ECONOMIC POLICY AND THE DYNAMICS OF GROWTH

Sebastián Edwards[*]

ABSTRACT

In this paper I deal with some of the most important policy issues related to economic growth theory, and I argue that the recent literature in the field have been almost silent with respect to some of the most important concerns among policy markers. I also argue that measurement problems plague the empirical applications of the new theories, reducing greatly their degree of persuasiveness, in particular when it comes to measuring trade policy. I end my discussion by briefly tackling the relationship between politics, savings and growth.

SINTESIS

En este artículo trato alguno de los problemas de política económica relacionados con la teoría del crecimiento económico, y argumento que la literatura reciente en el área ha permanecido casi en silencio respecto de algunas de las preocupaciones más importantes que tienen los responsables de la política económica, reduciendo inmensamente su grado de persuasión, en particular en lo que se refiere a la medición de política comercial. Finalizo mi discusión abordando brevemente la relación entre política, ahorro y crecimiento.

ECONOMIC POLICY AND THE DYNAMICS OF GROWTH*

Sebastián Edwards

1. INTRODUCTION

On the occasion of an inaugural lecture one is supposed to be funny, professorial, witty, kind, charming and entertaining. Moreover, one is expected to be simultaneously all of the above, while delivering the lecture briskly. After all, this is the appetizer; the real thing comes later when the conference proper begins. Thus, I find myself in a difficult spot, as throughout the years I have unsuccessfully struggled to partially master some of these qualities. What I can be --at least some times, I think-- is nostalgic. For this reason I will start this lecture with some brief reminiscences from my years as a student in this school. I will then deal with some of the most important policy issues related to economic growth theory, and I will argue that the recent in the field have been very useful to clarify some historical long run regularities, but have been almost silent with respect to some of the most important concerns among policy makers. I will also argue that measurement problems plague the empirical applications of the new theories, reducing greatly their degree of persuasiveness. I end my discussion by briefly tackling the relationship between politics, savings and growth.

2. ECONOMIC GROWTH AND THE STUDY OF ECONOMICS IN CHILE IN THE EARLY 1970s: A PERSONAL REMINISCENCE

I began my formal training in economics almost twenty five years ago, when I became a student at this school. Then, as now, issues related to economic growth were of paramount importance in Chile. The mood at that time, however, was very different from today's. In 1971 Dr. Salvador Allende had just been elected president of Chile, and his administration was trying to put together a highly heterodox program to boost the country's traditionally anemic rates of growth. Moreover, the goal of the *Unidad Popular* government was to increase the rate of

growth while achieving income redistribution. The emphasis was on the plan and on an increasingly high degree of government intervention in the decision-making process. Markets were regulated, firms were nationalized and the economy was deliberately closed to international competition. At the macroeconomic level the government practised a variant of traditional populist policies, printing money at a runaway pace to finance salary increases and public expenditure hikes.[1] Not surprisingly, the program did not generate the expected results and, after a brief period of euphoria, inflation took off, production collapsed, a serious balance of payments crisis was in the making, and rationing became a common place.

The country's political polarization was mirrored at the university level, and in late 1971 the School of Economics and Management was broken up into two rival schools. The criteria for this division was strictly based on political factors. One of the new schools --aptly called the "Western School"-- was staffed fully by professors that opposed Dr. Allende's government, and was intellectually rooted on what we can broadly define as mainstream economics --this group included Keynesians, monetarists and neoclassical economists. The other school was named the "School of the North" and was staffed by leftists, Marxists, neomarxists and *dependencistas*.

Without hesitating my friends and I enrolled in the northern school, were we had a collection of enigmatic professors, including Theotonio Dos Santos, Marta Harneker, Ruy Mauro Marini and Vania Bambirra. We were exposed to endless discussions on alternative interpretations of Marxist theories, and to almost no training in formal economics. It was in this context that I first encountered some thinking about growth. My first incursions into the subject came straight out of Marx and I found them deeply unsatisfactory. I found *Capital* boring and quite impenetrable and, worse yet, I could never understand the examples. Reading modern interpretations of Marx was somewhat more entertaining but, at the end, equally frivolous. Recently I went through my battered copy of *Capital* --the Spanish version, published by Fondo de Cultura Económica--, and I found that I made copious notes on the margins of Chapters 22 and 23 on capitalistic accumulation, in volume I; the margins of the Chapters 20 and 21 in volume II are even more crowded with short notes and (I must confess) large question marks. Even then my classmates and I suspected that this was largely a waste of time and that, although reading Marx broadened our view of the world, it said little about the process of growth in modern economies. Moreover, we became increasingly convinced that these texts had virtually nothing to offer for the better understanding of Chile's reality and challenges.

---

[1] In the 1980s Rudi Dornbusch and I analyzed the Allende macroeconomic policies in some detail. At that time we argued that they constituted a splendid example of what we called the "macroeconomics of populism in Latin America". See the discussions in Dornbusch and Edwards (1989).

Our hunger for theoretical insights on the growth process began to be answered when we were exposed --late in our second or early in our third year, I believe-- to the writings of Michal Kalecki, the Polish economist. Our professors did not get tired of telling us that Kalecki had been the real discoverer of the macroeconomic multiplier, and that without him Keynesian economics would not have existed. We plunged into Kalecki's theories of growth --we read him out of bootlegged copies of one of his books published in Mexico-- with great enthusiasm, and found them interesting and significantly more relevant than what we had encountered in Marx. We found his division of consumers into two groups --capitalists and workers-- to be particularly pertinent to the Chilean case. Kalecki's simple framework was able to provide some insights into the relationship between income distribution and growth. This subject, of course, continues to be of great academic and practical interest, and has become one of the dominant themes in Chile's policy circles. Although Kalecki's mechanics is extremely basic --everything hinges on differential marginal propensities to save by workers and capitalists-- it does provide a first analytical step towards the understanding of the growth-distributional trade off.

My friends and I spent hours discussing growth issues in the light of our discovery of Kalecki. Although our training was clearly unsatisfactory, our enthusiasm for the subject was quite·extraordinary. Looking back, I must say that those have been some of the most exciting intellectual times of my life. We had little formal help and we had been *de facto* denied access to the modern growth literature, but we had an unmatched interest for policy issues. I don't believe that I am exaggerating when I say that the intensity encountered at the school of economics of the Universidad de Chile in the early 1970s had almost no parallel.

When the coup erupted in September of 1973 our school was closed, we were suspended from the University, and we had to hide --or worse yet, burn-- most of our books. A year later I had joined the School of Economics at the Catholic University and became exposed, for the first time, to modern economics. We went through many models, including the basic neoclassical works on growth. We read Solow and were told that an Australian named Swan had developed the same model a few years earlier. When we asked why in the equilibrium steady state there was no per capita growth, we were told not to worry. After all this was nothing more than a metaphor: steady states were way into the future --it was a long run concept and, as Keynes had said, in the long run we are all dead.

At the University of Chicago I ran, once again, into neoclassical growth models. Although now the analyses were more complicated --we dealt with Sidrausky, the turnpike theorem, n-sector models and so on-- the absence of per capita growth continued to be a feature of the steady state. A new explanation was offered for this disturbing fact. We were told that if labor was measured in "efficiency units" there would indeed be per capita growth when measured relative to the number of "bodies" in the economy. I thought that this was unsatisfactory, but decided not to lose sleep over it; I added the doubt to the increasingly large

number of accumulated questions to be answered in the future. Towards the end of my stay at Chicago my classmate Paul Romer began to work on growth. At the time I was enthraled on exchange rate issues, and did not pay much attention to what he was doing. It is not an exaggeration to say, however, that the work that he began at that time has radically changed the way we look at the growth process. This conference, and the fine papers being presented here, are of course an illustration of the enthusiasm that economists now have on the subject.

3. THE NEW THEORIES OF ECONOMIC GROWTH AND ECONOMIC POLICY

3.1 Analytical Issues

The new theories of growth pioneered by Romer (1986) and Lucas (1988) and popularized, among others, by Barro and Sala-I-Marti (1995) have dealt successfully with many of the more troublesome aspects of traditional neoclassical models of growth. In particular, the new models have been able to address two issues: (a) they have generated long run growth in steady state equilibrium; and (b) they have found a role for national policies in explaining long run growth performance. In particular, according to the new theories commercial, taxation and financial policies, among others, can impact long run economic growth. This, of course, was not the case in traditional models where policy actions --for example policies geared at increasing the rate of savings-- only had an effect in the short run, while the economy moved from one steady state to the next.

These new models have dealt with these issues by introducing increasing returns to scale and/or by modeling the process of technological progress. The easiest way to illustrate the way in which the first avenue operates is by assuming that firm's production functions include not only their own stock of capital k, but also the economy-wide stock of capital **K**. Firms, however, are too small as to affect the economy wide capital stock. In this case, then, the marginal productivity of capital will not tend to zero in the margin. On the contrary, it will be bounded from below. Formally, the production function can be written as follows:

$$y_t = f(k_t, K_t; L_t),$$ (1)

then, the limit of the marginal productivity of capital f_k when $k \to \infty$ is,

$$\lim f_k(K, L) > 0.$$ (2)

Moreover, if we assume that this bounded marginal productivity exceeds the rate of time preference ρ, the incentives to accumulate capital, and thus to generate positive per capita growth, will continue through time and will not tend to disappear. In this case per capita growth will be positive in the steady state.

142

Many of the models based on endogenous growth have attempted to endogenize the innovation process. This contrasts sharply with the traditional approach to these issues. For decades growth analyses had tended to ignore the importance of technological innovations. So much so, that for much of the last forty years technological progress has been considered to be a "residual".[2]

When it comes to small (poor) countries it is important to distinguish between "technical innovations" and "technological imitation". While advanced industrial countries will tend to (endogenously) innovate, poor and middle income countries will tend to concentrate their efforts in trying to adopt new technologies to their realities. This process of imitation can be captured effectively by the following very simple model. Assume a standard aggregate production function where A represents the country's stock of knowledge. Changes in A, then, represent technological improvements, or growth in total factor productivity (TFP) and are determined by equation (4).

$$y_t = f(K_t ; L_t) A_t , \tag{3}$$

$$d\log A = \alpha + \{\beta\omega + \gamma \Gamma \}, \tag{4}$$

where,

$$\Gamma = (A^* - A)/A, \tag{5}$$

is the gap between the world's (appropriable) stock of knowledge, and the countries own stock. α and γ are parameters, and ω is the rate of growth of world's TFP (that is $A = Ae^{\omega t}$). β is a parameter between zero and one that measures the country's ability to absorb productivity improvements originating from the rest of the world, and is assumed to be a function of a vector of national domestic policies. More specifically, it can be assumed it is a negative function of the level of trade distortions in the economy (δ).

$$\beta = \beta(\delta); \quad \beta' < 0, \tag{6}$$

where, for example, δ can capture trade policy, and be interpreted as an index of trade distortions that takes a higher value when international trade, both in imports and/or exports, becomes more distorted.

Parameter α is the basic rate of domestic productivity growth or innovation, which for simplicity is assumed to be exogenous. On the other hand, $(\gamma(A^*-A)/A)$ is the "catch-up" term that says that domestic productivity growth will be faster in

---

[2] On the analytical origins of total factor productivity growth as a residual see Griliches (1996).

143

nations where the stock of knowledge lags further behind the world's accumulated stock of appropriable knowledge.[3]

In this setting the path through time of domestic TFP will be given by:[4]

$$A_t = \left[A_0 - \left(\frac{\gamma}{\gamma + \omega(1-\beta) - \alpha} \right) A_0^* \right] e^{-(\gamma - \alpha - \beta\omega)t} + \left(\frac{\gamma}{\gamma + \omega(1-\beta) - \alpha} \right) A_0^* e^{\omega t}. \qquad (7)$$

It follows from equation (7) that the long run rate of growth of domestic TFP will depend on whether $(\gamma - \alpha - \beta\omega) > < 0$. If $(\gamma - \alpha - \beta\omega) > 0$, in the steady-state TFP will grow at the rate of world's productivity ω. This means that the level of domestic TFP (and of GDP) will be a function of the degree of trade intervention, with higher trade distortions resulting in a lower level of real income. A key implication of this result is that countries that engage in trade liberalization programs will be characterized, during the transition between two steady states, by higher rates of productivity growth and thus, by faster rates of GDP growth.

A second case appears when $(\gamma - \alpha - \beta\omega) < 0$. Long run TFP growth **dlog A** will depend on how large the world's rate of growth of TFP (ω) is relative to the domestic rate of productivity improvement. If $\omega > (\alpha - \delta)/(1-\beta)$, domestic TFP will grow in the steady state at the world rate ω. If, however, $\omega < (\alpha - \gamma)/(1-\beta)$, and $(\gamma - \alpha - \beta\omega) < 0$, the long run equilibrium rate of TFP growth will be equal to $(\alpha + \beta\omega - \delta)$,[5] and will depend negatively on δ, the country's level of trade distortions. That is, in this case more open countries (those with low δ) will grow faster during steady state equilibrium. This is because in this case the domestic source of technological inventions is strong enough as to drive, even in the steady state, the aggregate rate of technological innovations.[6] In this case, then, per capita growth will once again be positive in the steady state.

There is by now abundant empirical evidence suggesting that the new theories of growth have provided useful insights that help explain long run cross country differentials in growth performance. In particular work by Robert Barro and his associates has shown that countries tend to exhibit "conditional convergence", and that national policies-- in particular trade, financial and public policies --play a role in explaining why some nations have performed strongly, while others have not been able to grow in a sustainable fashion. In terms of the model sketched above, this means that the catch-up term does play a role in explaining growth, and that the

[3] It is assumed that not all inventions generated in the world can be freely appropriated. In that sense, A^* could be interpreted as the accumulated stock of innovations in the more advanced countries that have spilled over to the rest of the world. Harberger (1959) provides an early discussion along the lines discussed here.

[4] This, of course, is the solution to differential equation (4).

[5] Of course, in this case, $(\alpha + \beta\omega - \delta) > \omega$.

[6] In Grossman and Helpman's (1990) micro model of technological progress it is also possible that, under some circumstances, more open economies will exhibit higher long-run growth.

variables in vector δ have been empirically relevant. The current state of empirical work on the subject is aptly summarized in Barro (1996).

In spite of the obvious appeal of the new theories, the new approach towards growth has, in my opinion, two limitations. The first one is empirical and has to do with measurement problems. Simply put, in empirical applications it is extremely difficult to provide convincing and persuasive measures of the policy variables that are supposed to affect growth. This is particularly the case when it comes to measure trade policy. Second, the new theories are basically silent with respect to policy makers' main concerns. While most of the new developments deal with the long run, and the empirical applications focus on cross country differentials, policy makers are mostly concerned with short term dynamic questions. I deal with both of these issues in greater detail in the rest of the paper.

3.2. Trade Policy, Openness and Growth: Measurement Problems

Historically there have been important policy controversies associated to the relationship between trade policy and economic growth. Although the new theories of growth have contributed greatly towards the analytical clarification of the issues, a number of policy and empirical controversies remain. Perhaps the best illustration of the extent of these policy debates is that the experience of South Korea has often been considered as an example of the validity of different --and often opposite-- views regarding trade policy. For some, Korea provides the most persuasive example that openness and liberalization pay off in the form of rapidly expanding exports and fast growth (World Bank 1987, Krueger 1981); for others, Korea is a prime example that in order for a small country to grow very fast, trade liberalization should be avoided and an active industrial policy should be implemented (Rodrick 1994, Wade 1994). Naturally, at the heart of these discussions is the difficulty in providing comparable and objective measures of trade policy. In this section I briefly deal with this issue, discussing some of the more recent efforts to generate well defined measures of openness.

The classic National Bureau of Economic Research study directed by Krueger (1978) and Bhagwati (1978) provides the first systematic attempt at formally defining trade openness and classifying trade regimes.[7] Trade orientation was defined according to the degree by which the protective (and incentives) structure in a country was *biased* against exports. In spite of their comprehensiveness, these studies did not provide overall time series of the evolution of trade policy in the different countries.

---

[7] The study included nine individual country studies: Turkey, Ghana, Israel, Egypt, the Philippines, India, Korea, Chile and Colombia. The project also included Brazil and Pakistan, but no volume on these countries was published.

In the late 1980s, as the policy debate on the merits of alternative trade regimes became more ideological, issues of measurement became more important. At the center of these controversies was the inability to define clearly what was exactly meant by alternative policies and by *trade liberalization* reforms.[8] Bradford and Branson (1987), for instance, argued that:

> Part of the controversy undoubtedly derives from the use of loosely fashioned phrases which sound like dichotomous typologies when in fact more rigorous specifications of meaning would reveal that they define different points along a spectrum of policy regimes rather than stark alternatives (p. 17).

Cooper (1987, p. 518), argued that "it is necessary to distinguish between different types of liberalization to make clear that liberalization can be viewed as a process rather than as a state and to disassociate liberalization from laissez-faire". And, Bhagwati (1987) asked:

> What is meant by an export promotion strategy? Unless we are clear on that critical question, we cannot properly debate the merits of the strategy and its alternatives. Clarification of the question is therefore important, especially as everyday usage of this phrase echoes many different notions that are wholly unrelated. (page 11)

Leamer (1988) tackled the measurement problem by using a large cross country data set to calculate trade intervention indicators. Leamer uses an empirical Hecksher-Ohlin model with nine factors --capital, three types of labor, four types of land and oil-- to estimate net trade flows and trade intensity ratios for 183 commodities at the three digit SITC level for 53 countries, 30 of which are developing nations. He then takes "[t]he differences between 'predicted' and actual trade intensity ratios...as an indicator of trade barriers". Leamer uses this approach to construct two basic sets of trade policy indicators: the first refers to *openness*, and measures the way in which trade policy --both tariff and non-tariff barriers-- restrict imports, while the second group of indicators measures trade *intervention*, and measures the way in which trade policy distorts trade either positively or negatively. The main difference between these two indicators is that while the openness index measures the role of import restrictions only, the intervention index also captures the role of export subsidies.

Leamer's trade policy indicators have a number of desirable properties. First, they are derived from an empirical trade model soundly rooted in theory, and as sophisticated as one can possibly expect. Second, they are "objective", where no

---

[8] See, for example, Bradford and Branson (1987), Cooper (1987) and Edwards (1989, 1993) and Dean, Desai and Riedel (1994) for discussions on this subject.

attempt was made to classify a priori countries as open or closed. Third, they are continuous variables that allow for different degrees of openness; and fourth, it is comparable across countries. These characteristics make these indices attractive candidates to be used in cross country analyses on the connection between trade policy and economic performance. Edwards (1992), for example, used six indices constructed by Leamer to investigate the connection between trade intervention and growth for a group of developing nations.

In spite of their appeal, Leamer's indices also have some limitations. First, in order to interpret the residuals from the trade direction regressions as trade barriers, two important assumptions have to be made: trade impediments constitute the only excluded variable in the estimation of trade flows, and trade barriers are uncorrelated with those variables included in the regressions. Second, these indicators were only calculated for 1982 and, thus, do not provide a summary of trade policy stance over a long(er) period of time.

Pritchett (1991, 1993) and Wolff (1993) analyzed the relationship between alternative proxies for trade restrictiveness and concluded that, in general, popular indices are only weakly correlated among themselves. Pritchett (1993), for example, examined six alternative aggregate indices of trade orientation --coverage of nontariff barriers, average tariff rates, trade intensity index, a price distortions index computed by Dollar (1992), and two of Leamer's indices-- and found that their simple correlation coefficients were not very high, and in some cases even negative. An exception to this were Leamer's overall openness measure and a trade intensity index, with a simple coefficient of correlation of 0.75 coefficient. Pritchett also found that NTBs coverage was not correlated to other measures of intervention and openness. In a way this is not a completely surprising result, since the fact that a particular group of commodities is subject to NTBs --import licenses, for example-- does not necessarily imply that these restrictions are binding. In fact, it is well known that many countries have used licenses as an *option* to exercise restrictions. But this option is only exercised under certain circumstances.

In a related paper, Pritchett and Sethi (1994) use detailed disaggregated data for Jamaica, Kenya and Pakistan to analyze whether "official tariff rates" are correlated with "collected tariff rates (CTR)", measured as the ratio of tariff revenue to total imports. This is an interesting comparison, since CTRs have often been used in empirical analyses as proxies for the overall degree of protectionism. Using samples of over 3,000 observations for each country, they found out that although there is a positive relationship between official tariff rates and CTRs, this relationship is not linear: increases in the official tariff rate are translated in less than proportional increases in CTRs. Interestingly enough, however, they found out that in all cases but one the ordering of official tariff rates and CTRs was maintained; those import items with higher official rates also had higher CTRs.

147

Wolff (1993) extended Leamer's (1988) approach to compute a new set of trade distortion indexes. The main differences with Leamer are that in his trade regressions Wolff used a larger set of factors of production, a more aggregated set of commodities and three alternative base years (1975, 1980 and 1985). After estimating directions of trade regressions, Wolff constructed trade orientation indices as "the distance between actual trade and the trade predicted by the 'true' model in the absence of distortions" (page 60). He then applied a number of "quality checks" to his estimates and argues that the constructed indices satisfy three basic criteria: (1) overall stability over time for most countries; (2) major episodes of trade liberalization are captured by the indices; and (3) there is a negative correlation between changes in the trade orientation indices and trade growth.

In a series of important papers Anderson and Neary (1992, 1994a, 1994b) have recently developed a methodology for constructing theoretically appealing and empirically tractable aggregate measures of trade orientation. Their discussion starts with the recognition that in the real world it is extremely difficult to find appropriate measures of trade restrictiveness. According to them:

> [I]n most real world situations .. actual systems of trade intervention are pervasive and highly complex. This poses a challenge for analysts and policymakers alike. In the presence of a bewildering array of tariffs and quantitative restrictions, it can be extremely difficult to assess the true orientation of a country's trade policy or to evaluate the thrust of a package of policy changes...(page 151).

The Anderson and Neary trade restrictiveness indicator is analytically based on the concept of "average tariff", as developed by Corden (1966). They argue that, in the case where tariffs are the only form of trade impediments, a unique trade orientation index can be defined as the "average tariff" that would result in a welfare level identical to the one achieved under the existing array of tariffs. They show that the change in this index resulting from a trade reform is equal to the weighted average of the change in domestic prices, with the weights being equal to the marginal change in welfare resulting from a (small) change in prices. Theoretically, the construction of such an indicator is equivalent to the computation of "exact price indices" in consumption theory. If, as is almost invariably the case, both tariffs and NTBs are used as protective devices a "hybrid" indicator can still be defined by using tariff-equivalence of quotas.

What makes the Anderson and Neary indicator particularly attractive is that the information required for computing it for any particular country is not excessive. A medium size CGE model, that distinguishes up to 3,000 import items can solve the model using a spreadsheet in a personal computer. Anderson and Neary (1994b) show that the computation of the change in their trade restrictiveness index for Colombia between 1989-1990 gives a very different picture from that obtained from

more traditional aggregate measures, such as average official tariffs, coverage of NTBs, or collected tariff ratio.

In a recent paper Anderson (1994) calculated the Anderson-Neary trade restrictiveness indicator for a group of 23 countries and compared it to the trade weighted average tariff, one of the most popular traditional trade policy indicators. He found that, although the correlation coefficient between the two indices was high, the weighted average tariff tended to underestimate the "true" degree of trade restriction, as measured by the Anderson-Neary index. The degree of underestimation is directly proportional to the degree of dispersion in the protective structure. There is little doubt that the development of this new index is an important step in the evaluation of trade policy. However, in spite of its desirable properties the index still has some problems. In particular, even though it can be estimated using a personal computer, the amount of raw data required to calculate it --detailed tariffs and tariff equivalence of quotas-- continues to be formidable, especially within the context of multicountry comparative studies.[9]

3.3 New Theories of Growth and the Dynamics of Reform

Policy makers in the developing and emerging countries have tremendous interest in issues related to growth. This is particularly the case in countries embarked in market oriented reform. From a political economy point of view a healthy rate of economic growth helps sustain the reform process. On the contrary, an economic slowdown reduces voters' confidence and support and, many times, results in the actual abortion of the reform effort. Policy makers are, in fact, interested in the growth effects of alternative reform *paths*. Questions related to speed of reform, sequencing, and other transitional problems are, indeed, at the core of policy makers interests. As pointed out above, however, the new growth theories tend to focus on long run issues and are silent regarding the dynamics of policy making and growth.

The tension between academic emphasis and policy makers' concerns is not restricted to theoretical issues, however. It also affects the way in which the empirical analysis of growth problems has proceeded during the last few years. Consider, for example, the following issues:

a) Preferred methodology of empirical analysis: Academics that have attempted to deal empirically with the new theories have used, almost exclusive by, cross country regression techniques. Policy makers, on the other hand, are interested in historical episodes and smaller scale comparative studies --Argentina vs Korea's

---

[9] In particular, the required data are particularly difficult to get for a large number of developing countries. For instance, Anderson's (1994) paper used all the tariff data sets available at the World Bank, and includes only 14 developing nations.

growth experiences, for example. These type of analyses allow policy maker's, and their advisers to learn from other country specific mistakes and to have a general view of "best practices". There is little doubt in my mind that we need more country specific analyses of growth experiences that will give us detail understanding of policy nuances, and illustrate why some reform episodes succeeded while others failed. These historical analyses should not only deal with traditional economic themes, but should also concentrate on the (possible) role of institutions in the development and growth processes.

b) Labor markets: Most new models of growth assume, either implicitly or explicitly, that the economy is under full employment. Policy makers, on the other hand, are deeply concerned with issues of unemployment during the transition between economic systems.

c) Political economy angles: Most academic analyses of the political economy of growth have been limited to the addition of some political activity indexes --number of politically motivated assassinations, for instance-- into cross section regressions. The results from these studies tend to have some general interest, but completely fail to inform policy makers on how to proceed --imagine an economic advisor telling the president that reducing the number of political assassinations is a sure way of boosting growth performance! Policy makers are, however, seriously interested in understanding the relationship between political institutions and growth, including problems emerging from time consistency issues.

Increasingly academic economist have been moving towards more country specific, historical and episodical analyses of growth experiences. Moreover, more and more researchers are beginning to show interest in studying the role of institutions in the growth processes. I am convinced that this will be the most fruitful avenue of research in the future, and one that should be seriously encouraged.

4. GROWTH AND POLITICS: A NOTE ON PUBLIC SAVINGS

From an empirical point of view there is a well established connection between capital accumulation and growth. In fact, recent work by Alwyn Young (1993) suggests that the three East Asian Tigers --Korea, Taiwan and Honk Kong-- have mostly grown because of significant capital accumulation. This fact, and the understanding that there is a limit to the extent to which countries can rely on foreign savings, has generated a renewed interest in studying the determinants of savings.

Surprisingly, perhaps, most studies on savings have tended to ignore the role of public savings. And yet, there are significant differences in public sector behavior across time and across countries. For example, in the fast growing

countries of East Asia public savings have contributed between one fourth and one third of total savings. In the countries of Latin America, on the other hand, public sector savings have historically tended to be negative. In this section I sketch a very simple model of public sector savings that emphasizes the role of political factors --and more specifically political instability-- in the government's decision making process.

Consider a two period economy, where the government's objective function consists of the present value of consumption.

$$W = C_1 + \beta C_2. \tag{8}$$

Consumption in period 1 is equal to period's one output Y_1, which is assumed to be exogenously given, minus savings. In order to focus on the issues of interest, assume further that aggregate savings are fully constituted by public savings.

$$C_1 = Y_1 - S. \tag{9}$$

Period's two consumption is equal to that period's output. This, in turn, depends on initial output Y_1, and the economy's rate of growth, which is assumed to be a function $\alpha(S)$ of savings.

$$C_2 = Y_1(1 + \alpha(S)). \tag{10}$$

Further assume that growth depends on savings in a quadratic fashion.

$$\alpha = \phi + v S - \varsigma S^2. \tag{11}$$

In politically unstable countries the government tends to be impatient. This is because the higher the degree of political stability, the lower is the probability that the current government will be in office in the future. Formally this can be captured by assuming that the government's rate of time preferences r depends on an index of political instability. In more unstable countries, then, the rate of discount β will be lower.

$$\beta = 1/(1 + r); \quad r = r(\text{political instability}); \quad r' > 0. \tag{12}$$

In this economy the optimal level of public savings is:

$$S^* = \frac{\beta Y_1 v - 1}{2 \beta Y_1 \varsigma} \tag{13}$$

From (12) and (13) it follows that countries with a higher degree of political instability will tend to experience a lower level of public savings.

d S*/d political instability < 0 (14)

This very simple model provides a basic framework for dealing with a number of interesting empirical and policy related issues. For example, to the extent that political instability is related to income distribution, this model would suggest that countries with a higher degree of income inequality would have lower public savings and, with other things given, lower economic growth. Moreover, this framework provides an analytical base for understanding the empirical results reported in Edwards (1996), suggesting that, indeed, variations across countries and time of public savings are affected by differences in political instability. Naturally, further insights into these important issues will require of additional empirical and theoretical work along the lines of the papers presented in this conference.

REFERENCES

ANDERSON, J. (1994): "Trade Restrictiveness Benchmarks," mimeo, Boston College, prepared for the World Bank.

ANDERSON, J. and J. P. NEARY (1992): "Trade Reform with Quotas, Partial Rent Retention and Tariffs," *Econometrica*, Vol. 60, 57-76.

——— (1994a): "Measuring the Restrictiveness of Trade Policy," *World Bank Economic Review* Vol. 8, 151-169.

——— (1994b): "The Trade Restrictiveness of the Multi-Fibre Arrangement," *World Bank Economic Review* Vol. 8, 171-189

BARRO, ROBERT (1996): "Determinants of Economic Growth: A Cross-Country Empirical Study," *NBER Working Paper* No. 5698.

BARRO, ROBERT J. and XAVIER SALA-I-MARTI (1995): *Economic Growth*, New York, McGraw Hill.

BRADFORD and BRANSON (1987) (editors): *Trade and Structural Change in Pacific Asia.* Chicago: University of Chicago Press

BHAGWATI, J.N. (1978): *Foreign Trade Regimes and Economic Development: Anatomy and Consequences of Exchange Control Regimes*, Lexington: Ballinger for the NBER.

——— (1987): "Outward Orientation: Trade Issues," prepared for presentation at the World Bank-IMF Symposium on Growth-Oriented Adjustment Programs, Washington, DC, 25-27.

COOPER, RICHARD (1987): "Industrial Policy and Trade Distortion," in Dominick Salvatore (ed.), The New Protectionist Threat to World Wealfare. Amsterdam and London: North-Holland.

CORDEN, MAX (1966): "The Structure of a Tariff System and the Effective Protective Rate", *Journal of Political Economy* Vol. 74, 221-237

DEAN, J., S. DESAI, and J. RIEDEL (1994): "Trade Policy Reform in Developing Countries since 1985," Discussion Paper No. 265, Washington, D.C. World Bank, pp vii, 104.

DOLLAR, DAVID (1992): "Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence From 95 LDCs, 1976-85", *Economic Development and Cultural Change* Vol. 40, 523-544.

DOURNBUSH and EDWARDS (1989). "The Economic Populism Paradigm." NBER Working Paper No. 2986. Cambridge, Mass.

EDWARDS, SEBASTIAN (1989): "Debt Crisis, Trade Liberalization, Structural Adjustment and Growth-Some Policy Considerations". Contemporary Policy Issues, Jul., V7 N3: 30-41.

————— (1992): "Trade orientation, distortions and growth in developing countries", *Journal of Development Economics*, Vol. 39, 31-57.

————— (1993): "Openness, Trade Liberalization and Growth in Developing Countries," *Journal of Economic Literature*, 31 (3), pp. 1358-1393.

————— (1996): "Why Are Saving Rates so Different Across Countries?: An International Comparative Analysis", forthcoming *Journal of Development Economics*.

GRILICHES, ZVI (1996): "Education, Human Capital, and Growth: A Personal Perspective," *NBER Working Paper* No. 5426.

GROSSMAN, GENE and ELHANAN HELPMAN (1990): "Comparative Advantage and lung-run growth". *America Economic Review* Vol. 80, 796-815.

HARBERGER, A. C. (1959): "Using the Resources at Hand more Efficiently". *American Economic Review Proceedings*, Vol. 49, 134-146.

KRUEGER, A. O. (1978). *Foreign Trade regimes and economic Development: Liberalization Attempt and Consequences*, New York: Columbia University Press for the NBER.

————— (1981): *Trade and Employment in Developing Countries*. Chicago, Ill.: University of Chicago Press.

LEAMER, EDWARD (1988): "Measures of Openness," in Robert Baldwin ed. *Trade Policy Issues and Empirical Analysis*, a National Bureau of Economic Research Conference report. The University of Chicago Press.

LUCAS, R. (1988): "On the Mechanism of Economic Development," *Journal of Monetary Economics*, Vol. 27, 41-55.

PRITCHETT, LANT (1991): "Measuring Outward Orientation in Developing Countries: Can It Be Done?" WPS 566. World Bank, Country Economics Department, Washington, D.C.

PRITCHETT L. and SETHI (1994): "Tariff Rates, Tariff Revenue, and Tariff Reform: Some New Facts," *World Bank Economic Review* Vol. 8, 1-16.

RODRICK, D. (1994): "The Rush to Free Trade in the Developing world: Why So Late? Why Now? Will It Last?". In Haggard, S. and Webb, S.B. (eds) *Voting for reform*. Washington: The World Bank.

ROMER, P.M. (1986): "Increasing Returns and Long Run Growth," *Journal of Political Economy*, Vol. 94, 1002-1037.

WADE, ROBERT (1994): "Is the Miracle Study Right that Selective Industrial Policies in Northeast Asia Are Unimportant?". Working Paper. Overseas Development Council, Washington, D.C.

WORLD BANK (1987): *World Development Report* (World Bank, Washington, DC).

WOLF, HOLGER (1993): "Trade Orientation: Measurement and Consequences," mimeo.

YOUNG, ALWYN (1993): "The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience," *Quarterly Journal of Economics* Vol. 110, 641-680.