the former (Section 2). Nevertheless, the recent growth literature has brought many new insights on the growth process. Second, I delve into the institutional underpinnings of development, in particular contrasting "market failure," "market friendly" and "market enhancing" views of the role of the state in development (Section 3). Third, I summarize the findings from the recent empirical literature on the determinants of growth, including openness and on democracy and development (Section 4). I offer a few concluding remarks in Section 5.

2. Growth Theories: Old and New[3]

Theorizing about long-run growth revived after a hiatus of over two decades since the last spurt in the fifties and sixties. In the largely neoclassical growth theoretic literature of the sixties and earlier, one could distinguish three strands.

The first strand is positive or, better still, descriptive theory aimed at explaining the stylized facts of long-run growth in industrialized countries (particularly in the United States)

such as a steady secular growth of aggregate output, relative constancy of the share of savings, investment, labor and capital income in aggregate output. Solow's (1956, 1957) celebrated articles and later work by Jorgenson and Griliches (1966) and others are examples of descriptive growth theory and related empirical analysis. As Stiglitz (1990) remarked, by showing that the long-run steady state growth rate could be unaffected by the rate of savings (and investment) and even in the short run, the rate of growth was mostly accounted for by the rate of labor augmenting technical progress, Solow challenged the then conventional wisdom.

The second strand is normative theory which drew its inspiration from Ramsey's (1928) classic paper on optimal saving. In contrast to the descriptive models in which the aggregate savings rate was exogenously specified (usually as a constant over time), the normative models derived time varying savings rates from the optimization of an intertemporal social welfare function. There were mainly two variants of such normative models: one-sector models (Koopmans 1965 and Cass 1965) and two-sector models (Srinivasan 1962, 1964 and Uzawa 1964).

The third strand of theory is primarily neither descriptive nor normative though it is related to both. Harrod's (1939) dynamic extension of the Keynesian model (with its constant marginal propensity to save) raised the issue of stability of the growth path by contrasting two growth rates: the warranted rate of growth that would be consistent with maintaining the savings-investment equilibrium and the natural growth rate as determined by the growth of labor force and technical change. In this model unless the economy's behavioral and technical parameters keep it on the knife edge of equality between warranted and natural

growth rates, there would be either growing underutilization of capacity if the warranted rate exceeds the natural rate or growing unemployment if the natural rate exceeds the warranted rate. Indeed this knife-edge property resulting from Harrod's assumption that capital and labor are used in fixed proportions led Solow to look for growth paths converging to a steady state by replacing Harrod's technology with a neo-classical technology of positive elasticity of substitution between labor and capital.

Von Neumann's (1945) model is also part of the third strand. In this model production technology is characterized by a finite set of constant returns to scale activities with inputs being committed at the beginning, outputs emerging at the end, of each discrete production period. There are no non-produced factors of production such as labor or exhaustible natural resources. In the 'primal' version, von Neumann characterized the vector of activity levels that permitted the maximal rate of balanced growth (i.e. growth in which outputs of all commodities grew at the same rate) given that the outputs of each period were to be ploughed back as inputs in the next period. In the 'dual' version, a vector of commodity prices and an interest rate were derived which had the properties that the value of output of each activity was no higher than the value of inputs inclusive of interest and that the interest rate was the lowest possible. Under certain assumptions about the technology von Neumann showed that the maximal growth rate of output of the primal was equal to the (minimal) interest rate of the dual.

Barring a few exceptions, in the neoclassical growth models production technology was assumed to exhibit constant returns to scale and in many, though not all models, smooth substitution among inputs with strictly diminishing marginal rates of substitution between any

two inputs along an isoquant was also posited. Analytical attention was focussed on conditions ensuring the existence and uniqueness of steady state growth paths along which all inputs and outputs grew at the same rate--the steady state being the path to which all transitional paths starting from any given initial conditions and satisfying the requirements of specified descriptive rates of accumulation or of intertemporal welfare optimality converged. The steady state growth rate was the exogenous rate of growth of labor force in efficiency units so that in the absence of (exogenous) labor augmenting technical progress, output per worker was constant along the steady state.

Turning to the exceptions, Solow (1956) himself drew attention to the possibility that a steady state need not even exist and even if one existed it need not be unique. Indeed output per worker could grow indefinitely even in the absence of labor augmenting technical progress, if the marginal product of capital was bounded below by a sufficiently high positive number. Also, there could be multiple steady states some of which were unstable if the production technology exhibited nonconvexities.

There were also exceptions to the exogeneity of technical progress and of the rate of growth of output along a steady state. Kaldor and Mirrlees (1962) endogenized technical progress (and hence the rate of growth of output) by relating productivity of workers operating newly produced equipment to the rate of growth of investment per worker. And there was the celebrated model of Arrow (1962) of "learning by doing" in which factor productivity was an increasing function of cumulated output or investment. Uzawa (1965) also endogenized technical progress by postulating that the rate of growth of labor augmenting technical progress was a concave function of the ratio of labor employed in the education

sector to total employment. The education sector was assumed to use labor as the only input. Uzawa's model has influenced recent contributions to growth theory. Besides in the literature on induced innovation (Ahmad 1966, Boserup 1965, Kennedy 1964) technical change was, by definition, endogenous.

The recent revival of growth theory started with the influential papers of Lucas (1988) and Romer (1986). Lucas motivated his approach by arguing that neo-classical growth theory cannot account for observed differences in growth across countries and over time and its evidently counter-factual prediction that international trade should induce rapid movements toward equality in capital-labor ratios and factor prices. He argued that "In the absence of differences in pure technology then, and under the assumption of no factor mobility, the neoclassical model predicts a strong tendency to income equality and equality in growth rates, tendencies we can observe within countries and, perhaps, within the wealthiest countries taken as a group, but which simply cannot be seen in the world at large. When factor mobility is permitted, this prediction is powerfully reinforced" (Lucas 1988, pp. 15-16). He then goes on to suggest that the one-factor isolated by the neoclassical model viz. variation across countries in technology, "has the potential to account for wide differences in income levels and growth rates...when we talk about differences in 'technology' across countries we are not talking about knowledge in general, but about the knowledge of particular people, or particular subcultures of people. If so, then while it is not exactly wrong to describe these differences (as) exogenous...neither is it useful to do so. We want a formalism that leads us to think about individual decisions to acquire knowledge, and about the consequences of these decisions for productivity." He draws on the theory of 'human capital' to provide such a

formalism: each individual acquires productivity enhancing skills by devoting time to such acquisition and away from paying work. The acquisition of skills by a worker not only increases her productivity but by increasing the average level of skills in the economy as a whole, it has a spill-over effect on the productivity of all workers by increasing the average level of skills in the economy as a whole.[4]

Romer also looked for an alternative to the neoclassical model of long-run growth to escape from its implications that "initial conditions or current disturbances have no long-run effect on the level of output and consumption...in the absence of technical change, per capita output should converge to a steady-state value with no per capita growth" (Romer 1986, pp. 1002-3). His is "an equilibrium model of endogenous technological change in which long-run growth is driven primarily by the accumulation of knowledge by forward-looking, profit-maximizing agents" (p. 1003). While the production of new knowledge is through a technology that exhibits diminishing returns, "the creation of new knowledge by one firm is assumed to have a positive external effect on the production possibilities of other firms...(so that) production of consumption goods as a function of stock of knowledge exhibits increasing returns; more precisely, knowledge may have an increasing marginal product" (p. 1003).

It should be noted that the spill-over effect of the average stock of human capital per worker in the Lucas model and of knowledge in the Romer model are externalities unperceived (and hence not internalized) by individual agents. However for the economy <u>as a whole</u> they generate increasing scale economies even though the perceived production function of each agent exhibits constant returns to scale. Thus by introducing non-convexities through the device of a Marshallian externality Lucas and Romer were able to work with intertemporal

competitive (albeit a socially non-optimal) equilibrium. Thus both avoid facing the problem that research and development (R&D) that lead to technical progress are "naturally associated with imperfectly competitive markets, as Schumpeter (1942) had forcefully argued..." (Stiglitz 1990, p. 25). Later work by others (eg. Grossman and Helpman 1991) formulated models in which firms operating in an imperfectly competitive markets undertook R & D.

In sorting out the differences between neo-classical and recent growth models it is useful to start with a simplified version of Solow's (1956) growth model.

$$\text{Output: } Y(t) \equiv K(t)^a L(t)^b + cK(t) \tag{1}$$

$$\text{where: } 0 < a < 1,\ 0 < b < 1,\ a + b \geq 1,\ c \geq 0$$

$$\text{Net Investment: } \dot{K}(t) = sY(t) - \delta K(t) \tag{2}$$

$$\text{Labor Force: } L(t) = e^{nt} \tag{3}$$

Now as long as $nb \neq (sc\text{-}\delta)(1\text{-}a)$, there exists a unique steady state solution for K(t) with its rate of growth being $(sc\text{-}\delta)$ if $(sc\text{-}\delta)(1\text{-}a) > nb$ and $(nb)/(1\text{-}a)$ if $(sc\text{-}\delta)(1\text{-}a) < nb$. Three special cases are of interest.

The first case is one in which $a + b = 1$ and $c = 0$. The production function exhibits constant returns to scale and the marginal product of capital diminishes to zero as the capital-labor ratio increases indefinitely. Along the unique steady state, capital stock, consumption and output grew at the same exogenous rate, n, the rate of growth of the labor force.

The second is one in which $c = 0$ and $a+b > 1$. The production function exhibits increasing scale economies, and the property that the marginal product of capital diminishes to zero (because $0<a<1$) as the capital-labor ratio increases indefinitely. Along the unique steady state, capital stock grows at the rate $(nb)/(1\text{-}a) > n$ and output per worker grows at the

rate $(n(a+b-1))/(1-a) > 0$. Thus, with increasing scale economies, there is positive but exogenous growth in per worker output in the long-run steady state.

The third is the case in which $a+b = 1$ and $c > 0$. The production function now exhibits constant returns to scale, but the marginal product of capital is bounded below by $c > 0$. If c is sufficiently large so that $(sc-\delta)(1-a) > nb = n(1-a)$ or $sc > (n+\delta)$, then in the steady state capital stock grows at the rate $(sc-\delta) > n$ and output per worker grows at the rate $(sc-\delta-n)$ $a > 0$.

Almost all contributors to the 'old' neoclassical growth theory were in fact working with production functions, as in the first case, with constant returns to scale and the absence of a positive floor to the marginal product of capital. Indeed, it is this combination that is responsible for the steady state implications of neoclassical growth models from which the 'new' growth theorists wished to escape.

It is clear from the second case that although increasing scale economies yield a positive rate of growth in per worker output in the steady state, this rate is exogenous. As such, increasing scale economies alone are not sufficient to generate endogenous growth.

In the third case, since the savings rate s could be endogenous, one obtains positive, endogenously determined growth in per worker output in the long run. This case demonstrates that increasing scale economies are not necessary to generate endogenous and positive growth of output per worker in the long run. It is enough if a sufficient high positive lower to the marginal product exists, although there are no scale economies.

It should now be evident from the third case that one can generate long-run growth effects of trade liberalization if the production function is such that there is a sufficiently high

floor for the marginal product of capital. This can be demonstrated with two well-known models, the one sector Harrod-Domar model and the two-sector Feldman-Mahalanobis models.

Consider the simplest version of the work-horse of early development planning viz. the Harrod-Domar (Domar 1957) model in which capital is the sole factor of production.[5] Output Y at any time t is the product of capital stock K in existence at that time and a constant output-capital ratio β. The economy is assumed to be closed to foreign trade. A constant proportion s of output is assumed to be saved and invested so that, given a constant proportional rate of depreciation at the rate δ per unit of time of capital stock, the growth rate g of the economy is $s\beta-\delta$. As long as s is exogenous, so is the growth rate g.

Let me introduce foreign trade into the model in a very simple way by supposing that the economy can trade with the rest of the world at a constant terms of trade of π ($\pi > 1$) units of investment per unit of output in contrast with domestic terms of trade of unity under autarky. In other words, while under autarky, the economy can transform each unit of output into one unit of consumption or one unit of investment, with trade it gets the same consumption but more (i.e. $\pi > 1$) investment per unit of output. Implicit in this way of introducing trade is that the economy is too small to influence the world relative price (in terms of home output) of investment good and that it has a comparative advantage in its home output or equivalently, consumption good. Thus with capital as its sole factor of production this Ricardian economy specializes in producing consumption good under free trade.

Let us as well make savings (equivalently consumption c_t) endogenous (and thus

growth endogenous) through the maximization of intertemporal welfare

$$W \equiv \int_o^{\infty} e^{-\rho t}\, u(c_t)dt \tag{4}$$

where, for simplicity of analysis, assume that the instantaneous felicity function $u(c_t)$ is $\frac{c^{1-\sigma}-1}{1-\sigma}$ (with $\sigma > 0$). Assume, again for simplicity, that international lending or borrowing is infeasible, so that trade has to be balanced at each t. Thus W is to be maximized subject to the constraint investment goods imports equals the value of exports or

$$\dot{K}_t + \delta K_t = \pi[\beta K_t - c_t] \tag{5}$$

and the non-negativity constraints $c_t \geq 0$, $\dot{K}_t + \delta K_t \geq 0$.

An optimal solution to this problem exists, and is unique, as long as $\rho + (\sigma\text{-}1)(\pi\beta\text{-}\delta) > 0$. It is given by:

$$K_t = K_o e^{gt} \quad \text{and} \quad c_t = [\frac{\rho+(\sigma-1)(\pi\beta-\delta)}{\pi\sigma}]K_o e^{gt} \tag{6}$$

where

$$g = (\frac{\pi\beta-\delta-\rho}{\sigma}) \tag{7}$$

The <u>short and long-run growth rate</u> g of consumption and capital stock will be positive as long as $\pi\beta\text{-}\delta\text{-}\rho > 0$. Now $\frac{\partial g}{\partial \pi} = \frac{\beta}{\sigma} > 0$. Since opening the economy to trade involves an

increase in the relative price of the consumption good in which the economy has comparative advantage from its value of 1 under autarky to $\pi > 1$ under free trade, it follows from $\frac{\partial g}{\partial \pi} > 0$ that the short and long-run growth rate of the economy, viz. g, is increased by such opening. Thus, trade liberalization (which in this case moving to free trade from autarky) has positive growth effects.[6]

Now the gross domestic product (GDP) valued in units of investment goods is

$$(\dot{K}_t + \delta K_t) + \pi c_t = \beta \pi K_o e^{gt} \qquad (8)$$

Clearly as π under free trade is raised above its autarky value of unity, there is a positive level effect (through $\beta\pi$) and a positive growth effect (through g) on GDP (from the move to free trade). The value of GDP in units of consumption goods (or equivalently output) is $\beta K_o e^{gt}$. As such, moving to free trade has only a growth effect (through the effect of the rise in π on g), but no level effect on GDP in units of consumption good.

It is seen from (6) that moving to free trade has a positive growth effect, but an ambiguous level effect (it is positive, zero or negative according as $(\sigma\text{-}1)\delta\text{-}\rho$ is positive, zero or negative), on consumption in physical units. This reflects the conflict between a positive income effect and a negative substitution effect as the economy moves to freer trade, arising from the rise in relative price of consumption good in which the economy has comparative advantage. The value of consumption, in terms of investment goods, is $\pi c_t = [\frac{\rho + (\sigma - 1)(\pi\beta - \delta)}{\sigma}] K_o e^{gt}$. Hence, moving to free trade has a positive growth effect on it as well.

The level effect is positive if and only if the intertemporal elasticity of substitution $1/\sigma < 1$. However, whether or not the level effect on consumption is positive (either in value or in physical units), it can be shown that intertemporal welfare W increases under free trade relative to autarky, the reason being that even if the level effect on consumption of a move to free trade is negative, the positive growth effect is more than enough to raise W under free trade above its autarky level.

One of the influential development models was formulated independently by Fel'dman (1928) for the Soviet Union and independently by the physicist-statistician Mahalanobis (1955) for India. It is a model of a closed economy in which there are two sectors, one of which produces a consumption good, and the other, a capital good. Capital is the only factor of production, and the output of each sector is the product of the stock of capital in existence in that sector and its output-capital ratio. While the flow of output of the investment goods sector can be allocated in any fashion to augment the stock of capital in either sector, capital, once installed in that sector, cannot be shifted to the other sector. It turns out that the long-run growth rate of the economy depends only on the output-capital ratio of the capital goods sector and the proportion of the output of that sector that is invested in it and it is increasing in both. As such a Soviet-style "heavy-industry" strategy that plowed greater share of investment into the capital goods industry increased long-run growth at the expense of current consumption.

I have analyzed (Srinivasan 1993, Appendix I) an expanded version of the Mahalanobis-Fel'dman model with two commodities in each sector with the commodities differing in their capital output-ratios. As long as both consumer goods and both capital are

demanded in positive amounts, under autarky all four goods will be produced in positive amounts. Suppose this economy has the opportunity to trade with the rest of the world at fixed relative prices. If it opens the economy to free trade only in consumer goods, it will specialize in the consumer goods sector in producing that good in which it has comparative advantage. However, as long as the share of investment devoted to the capital goods sector is unchanged, and that sector is closed to foreign trade, even though the welfare of the economy will rise relative to autarky, the long-run growth rate of the economy would be unchanged. In contrast, if the capital goods sector is opened to free trade (again at fixed world relative prices) while the consumer goods sector is kept closed, there will be a positive long-run growth effect and a welfare effect relative to autarky. The implication is that, from a growth perspective, keeping the growth-inducing sector (which is the capital goods sector in this model) closed to international competition is costlier than closing the consumer goods sector. But, of course, keeping neither closed would be even better since, for this small economy, there is no market power to be exploited through a tariff policy or any dynamic externalities due to learning effects to be internalized in the model.

To sum up this section, the starting point of some, though not all, of the recent contributions to growth theory, is a misleading characterization of neoclassical growth theory of the sixties and earlier as implying that a steady state growth path always exists along which output grows at a rate equal to the exogenously specified rate of growth of labor force in efficiency units. Thus in the absence of labor augmenting technical progress, per capita income does not grow along the steady state path. Policies that affect savings (investment) rates have only transient effects on the growth rate of per capita output though its steady state

level is affected. Even a cursory reading of the literature is enough to convince a reader that neoclassical growth theorists were fully aware that a steady state need not exist and per capita output can grow indefinitely even in the absence of technical progress provided the marginal product of capital is bounded away from zero by a sufficiently high positive number. Moreover, they showed that once one departs from the assumption that the marginal product of capital monotonically declines to zero as the capital-labor ratio increases indefinitely, multiple steady state growth paths are likely (only some of which are stable) and that the steady state to which a transition path converges would depend on initial conditions. Attempts at endogenizing technical progress were also made by theorists of the era.

It was argued above that the perceived problems of neoclassical growth theory are not inherent features of all the growth models of the era but only of those which assumed the marginal product of capital (or more generally of any reproducible factor) diminishes to zero as the input of capital (or that factor) is increased indefinitely relative to other inputs. Instead of directly relaxing this assumption about production technology the 'new' growth theorists in effect make assumptions that ensure that the marginal product of capital is bounded away from zero. In some of the models this is achieved by introducing a factor other than physical capital (e.g. human capital, stock of knowledge) whose marginal product does diminish to zero. In doing so, some authors end up with an aggregate production function that exhibits increasing scale economies. Unsurprisingly, in such models multiple equilibria are possible. Be that as it may, new growth theorists have gone beyond their primary goal of specifying models in which there is a possibility that the long-run growth rate of per worker income is positive. By endogenizing the growth rate and allowing policy variables to influence it, they

have opened up avenues for the analysis of policies that could promote long-run growth.

3. Institutions in Development: State, Markets and Non-market Private Institutions

3.1. The Development Process From a Transactions Perspective

At early stages of development, most households are largely self-sufficient and the few transactions they engage in consist of sporadic exchanges through barter of a few goods and services. As development proceeds, exchanges (using money as a medium of exchange) of an enormous number of goods and services take place, regularly and repeatedly, through markets in which the original producers (i.e. sellers) and the ultimate uses (i.e. buyers) may not be, and often will not be, known to each other and with the quid and quo of exchange being separately widely in time and space. With the separation of production and use, an important role for intermediation arises so that a class of traders and financial intermediaries emerge who buy goods and services only to sell them at a different time or place, rather than use them. I must hasten to add, first, that it is not the existence of markets per se--after all, markets have existed since antiquity--but it is their scope, size and sophistication that characterizes successful development. In particular, efficient financial and capital markets, i.e. markets in which intertemporal transactions involving saving, investing, borrowing and lending take place and insurance markets for transactions across uncertain states of nature are common in developed economies. Second, the relationship between markets and development runs both ways--as Adam Smith noted long ago, increased specialization through division of labor, which is a dominant characteristic of development, is limited by the size of the market.

Exchanges in which the quid and the quo are widely separated in time or space will not take place unless property rights are well defined and contracts are enforced. Availability of

reliable and inexpensively acquired information, in particular about future conditions, facilitates such exchanges. It is a cliché to say that the three branches of the state (executive, judiciary and legislative) are crucial for determining what property rights (and more broadly, which laws) get enacted and what contracts are admissible, how well laws and contracts are enforced, and how efficiently disputes are settled and so on. The two fundamental theorems of neoclassical welfare economics, that establish the Pareto Optimality of a competitive market equilibrium and the feasibility of achieving desired distributional objectives through lump sum transfers, assume the existence of a complete set of markets for intertemporal and insurance transactions, far-sighted and rational behavior by agents and costless and certain enforcement of contracts. There are no problems of governance in public and private institutions in this idealized neo-classical world.

3.2. State and Markets in the Development Process

The pioneers of development economics believed that crucial markets (such as capital and insurance markets) did not exist (or functioned very imperfectly if they existed) and externalities and scale economies were pervasive in less developed countries. For them the optimality asserted by the two fundamental theorems was irrelevant in the context of development. Given their premise of non-existence and failure of markets, it is not surprising that they saw a need for the state to intervene in the markets or assume the role of markets if they did not exist, to remedy the failures of markets in "coordinating resource mobilization, allocating investment, and promoting technological catch-up at the developmental stage" (Aoki, Kim and Okuno-Fujiwara 1997, p. xv). Some later adherents of this view

> "argue that strong states in the East Asian economies succeeded in fulfilling these objectives by deliberately "getting the prices wrong" (Amsden 1989) in

> order to boost industries that would not otherwise have thrived (see Johnson 1982 for Japan, Amsden 1989 for Korea, Wade 1990 for Taiwan). This view has been relatively more popular among political scientists and in public forums, but has never become the mainstream view in economics" (ibid, p. xv).

In contrast to the "market failure" view of the early development economists and their latter day followers, World Bank (1991) propounded a "market friendly" view, according to which

> "most economic coordination can be achieved through the market mechanism and that when markets alone are insufficient, other private-sector organization, such as intra-firm coordination, will suffice. The role of government in this view is limited to providing a legal infrastructure for market transactions and providing goods subject to extreme market failure (for example, when markets are missing for public goods such as a clean environment)" (Aoki, Murdock and Fujiwara 1997, p. 1).

The three authors suggest that

> "Both views look to markets as the initial basis for organization and recognize that markets alone are imperfect. Where they differ significantly is in the mechanism by which market imperfections are resolved. The market-friendly view expects that most market imperfections can be resolved by private-sector institutions, whereas the developmental-state view looks to government intervention as the solution. In this sense, these two views consider the role of government and that of the market (or, more broadly, market-based institutions) as substitutes, with competing roles for the resolution of market failures" (ibid, p. 1).

Aoki, Murdock and Fujiwara (1997) propose a third view, which they call the "market enhancing view." Thus

> "Instead of viewing government and the market as the only alternatives, and as mutually exclusive substitutes, we examine the role of government policy to facilitate or complement private-sector coordination. We start from the premise that private-sector institutions have important comparative advantages vis-a-vis the government, in particular in their ability to provide appropriate incentives and to process locally available information. We also recognize that private-sector institutions do not solve all important market imperfections and that this is particularly true for economies in a low state of development. The capabilities of the private sector are more limited in developing economies. The

> market-enhancing view thus stresses the mechanisms whereby government policy is directed at improving the ability of the private sector to solve coordination problems and overcome other market imperfections" (ibid, p. 1-2).

I would argue that all three views implicitly assume, what Dixit (1996) calls a "crude but effective caricature," namely that policies are to be "made by an omnipotent, omniscient, and benevolent dictator" (Dixit 1996, p. 8).[7] Dixit suggests that with the development of "second best" theory, which recognized that the policy maker may be constrained from adopting first-best policies, her 'omnipotence' was removed. Once it is recognized that she may not have, and may not even be able to acquire, the information needed to design and implement optimal policies, 'omniscience' was removed. Yet most normative policy analysis continues to assume that the policy maker is a benevolent dictator. Indeed, as Dixit argues,

> "The implicit assumption is that once a policy that maximizes or improves social welfare has been found and recommended, it will be implemented as designed and the desired effects will follow.
>
> In reality, a policy proposal is merely the beginning of a process that is political at every stage ... The political process of policy making is constantly influenced by the legislature, the executive and its agencies, the courts, various special interest lobbies, the media and so on. The legislature may fail to enact the economist's desired policies; the administrative process may fail to implement the legislated policies in the intended manner. The outcomes may fail to correct market failures, and may instead new costs of their own" (Dixit 1996, pp. 8-9).

Anne Krueger (1990) perceptively noted that while it is tempting to look for "government failures" as analogues of "market failures," there is no clear norm the failure to attain which could be deemed a failure of the government. There is no analogue of the norm of Pareto Optimality of resource allocation, the failure to achieve which in a market equilibrium, constitutes market failure. Nonetheless, the phenomena that failures of the market and the political process portray can be viewed as arising from "opportunistic

behavior."

3.3. Opportunism and its Mitigation

Opportunistic behavior arise in many contexts. Phenomena such as "moral hazard," adverse selection, free riding and so on are instances of opportunistic behavior. In all these instances, parties to an agreement or contract have incentives to deviate, ex post, from what they have agreed or contracted to do. Unless the parties can credibly pre-commit not to deviate ex post or an inexpensive and sure third party enforcement (through the legal system, for example) is available, contracts will have to be incentive compatible and self enforcing.

Opportunism is not confined to contracts between private agents. The problem of credibility of announced public policies is also a reflection of opportunism.[8] For example, if a government offers inducements for private investors to invest in some activity, and if capital once invested in that activity cannot be put to alternative uses, investors would not invest unless the government can credibly pre-commit not to tax the profits from the activity or expropriate the capital invested.

Once the possibility of opportunism is recognized, not only the assumption of 'benevolent dictatorship' underlying much normative policy analysis becomes moot, but the focus of comparative institutional analyses changes. As Williamson points out "the main lesson of opportunism, for purposes of economic organization, is not the Machiavellian message to breach agreements with impunity because that is what others will do ... Instead, far sighted economic agents will ask what they can do to mitigate the hazards of opportunism. Because it is in their mutual interests to avoid ex post opportunism, far-sighted parties to a contract will give and receive credible commitments ex ante" (Williamson 1994, p. 183). The

essential point of organization of transactions through incentive compatible, self enforcing contracts is that it will involve real costs relative to the ideal where a relatively cheap and effective third party enforcement mechanism exists. But ideals are just that: they do not correspond to reality in which

> "all feasible forms of organization are flawed ... and accordingly, the appropriate test of failures of all kinds--markets, bureaucracies, redistribution is remediableness: an outcome for which no feasible superior alternative can be described and implemented with net gains is presumed to be efficient" (ibid, p. 185, emphasis in original).

The transactions framework analyzed by Williamson in the context of economic organization is also applicable to the analysis of alternative forms of political organization. After all, constitutions are quintessentially incomplete contracts that do not envisage all potential contingencies and spell out actions to be taken by various actors in each one of them, let alone ensure that the specified actions will be taken.[9] The problems of opportunistic behavior is a serious one in politics as well. Weingast (1993, 1995) has addressed the issues in depth. He argues that

> "the political institutions of society create a 'governance structure' that at once allows the society to deal with on-going problems as they arise ... and yet provides a degree of durability to economic and political rights. Importantly these help limit the ability of the state to act opportunistically" (Weingast, 1993, p. 288).

> "The main lesson ... for development and economic reform is ... that the benevolent attitude of government cannot be taken for granted. Markets require protection and thus a government strong enough to resist responding to the inevitable political forces advocating encroachments on markets for private gain. The fundamental dilemma of an economic system is that strong enough to protect private markets is strong enough to confiscate the wealth of its citizens.
>
> Put simply, the political foundations of markets are as essential to their success as the details and specification of the market itself. This conclusion implies that markets and limited government are complementary aspects of

> economic development and reform, each enhances the value of the other. Political development must therefore be placed simultaneously with economic development" (Weingast 1995, pp. 24-25).

3.4. Culture, Social Capital and All That!

Fukuyama (1993) emphasizes that "culture affects economic behavior in certain critical ways just as it affects the ability of a people to sustain stable democracy" (p. 224). In a later work (Fukuyama 1995) he argues that the

> "liberal policy and economic institutions depend on a healthy and dynamic civil society for their vitality...A thriving civil society depends on a people's habits, customs, and ethics--attributes that can be shaped only indirectly through conscious political action and must otherwise be nourished through an increased awareness and respect for culture" (p. 4-5).

> "We can think of neoclassical economics as being, say, eighty percent correct...But there is a missing twenty percent of human behavior about which neoclassical economics can give only a poor account. As Adam Smith well understood, economic life is deeply embedded in social life, and it cannot be understood apart from the customs, morals, and habits of the society in which it occurs. In short, it cannot be divorced from culture" (p. 13).

Fukuyama is certainly right in saying that the basic postulate, i.e. rational behavior, of neoclassical economics is a powerful analytical tool and that because of its analytical power, neoclassical economics has triumphed over all other paradigms. But not only does he exaggerate the contribution of cultural differences in explaining differences in economic performance, but he does not seem to be aware that tools of neoclassical economics have been very fruitfully applied to analyze social norms and habits and non-market institutions. (For a survey of the so-called New Institutional Economics in the context of development, see Lin and Nugent 1995). I cannot resist in this connection to recount the evaluation in 1903 of Japanese habits and customs by an Australian expert invited by the Japanese imperial government:

> "My impression as to your cheap labor was soon disillusioned when I saw your people at work. No doubt they are lowly paid, but the return is equally so; to see your men at work made me feel that you are a very satisfied easy-going race who reckon time is no object. When I spoke to some managers they informed me that it was impossible to change the habits of national heritage"[10] (emphasis added)

I believe that given appropriate incentives, cultural traits that are deemed inimical to development somehow tend to disappear. Besides, within the same cultural milieu there is considerable heterogeneity among individuals in their attitudes towards work, risk etc. It is a well-known fact that those individuals from a culture who emigrate to a more hospitable economic environment often do far better than those they leave behind and sometimes better than otherwise similar individuals in the country of their immigration, as Chinese and Indian emigrants have done all over the world. This reflects both the importance of incentives as well as the operation of self-selection, i.e. in a heterogenous population, it is the more enterprising that are likely to emigrate and take their chances in a different cultural and economic environment.

Whether or not one agrees with the importance Fukuyama attaches to culture, one will agree with him that the efficiency of market exchange and the sustainability of liberal democracy both depend on aspects of social organization, such as trust, norms and networks. The sociologist James Coleman christened these features as "social capital" in analogy to human and physical capital. Social capital is not entirely culture determined-- networks, such as "rotating credit associations" which are based on trust, are found in most societies. But their adequacy is another matter. Robert Putnam (1993), in his comparative study of regions of Italy, found that the absence of social capital in Southern Italy led to lawlessness, ineffective government and economic stagnation rather than to successful democratization

and economic development. In contrast, in Northern Italy where social capital in the form of norms of reciprocity and networks of civic engagement has existed for centuries, economic and institutional performance have been much better than the South. Putnam concludes from this history that both states and markets operate more efficiently in areas endowed with higher social capital. While Putnam may well be right in his observation that building social capital is the key to making democracy work, neither he nor Fukuyama offer any operational guidelines as to how to accumulate it!

3.5. State Interventions in East Asia

Although the so-called "gang of four" East Asian economies of Hong Kong, Korea, Singapore and Taiwan are often lumped together, it must be remembered that they vary in size, from a population in mid 1995 of about 3 million in Singapore at one end of the spectrum, to 45 million in Korea at the other end; in form of government, ranging from a past colonial, and a future totalitarian government in Hong Kong, to, until recently, authoritarian military governments in Korea, with 'guided' democracies of Singapore and Taiwan in between; and in economic policy, from almost complete laissez-faire in Hong Kong to varying degrees of intervention in others. The variation is even greater if one considers the larger group of "high performing Asian economies" (HPAE's) as defined by the World Bank (1993), including China, Indonesia, Malaysia and Thailand, in addition to the "gang of four."

Leaving aside laissez faire Hong Kong, the interventions in other HPAE's are claimed to have been in the form of contests whose ruler and rewards were transparent, whose referees impartially enforced the rules, and whose rewards accrued to those who met non-manipulable international market performance tests (World Bank 1993). Further, they are said to have

adopted specific institutional mechanisms such as wealth-sharing programs designed to include non-elites in economic growth, a cadre of economic technocrats insulated from narrow political pressures, and institutions and mechanisms to share information and win the support of business elites" (ibid, pp. 157-158).

The above characterization of interventions and institutions in HPAE's is based on an ex post rationalization, rather than ex ante causal explanation of the factors that led to high performance. Indeed, I would go further and suggest that the World Bank (1993) is an illustration of the logical fallacy of "post hoc ergo propter hoc." After all, many governments, which are not high performers, also engaged in interventions similar to those of the HPAE's, and their institutions had similar features, at least for a considerable period of time. Let me cite one example, though more could be cited, namely that of India of which I am more familiar.

In 1950, when India embarked on its planning for economic development, there was a broad consensus across the political spectrum on planning, a visionary and incorruptible political leadership (at the center and in the states) committed to development, as well as a very competent and honest bureaucracy at the decision-making levels. While the 'generalist' elite bureaucracy that was recruited through rigorous competitive examinations remained powerful, specialist or technical services such as the Indian Economic Service, Indian Statistical Service and so on were also created. Indeed, the bureaucracy was considered so insulated from politics that its nominal masters, namely the politicians, complained that it thwarted their directives. Unfortunately, the happy circumstance of an honest and visionary political leadership with very competent and incorruptible bureaucracy at its command did

not last very long. To some extent this was inevitable. To a larger extent the dirigiste development strategy contributed to it.

The lesson from the Indian experience is that it is simply not enough to assert that, given a framework of appropriate rules, rewards and their impartial enforcement that the HPAE's allegedly had, rapid growth will come about. It is also necessary to show that the incentives to deviate from the specified rules, for the referee to collude in condoning such deviation, etc., were absent. In fact, the range of government assistance in the form of subsidies, access to rationed credits and foreign exchanges, tax exemptions and so on was provided to exporters in many developed countries besides HPAE's. But such assistance did not result in export performance similar to that of HPAE's. The point is that without a deeper political-economy analysis to back it up, in particular whether or not an authoritarian framework committed to development is at the root of the impartiality of the referees, the three R's (Rules, Referees, Reward) are no more than catchy slogans. Indeed, why the authoritarian leaders of HPAE's seemed to have been committed to development, while those of Nigeria, Philippines, and Zaire were apparently not, needs to be analyzed. As recent revelations demonstrate, it is not as if there was no corruption in HPAE's, or for that matter in industrialized countries, in contrast to the rampant corruption in Philippines, Nigeria and Zaire.

The argument that East Asian economies had an unusually good macro-economic management and relatively stable political regimes both of which encouraged private domestic investment, needs to be qualified.[11] Once again, India's macro policies (until the eighties) had the stability of a grave-yard and there was no political instability at the center. In fact, in the

eighties when macro prudence was abandoned with rising fiscal deficits financed by domestic and external borrowing and political instability seemed to threaten the center, growth was relatively rapid. Of course, it was a debt-led, unsustainable growth because there was no change in the 'fundamentals' as compared to the pre-1980's period. It came to an inevitable end as a severe macroeconomic and balance of payments crisis hit the economy in 1991 following the Gulf War.

Turning to "shared growth" in East Asia, it is too much of an ex post attribution to claim that the leadership promised ex ante that the fruits of growth would be shared to elicit appropriate responses form the citizenry. It is hard to argue that egalitarianism was the objective of either President Chiang or President Park. Mao and his communist party certainly forced egalitarianism (outside of the leadership) but until the explicit move away from egalitarianism in the Deng era there was no spectacular growth. I would argue that the character of East Asian growth led to its fruits being shared widely rather than that a pre-announced objective of "sharing" the fruits led to rapid growth as an outcome. The argument that "very explicit mechanisms were used to demonstrate that all would have a share of future wealth" has no basis in fact. Korean and Taiwanese land reforms were carried by "outsiders" (in the Korean case before the growth strategy was adopted). Fertilizer price subsidies, preferential treatment of minorities and underprivileged, encouragement of small-scale industries, etc., through distortionary policies are not signals of shared growth but of stifling potential growth. Ample experience with similar distortionary policies elsewhere supports this conclusion.

Finally, Lau and Kim (1994) and Young (1995) have shown that the contribution of

total factor productivity growth in the spectacular growth of the "gang of four" is not large. The contribution of the growth of physical and human capital is much larger. Whether their high savings and investment rates and their emphasis on human capital should be deemed miraculous is debatable. But there is likely to be more or less universal agreement on one thing (and perhaps one thing only): the policy framework of East Asia, in particular its emphasis on outward orientation and external market performance, and on the accumulation of human capital provided the incentives not only for rapid accumulation of physical capital and, more importantly, for its efficient use. Thus, one does not have to look beyond the neoclassical explanations based on fundamentals (i.e. rapid accumulation of factors and a framework for their efficient use) to understand East Asian growth.[12] There is no mystery or miracle.

4. Correlates and Determinants of Development[13]

The recent empirical literature on growth across countries interestingly "has not received its main inspiration from new theories", and in fact finds strong support for the neo-classical model's central idea of conditional convergence...poorer countries grow faster per capita once one holds constant measures of government policy, initial levels of human capital, and so on" (Barro 1996b, p. 1). While stressing that "the great strength of the cross-country approach is that it provides the breadth of experience needed to assess government policies and other determinants of long-term economic growth," Barro notes that "At the same time, the use of these data creates problems related to measurement and estimation. Many critics of cross-country empirical work focus on these difficulties" (Barro 1996a, p. 70). I count myself among the critics and find that Barro's view that "informational benefits override these

objections" is more an article of faith, rather than an established fact. I remain sensitive to the serious problems of measurement and estimation, some of which were elaborated in Srinivasan (1994b) and other papers of the Symposium on the Data Base for Development Analysis in the Journal of Development Economics. But I do agree that there is suggestive and useful information in the findings of cross-country analyses, particularly since they include, in a common empirical framework, economic, political and social factors that in theory could influence growth. However, the link between theory and the estimated equations is suggestive, rather than definitive. Let me turn to a few of the important empirical findings.

4.1. Openness

It might seem odd in the context of contemporary trends towards global integration that once economists debated whether openness to foreign trade in goods and inflows of technology and capital was an "engine of growth," as Dennis Robertson (1940) called, or it was an outcome or "handmaiden of growth," as Irving Kravis (1970) put it. As is now well-known, the experience with the collapse of the world trading and payments during the interwar period, and the perception that there was a secular trend downwards in the terms-of-trade of developing countries exporting primary products led to the adoption of an inward-oriented import substituting industrialization strategy by most developing countries after the second world war. The phenomenal success of the few who departed from such a strategy from the early sixties on, viz. the East Asian economies, has been attributed to their outward orientation.[14]

The recent empirical literature has examined the role of openness in promoting growth in a cross-section of countries. However, there are a number of serious problems with this

empirical analysis: the choice of indicators for openness is somewhat arbitrary; whether to reduce barriers to trade and capital flows is an endogenous choice and the direction of causation of the relation between growth and openness can go both ways, so that growth and openness have to be treated as jointly determined endogenous variables, and virtually no study has done so; there are biases and measurement errors in the data used which vitiate the consistency of the estimates of parameters. Nonetheless, the fact that a number of studies using different data sets, countries and methodologies happened to arrive at similar conclusions that are also consistent with a priori reasoning, suggests that they deserve serious consideration, with due allowances being made for their conceptual and statistical deficiencies. Let me cite a few.

Sachs and Warner (1995) find

> "a strong association between openness and growth, both within the group of developing and the group of developed countries. Within the group of developing countries, the open economies grew at 4.49 percent per year, and the closed economies grew at 0.69 percent per year. Within the group of developed economies, the open economies grew at 2.29 percent per year, and the closed economies grew at 0.74 percent per year" (p. 35-36).

By cross-classifying developing countries according to growth and openness, they reject "the null hypothesis of no difference in growth rates between closed and open economies (p. 36)."

Their regressions explaining growth between 1970 and 1989 of 117 countries showed the following variables to be statistically insignificant: population density, primary and secondary school enrollment rates and the political variables, viz. average number of revolutions and coups per year and average number of assassinations per million of population, both during 1970-85.[15] While it is comforting that all the statistically significant variables have coefficients with expected signs, since some of the explanatory variables (e.g.

investment rate, relative price of investment goods) including the all-important dummy variable on openness could be endogenous, the estimated coefficients might be biased, though it is impossible to assess the seriousness of the bias.

Sachs and Warner also relate openness and the occurrence of severe macroeconomic crises (defined as occurrence of any one of rescheduling of debt by official or private donors, arrears of external payments as reported by the International Monetary Fund and an inflation rate in excess of 100 percent). They offer several plausible reasons (greater dependence on debt, greater orientation of investment towards non-traded goods and higher level of state involvement in the economy) as why closed economies are more likely to experience severe macroeconomic crises. Out of seventeen (resp. seventy-three) economies that they classify as open (resp. closed) in the 1970's, as few as one (resp. as many as fifty-nine) experience macro-economic crises in the 1980's.

Sachs and Warner are aware of the pitfalls in their analysis and properly cautious in distinguishing between various components of economic policy and their growth effects. They are certainly right in viewing their "measure of trade policy [as serving] as a proxy for an entire array of policy actions" and that

> "open trade has tended to be correlated with other features of a healthy economy, such as macroeconomic balance and reliance on the private sector as the main engine of growth. To some extent, opening the economy has helped to promote governmental responsibility in other areas. To that extent, trade policy should be viewed as the primary instrument of reform" (p. 63).

Sachs reports from yet another cross-country study that "openness was decisive for rapid growth. Open economies grew 1.2 percent per year faster than closed economies, controlling for everything else" (Sachs 1997, p. 20).

Baldwin and Seghezza (1996) estimate two basic relationships: the first, between the rate of growth and its determinants, and the second, between trade barriers and investment, a possible channel through which trade could affect growth. They find that domestic and foreign trade barriers significantly depress investment. Clearly domestic trade barriers on the one hand raise domestic rental rate on capital, but on the other, they raise the cost of capital goods by raising the price of imported inputs used in their production. The latter effect, which makes investment less attractive, seems to dominate the former effect which makes investment more attractive. Their result on the deleterious effect of foreign barriers is apparently new--however, foreign barriers turn out to be less deleterious than domestic barriers. That both domestic and foreign barriers depress investment may be due to the fact that, in a multi-sector world, domestic and foreign barriers are very likely to apply to different sectors.[16]

Coe and Helpman (1995) test the impact of openness on the transmission of technical knowledge, and hence on growth of total factor productivity (TFP). The basic idea is that technical knowledge is acquired both from domestic research and development expenditures, and from imports, which convey information on the state of technological knowledge in the exporting country. A country that has a larger share of its imports originating in more advanced countries with higher technical knowledge will therefore experience faster TFP growth than one which imports more from less technically advanced countries. For their sample of 21 OECD countries and Israel for the period 1971-90, the results indicate a statistically significant, and similar, quantitative impact of domestic and foreign knowledge stocks on TFP growth.

Coe et al. (1997) apply the analysis of Coe and Helpman (1995) to a set of 77 developing countries for the period 1971-1990. Since few developing countries undertake R&D, domestic R&D is not relevant for them. In addition to foreign knowledge stock, they include in their regression the secondary school enrollment rate, the share of imports from industrial countries, dummies for time periods 1971-75, 1975-80, 1980-85 and 1985-90, and their interaction with foreign knowledge stock. Simulations from their regression equation suggest that such spillovers from the North to South are substantial and in 1990 "may have boosted output in the developing countries by 25 billion U.S. dollars. To put this figure in perspective, total official development aid from multilateral and bilateral sources in 1990 amounted to 50 billion U.S. dollars" (Coe et al. 1997, p. 148).

4.2. Savings, Investment and Growth

I noted that early development economists emphasized the importance of raising savings and investment. Arthur Lewis (1954, p. 155) went so far as to assert that the

> "central problem of economic development is to understand the process by which a community which was previously saving and investing 4 or 5 percent of its national income or less converts itself into an economy where voluntary saving is running at about 12 to 15 percent of national income or more. This is the central problem because the central fact of economic development is rapid capital accumulation (including knowledge and skills with capital)."

East Asian economies have succeeded in raising their saving and investment rates to very high levels. On the other hand, while most developing economies succeed in raising their savings about the threshold of 12-15 percent of national income set up Arthur Lewis, few could be said to have solved the central problem of economic development!

Clearly, the direction of causation between growth and savings and investment go both ways. Lewis and his contemporaries emphasized the causation going from exogenous

investment to growth. The other line of causation is between growth opportunities and investment. Barro suggests that the latter

> "is especially likely to apply for open economies. Even if cross-country differences in saving ratios are exogenous with respect to growth, the decision to invest domestically rather than abroad would reflect the domestic prospects for returns on investment, which would relate to the domestic opportunities for growth" (Barro 1996b, p. 22).

His statistical analysis

> "suggest that much of the positive estimated effect of the investment ratio on growth in typical cross-country regressions reflects the reverse relation between growth and investment" (ibid, p. 23).

The cross-country study reported by Sachs (1997) found that

> "prudent fiscal policy is crucial. Fast-growing countries tend to have governments with high rates of saving and low spending relative to GDP. Each rise of ten percentage points of GDP in government saving was found to raise the overall GDP growth by one percentage point" (Sachs 1997, p. 20).

However it is not clear whether this study properly accounted for the possible two-way relationship between public savings and growth.

4.3. Democracy, Authoritarianism and Development

In his very readable and vividly illustrated (with photographs!) book on development economics, Jagdish Bhagwati (1966, p. 204) noted that the "political economy of development...poses a cruel choice between rapid (self-sustained) expansion and democratic processes," while adding in the very next sentence, "The choice between them, however, is not necessarily unique; and rightly so."[17] Nearly three decades later, Bhagwati concluded that the "cruel choice" is by no means a compelling necessity...either democracy does not handicap development or in the best of circumstances, it even promotes it" (Bhagwati 1995, p. 3). After reviewing the development experience in the last several decades he concluded that the "cruel

choice" thesis "was too simpleminded, (and) the relationship between the two is far more structured, and less unfavorable to democracy, than we thought then...(and) the chief lesson may then well be that democracy and markets are the twin pillars on which to build prosperity" (pp. 29-32).

In looking back with the perfect vision of hindsight, the "cruel choice" thesis does indeed look simpleminded! It was driven in large part by the then dominant, and now discredited, paradigm of development that assigned a central role to the state and the public sector in bringing about development through capital-intensive, import-substituting, industrialization. It emphasized physical capital accumulation, financed almost entirely by domestic savings (public and private), as the crucial factor for growth. Democracies, in contrast to authoritarian regimes, were thought to be incapable of resisting pressures to redistribute income away from savers (the relatively well-off) to consumers[18] (the poor) and of raising taxes and saving a significant proportion of tax revenues. Yet in practice many developing countries, democratic and authoritarian, managed to raise savings and tax revenues. However, except in East Asia, higher savings and tax revenues did not result in rapid growth because of other dysfunctional policies.

A number of studies (Barro 1996a, Barro 1996b, Londregan and Poole 1996, Przeworski and Limongi 1994) has used the cross-country regression framework to examine the relationship between democracy and development.

Przeworski and Limongi (1994) classified a regime as a democracy if its chief executive and legislature are elected and if there was more than one party and it passes an incumbency condition (its precise definition is not of great interest for the purposes of this paper). A

regime which violated any one of the four conditions was classified as authoritarian. Over the period 1951-1990, in all 229 regimes (101 democratic and 128 authoritarian) were observed in 139 countries. In terms of regime-years, 1731 were democracies and 2981 were authoritarian.

A commonly used crude comparison of annual average of PPP corrected GDP per capita growth rates yielded a rate of 2.44% for democracies and 1.88% for authoritarian regimes, the difference being statistically significant. Przeworski and Limongi rightly reject this comparison on the ground that whether or not a country is observed to be democratic or authoritarian in any period is endogenous, in part determined by economic growth itself. They find that a democracy that experienced positive growth in a year will change to an authoritarian regime in the next year with a probability of about 1/60, whereas if it had a negative growth, the transition probably trebles to about 1/20. On the other hand, an authoritarian regime will become a democracy in the next year with a probability of about 1/50 if it experienced positive growth this year and with a probability of about 1/40 if it experienced negative growth. It is thus clear that the probability of transition to a different regime or equivalently the probability of survival of the same regime, depends on the rate of growth experienced.

Once they allow for the endogeneity of regime change, Przeworski and Limongi find that the difference between regime types in their investment/GDP ratios is no longer significant, although a crude comparison yields an investment rate of 15% for authoritarian regimes and 23% for democracies.[19] Their analysis suggests that population grows faster in authoritarian regimes and this difference does not disappear even if correction for selection is

made. If population is treated as exogenous, authoritarian regimes have a selection corrected per capita GDP growth rate of 2.50% per year on average while democracies have a significantly lower growth rate of 1.96%. However if population growth rate is treated as endogenous to the regime type, there is no difference in per capita GDP growth rates between regimes.

Londregan and Poole (1996) attempt to discriminate statistically between conflicting hypotheses, such as "democracy is simply an entailment of the high level of social and economic development" versus "democratic political culture depends more on the institutional and historical context than on the level of economic development" (p. 1). Constructing and estimating "a statistical model that allows for joint endogeneity of the change of leaders and the character of regime type" (p. 2), they find

> "that even after (1) correcting for various measures of the political context, (2) allowing for the simultaneity of leadership change and regime type, and (3) correcting for country-specific fixed effects, income has a small but statistically significant effect...Even a permanent doubling of income levels leads to a modest improvement toward democracy" (pp. 2-3).

While Londregan and Poole (1996) concentrate on levels of income, Barro (1996a,b) uses his pioneering empirical framework of cross-country endogenous growth regressions to study the determinants of growth, democracy and the interrelationship between the two. Barro (1996a) concludes that

> "the interplay between democracy and economic development involves the effect of political freedom on growth and the influence of standard of living on the extent of democracy. With respect to the determination of growth, the cross-country analysis brings out favourable effects from maintenance of the rule of law, free markets, small government consumption[20], and high human capital. Once these kinds of variables and the initial level of GDP are held constant, the overall effect of democracy on growth is weakly negative. There is some indication of a nonlinear relation in which more democracy enhances

> growth at low levels of political freedom but depresses growth when a moderate level of freedom has already been attained"
>
> With respect to the effects of economic development on democracy, the analysis shows that improvements in the standard of living ... substantially raise the probability that political institutions will become more democratic over time. Hence, political freedom emerges as a sort of luxury good" (Barro 1996a, p. 98, emphasis added).

Barro (1996b) is more ambitious than Barro (1996a) in that it examines, using a common framework, the growth convergence hypotheses, the interplay between economic and political development and inflation (an indicator of macroeconomic instability) and growth. The study also accounts for endogeneity arising from two-way causation among some of the variables by estimating the relationships using instrumental variables. This study confirms the non-linear relationship found in Barro (1996a) between democracy and growth, so that "<u>one cannot conclude from this evidence that more or less democracy is a critical element for economic growth</u>" (Barro 1996b, p. 38, emphasis added).

Barro finds from "inspection of the cross-country data ... that countries at low level of economic development do not sustain democracy ... conversely, nondemocratic places that experience substantial economic development tend to become more democratic" (Barro 1996b, pp. 38-39). Estimating a regression in which the indicator of democracy at any t is explained by its own lagged value (Barro uses a lag of five years) as well as other variables, he finds that "the estimated coefficient on lagged democracy is 0.67 (s.e. 0.03). Thus, democracy is highly persistent over time, but roughly one-third of the adjustment to a target position (determined by other variables) occurs over five years" (Barro 1996b, p. 41). Other findings from this regression were:

> "target level of democracy is increasing in ... indicators of standards of living ... once GDP and life expectancy are held constant ... the level of schooling does

> not help explain democracy ... the general link between democracy and the standard of living is firmly established" (Barro 1996b, pp. 41-43).

Among other determinants, Barro's regressions suggests that the inequality in income distribution is unimportant for democracy, although he concedes that this "finding ... may reflect the poor quality of the data on income distribution, rather than the irrelevance of inequality for democracy" (Barro 1996b, p. 44). Degree of heterogeneity with respect to ethnicity, language and cultures has no significant effect on democracy. There is not much evidence that economic rights as measured by an index of rule-of-low promote political freedom, nor is there evidence that political freedom stimulates the rule of law. Past colonial status is insignificant for democracy once standard of living is held constant. When dummies for religious affiliation of the population are included, the only statistically significant affiliation that promotes democracy is Hindu, while non-religion and Muslim applications significantly reduce the prospects for democracy! However, Barro points out that much of the significance of the religious affiliations is influenced by outliers (democracies of India and Mauritius as Hindu nations, China as a non-religious nation). If these outliers are omitted, the Hindu and non-religion dummies lose their statistical significance.

Given the problems with the data and the fact that there is no well-founded theory of political economy on the basis of which the direction of causation between political and economic variables can be inferred, these results should not be treated as anything more than suggestive. After all, as is well-known, and is expressed clearly by Lal (1996, p. 300), "there is no necessary empirical relationship between the form of government and successful

development ... whilst democracy promotes liberty, it may not promote opulence, which depends upon an efficient market economy, and which in turn does not require a democratic form of government for its maintenance."

5. Conclusions

The recent theoretical literature on endogenous growth has certainly advanced the frontiers of our knowledge of growth theory. But for analyzing the actual growth experience since the second world war of a large cross section of countries, developed and developing, conventional neo-classical growth theory is more than adequate. I am sure that this robustness of conventional growth theory would have pleased John Fei.

Let me now turn to the questions I raised in the introduction on the determinants of growth. From the empirical analysis of development experience, some lessons stand out: economic fundamentals matter. These are: openness to foreign trade, technology and capital flows; macroeconomic stability; incentives to accumulate human and physical capital; and economic environment that did not unduly distort the incentives such as those between consuming and saving, producing for home and foreign markets, investing at home and abroad, using resources productively and using them to seek policy created rents. The evidence is not conclusive on whether state interventions should go beyond being "fundamentals-friendly" and take on a proactive role (e.g. pursuing an industrial policy of promoting specific industries) in furthering development.

Turning to the political framework, the conjuncture of the processes of democratization, economic liberalization and globalization have led some to pronounce

> "the century that began full of self-confidence in the ultimate triumph of Western liberal democracy seems at its close to be returning full circle to where

> it started: not to an "end of ideology" or a convergence between capitalism and socialism, as earlier predicted, but to an unabashed victory of economic and political liberalism" (Fukuyama 1989, p. 3)

and to argue the case for "a coherent and directional history of mankind that will eventually lead the greater part of humanity to liberal democracy" (Fukuyama 1993, p. xii).

There is no doubt that many developing countries are moving towards greater dependence on the market for the management of the economy and on some form of representative government for managing the polity. However, they have a long way to go before it can be said that they are not only democracies but also unlikely to cease being democratic. As yet there are few solidly democratic developing countries. It is too early to say that the trend towards democracy is all encompassing and irreversible. Fukuyama's assertions are premature.

Whatever be the intrinsic value of representative democracy as a form of political organization, the empirical evidence is ambiguous on its instrumental role in either promoting or retarding development. Indeed, as Bardhan (1997) concludes, political democracy is neither a necessary nor a sufficient condition for promoting development. Let me conclude with a few remarks based on his contribution.

Does democracy provide what is deemed a basic pre-condition of development, viz. well-defined property rights, a transparent legal structure for contracts and enforcement of both, and is it the only political system that provides it? The answer is no to both questions in the real world. Authoritarian regimes (Taiwan, Korea) have provided a stable, predictable, albeit corrupt, contractual environment for private business to thrive, without the procedural formalities of democracy. On the other hand, in India with all the procedural trappings of

democracy, and a well-defined contract law, the legal machinery is far too slow to be a credible force for contract enforcement. Besides, Bardhan correctly points out that while democracy may be conducive to enforcement of laws, the process of enactment of such laws may be far less predictable and transparent, influenced as it often is by the compulsions of fund-raising for election campaigns: "When policies are up for sale to the highest contributor to the campaign fund, development prospects may not win out ... it is not much consolation to be told that the policies thus legislated will be implemented well by the bureaucracy and the count under a democracy" (Bardhan 1997, p. 4).

Does public participation and pressure in a democracy facilitate development? Again, not necessarily. "Democracies may be particularly susceptible to populist pressures for immediate consumption, unproductive subsidies, autarchic trade policies and other particularistic demands that may hamper long-run investment and growth" (ibid, p. 5). Indian democracy is a prime illustration of such populism. On the other hand, in authoritarian East Asia, development policy-making has been claimed to have been insulated from such pressures. Yet authoritarianism of the Marcos regime of Philippines did not provide such insulation.

Is democracy a requirement for states to precommit credibly to the pursuit of development-oriented policies? Again the answer is no: democracy is neither necessary nor sufficient for effective pre-commitment. The Korean government credibly precommitted to applying the market test for its assistance to infant industries--it credibly threatened to withdraw protection if the protected industries did not become competitive in world markets. In India there was no credibility--'infant' industry protection, once granted, became impossible

to remove even when its objective was not achieved. It eventually became senile industry protection!

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Endnotes

1. Samuel C. Park Jr. Professor of Economics and Chairman, Department of Economics, Yale University. The paper was written while I was a Visiting Scholar at the Center for Research on Economic Development and Policy Reform (CREDPR), Stanford University. I thank the CEDPR and the Ford Foundation under Grant 950-1341 to Yale University for financial support. For their valuable comments on an earlier version, I thank Anne Krueger, Wan-Wen Chu, and the participants of the conference in memory of John C. H. Fei, The Economics and the Political Economy of Development at the Turn of the Century, Taipei, Taiwan, August 1-2, 1997.

2. John's enthusiasm for Chinese opera was well-known to his friends. Alas, if news reports are to be believed, Chinese operatic art is dying. This surely would have saddened John's heart.

3. The Symposium on New Growth Theory in the Journal of Economic Perspectives 8(1), Winter 1994, is a good summary of the evolution of the new growth theory and its antecedents in, as well as contrasts with, conventional growth theory. I have drawn on Srinivasan (1995, 1997a) in this section.

4. I agree with the comment of Wan-Wen Chu, the discussant of this paper, that accumulation of human capital need not necessarily trigger growth. He cites as an example a phase in Taiwanese history in which, as in other developing countries, investment in human capital in the form of higher education led to brain drain rather than growth.

5. Strictly speaking, only Harrod's "warranted equilibrium path," along which available savings are continually absorbed into investment without changing the capital-output ratio,

corresponds to this model.

6. There will be gain in intertemporal welfare but no change in growth rate in moving to free trade if the home output is the investment good in which the economy has a comparative advantage. With trade it will be able to transform one unit of output for more than one unit of consumption (i.e. $\pi < 1$). Equation (5) will then be rewritten as $\pi c_t = \beta K_t = (\dot{K} + \delta K_t)$. The free trade steady state growth rate of consumption and capital stock is $\tilde{g} = \frac{\beta - \delta - \rho}{\rho}$ which is the same as its autarky value. The free trade growth path of capital is $K_o e^{\tilde{g}t}$ which is the same as its autarky path, while that of consumption is $[\beta - \delta)(\sigma - 1) + \rho]/\pi\rho$. With $\pi < 1$, the free state consumption path is above that under autarky at all t.

7. Wan-Wen Chu suggests in his comments that this is an unfair characterization and that the adherents of the market-failure view do not necessarily assume that the state is omnipotent but only that it has the potential to, but not necessarily will, act developmentally. He questions what he calls the 'neo-utilitarian' approach to state behaviour. I am not persuaded by either criticism. Once deviation from potentially beneficial behaviour by the state is admitted as possible, then simply pointing out that a potential for beneficial action by the state exists is not enough if the objective is to correct market failure. Also the crucial postulate of most economists in analyzing the state is rational behaviour which is far more encompassing than utilitarianism.

8. An anonymous referee pointed out that corrupt behavior of public officials is also opportunism and suggested that I address the relationship between corruption and economic

development. It would take me afar to delve deep into this issue. Let me just note that in those cross-country-growth regressions in which a corruption index is included as yet another explanatory variable, it is found to have a statistically significant negative coefficient. Thus greater corruption seems to be associated with lower growth. But, as in any regression, a causal interpretation of this impact is hazardous. In any case, the literature on corruption and development is largely anecdotal and superficial.

9. Persson et al. (1997) motivate checks and balances as in the U.S. constitution as devices to contain opportunism. They quote the following particularly illuminating passage from James Madison:

> "If men were angels, no government would be necessary. If angels were to govern men, neither external nor internal controls on government would be necessary. In framing a government which is to be administered by men over men, the great difficulty lies in this: you must first enable the government to control the governed; and in the next place oblige it to control itself. A dependence on the people is, no doubt, the primary control on the government; but experience has taught mankind the necessity of auxiliary precautions" (James Madison, The Federalist, number LI).

10. As quoted by Jagdish Bhagwati (1983).

11. Wan-Wen Chu, while agreeing that getting the fundamentals right is not sufficient for rapid growth, concludes from his study of Taiwanese growth that one of the sufficient conditions for rapid growth is that the government intervenes at the crucial setting up stage of some key industries to socialize investment risks. I am not entirely persuaded by this argument since there is no presumption that the government is good at picking winners, i.e.

the key industries, and intervene to help them grow.

12. As I was revising this paper for publication (in early December 1997), the turbulence in East Asian financial markets of November 1997 had led to several bail-outs orchestrated by the IMF including a massive one of over $55 billion for South Korea. It would take too much space for me to analyze the bail-outs properly. But I am not convinced that the likely externalities from further declines in financial markets of East Asia warranted a bail-out. In any case, the hand-wringing in the Western Press about miracles turning to myths is silly. Given their sound real economies, East Asia can ride out the financial froth with appropriate policies and resume their growth.

13. I have drawn on Srinivasan (1997a, 1997b) in writing this section.

14. Wan-Wen Chu pointed out in his comments that Taiwan did not liberalize its imports until the 1980's or later even though it began promoting exports from the early sixties. While this is true, its implications for the relationship between openness and growth is not clear. The reason is that in the case of Korea the variance in effective protection rates of the import regime was rather small and in any case protection was often conditioned on meeting a market competitiveness test in the near future.

15. Revolutions and coups are indicators of political instability. There are other indicators, such as the frequency of changes in regimes, which also have been used in growth regressions. There is a large literature on political business cycles as well as on economic growth and political instability. It would take too much space here to review this literature. The interested reader might wish to consult Alesina et al. (1996) and Alesina and Roubini (1997) and the references therein.

16. I owe this observation to Gary Saxonhouse.

17. Many political scientists shared the "cruel choice" perception. Przeworski and Limongi (1994) quote several of them:

> La Palombara (1963, p. 57) thought that "if economic development is the all-embracing goal, the logic of experience dictates that not too much attention can be paid to the trappings of democracy." de Schweinitz (1959) argued that if the less developed countries "are to grow economically, they must limit democratic participation in political affairs."
>
> Dictatorships are needed to generate development: as Huntington and Nelson (1976, p. 23) put it, "political participation must be held down, at least temporarily, in order to promote economic development...."

18. Przeworski and Limongi (1994) provide several examples of this claim:

> Galenson (1959, p. 3) claimed that "The more democratic a government is, ... the greater the diversion of resources from investment to consumption." And this was also the belief of Huntington and Dominguez (1975, p. 60): "The interest of the voters generally lead parties to give the expansion of personal consumption a higher priority vis-a-vis investment than it would receive in a non-democratic system. In the Soviet Union, for instance, the percentage of GDP devoted to consumption was driven down from 65% in 1928 to 52% in 1937. It is most unlikely that a competitive party system would have sustained a revolution from above like this."

19. The investment model includes several explanatory variables including one-period-lagged investment rate, lagged value of per capita GDP, World GDP growth rate of the year, relative

price of investment goods and the U.S. prime rate.

20.Sachs (1997) also finds that the rule of law and government saving promote growth. He finds that "Each rise of ten percentage points of GDP in government savings raises the overall GDP growth rate by 1 percentage point" (Sachs 1997, p. 20).