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ECONOMIC ANALYSIS AND THE POLITICAL ECONOMY OF POLICY FORMATION

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ABSTRACT

The first part of the paper analyzes the various components (as well as likely failures) in the complex two-way market chain that links the supply of economic theories with the design, sale and implementation of workable economic policies. Among other aspects of this link two points are stressed. One is the relative contribution to knowledge of economists inside the government machine, which by nature is often not diffused to the profession at large. Another very major point is the advancement of knowledge through the reverse link from policies that have worked in practice, often without prior theoretical grounding, to their subsequent rigorous theoretical formulation and empirical testing.

This discussion is followed by detailed first-hand illustrations from the politico-economic experience of Israel, in which government (and economists') involvement in the economy has traditionally been far-reaching. The illustrations which have their parallels in other countries are given in historical order, from the contributions to the literature on trade and development policy issues (paramount in the 1950s and 1960s), on tax and transfer schemes as well as on open economy macro policies and exchange rate regimes (mainly in the 1970s). This is followed by reference to the policy experience and failures of living with high inflation and, in particular, the political economy of the more recent stabilization efforts which provide considerable support for the general points made in the first part of the paper on the workings of the market for ideas and policies.

The paper ends with brief references to two important topics for the 1990s - the uncharted practical area of institutional reform in socialist economies and the recent theoretical literature on game-theoretic approaches to policy formation.

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Preface

It gives me great honour as well as pleasure to have been asked to give a lecture bearing the illustrious name of Joseph Schumpeter - great economist and economic sociologist, European in terms of his upbringing and the breadth of his cultural perspective, at the turn of, and the early decades of, this century, Walrasian in theoretical spirit, and later a leading American economist in cultivating the new quantitative view of economics of the 1930's and 40's.

Schumpeter has had an interesting and varied personal career, starting with a law firm in Cairo in 1907, later two brief government positions as member of the German Socialization Commission (1918) and tenure as Minister of Finance in post-war Austria (1919). Subsequently he even managed a small Austrian bank which eventually joined in the series of inevitable Austrian bank failures.

His early interest in public policy, my subject of discourse today, was shown in a book, The Crisis of the Tax State (1918), in a series of articles published in Austrian and German journals and later in his Harvard lectures in which he dealt with tax policy, the Great Depression and the New Deal (which, he believed, slowed down "natural" recovery). His most influential book, Capitalism, Socialism and Democracy (1942). I remember as one of the most interesting and thought-provoking books I have read in my student days.

This is a somewhat enlarged version of the Schumpeter Lecture delivered at the European Economic Association meeting at Augsburg, Germany on September 3, 1989. I wish to thank the National Bureau of Economic Research and the National Science Foundation for enabling me to write a first draft of this paper during a brief stay at the NBER in Cambridge, Mass. in the summer of 1989. For valuable comments on the draft I am indebted to Avi Ben-Bassat, Mordecai Frenkel, Ephraim Kleiman, David Klein, Don Patinkin and Zvi Zusman.

Few probably know that Schumpeter was also a co-founder of the Econometric Society, being a great believer in quantitative methods and in the use of mathematical tools (in which he himself was apparently not very adept).

I would like to end these opening remarks with two quotes from Joseph Schumpeter in this connection, which I have also used on another occasion.²

In the 1933 issue of Econometrica, an article of his, entitled, "The Common Sense of Econometrics," ends in a paragraph which runs as follows:

"The only way to a position in which our science might give positive advice on a large scale to politicians and business men, leads through quantitative work. For as long as we are unable to put our arguments into figures, the voice of our science, although occasionally it may help to dispel gross errors, will never be heard by practical men. They are, by instinct, econometricians all of them, in their distrust of anything not amenable to exact proof."

Politicians in Schumpeter's days may have been a special breed. I would not buy this statement of Schumpeter's as far as today's politicians' optimal menu is concerned, at least not those in whose ears I have recently been whispering. I do, however, subscribe to the contents of a preceding paragraph in the same article which is as relevant today as it seemed 56 years ago:

"Theoretic and 'factual' research will of themselves find their right proportions, and we may not unreasonably expect to agree in the end on the right kind of theory and right kind of fact and the

² In a Presidential Address to the Econometric Society [Bruno (1988)].

methods of treating them, not postulating anything about them by program, but evolving them, let us hope, by positive achievement."

All of these points are relevant to the subject matter of today's lecture in which I will interpret 'fact' to include also the practice of economic policy. This paper falls into two major parts. In the first part (Section I) I will deal at some length with the complex politico-economic inter-relationship of economic ideas and policy actions. The subsequent sections will go over a series of important policy areas in which economic analysis has been interacting with applied policy. This is mainly based on my own country's experience but is confined to issues of more general interest. These will serve to illustrate some of the more general points made in the first part of the paper.

I. The complex inter-relationship of economic analysis and policy formation process

One important lesson to be learned from the Schumpeterian view of the world is the fact that economic forces heavily interplay with social institutions and social and political norms of behavior, as well as with political ideas and interests that these norms reflect. Economic considerations are thus but one vector, albeit occasionally very important, in the parallelogram of forces leading to the implementation of actual policies.

Let me describe some of the general components of this complex interplay in somewhat greater detail (later I will get into specific illustrations from actual first hand experience).

A. The nature of the market for economic ideas and policies

Sir Alec Cairncross, a well-known British economist and policy advisor likened policy formation to the demand side of a market in which one of the

supplies is that of economic ideas (1981, 1985). I would like to dwell on his point and enlarge this image a bit further.

First of all, the product to be supplied may be of uncertain quality. Ideas, at least in the eyes of the final customer, may sometimes be obscure, imprecise or appear to be based on inappropriate assumptions; moreover - using an anonymous quote from Cairncross, "Theory may be an organized way of going wrong with confidence."

What is even more important is the fact that the market we are talking about also overlaps with the political market place. Policy is molded at least as much by a specific institutional set-up, political pressures, public acceptability of a policy as well as the personality and ambitions of the politician or the policymaker himself. Finally, the nature and skills of those individuals in government who have to implement the policies are of crucial importance.³

Before proceeding with the main argument let me mention two relevant examples for the latter point:

(1) Kornai (1986), in talking about reform in socialist systems (of which more will be said in Section VII), criticized Lange's original concept of market socialism as based on an idealized world of Platonian philosophers, wise and unselfish politicians and government officials who are only concerned with the objective rules of price adjustment to excess demands and supplies. In practice, we know, policy-making agents are very likely to pursue the self-interest of groups they represent or are pressured by and/or follow their own quest for survival.

³ In line with a British reference, one may add that the British TV series, "Yes, Minister" and "Yes, Prime Minister" have provided ample, amusing, yet not unrealistic, actual examples, relevant to almost any economy.

(2) A similar argument is relevant to the recent trend, of which there is renewed talk in my own country, in favor of interventionist industrial policy. The idea can be based on both good theoretical and practical reasoning (vide the success of countries like Japan or Korea). In practice, the success of such interventionist policy even when theoretically valid depends on having very high-quality trained and impartial bureaucrats, which exist in very few countries or rare time periods. Even the best bureaucrat may not withstand the political pressures that are exercised when government opts for a non-market interventionist mode.

Finally, there may be a communications problem. Using the words of Cairncross, again, "Policymakers as a rule are slightly deaf: there is 'too much noise'". In other words, there is need to raise the 'signal-to-noise' ratio. One cannot overemphasize the importance of the packaging -- the simplicity and saleability of ideas and the need to pursue these in clear and non-technical language, using simple diagrams, etc. Moreover, often the more important contributions of economic advisors are in the clarification of the most basic and simple (simple only to us, professionals) concepts of social opportunity costs, marginal rather average measures of costs and benefits, etc.⁴

In a way one may look at the eventual application of economic ideas in partial analogy to the role of R&D projects in industry. Ideally one would like to try out the so-called successful laboratory ideas first in a pilot-project form. Only then comes the planning of the active production process

⁴ I remember being impressed by the eye-witness account of a key economic advisor (One of the so-called whiz-kids) to the Pentagon in the McNamara early 1960's era, Alain Enthoven (1963), who pointed out the fact that it is not the complicated game-theory or econometric modelling new stuff of those days that mattered but rather the systematic filtering into the decision-making process of these basic micro-economic concepts.

and even then the operation may turn out to be to no avail because the marketing of the final product turns out to have been a failure.

Just as in the case of industrial R&D so also in its economic analog it is extremely important to learn by case-study why a seemingly good economic idea has failed in terms of final implementation. There may be a variety of reasons for failure having to do with miscellaneous stages between the initial formulation of the idea and the final 'marketing' phase.

Most relevant ideas or proposals get 'mutilated' or 'embellished' (depending on which side of the market you are) on the way to implementation. When does the similarity between the original idea and the final product become so tenuous that a conscientious advisor must divorce himself from the process? How does one avoid the common danger of the politician or policymaker accepting only that part of advice which is politically convenient? These are difficult questions to answer. At least an attempt must be made to set up a policy proposal in a closely-knit form so that it will not easily come apart. Yet there are two extremes to be avoided -- one is a dogmatic overcommitment to an idea in its pure theoretical form without regard to the non-economic side constraints. The other more common problem is the economic practitioner's disdain for any theoretical considerations. This is often the syndrome of a long-time government official with an ancient economics degree (B.A.?) who can no longer see the forest from the trees and has learned to discard everything he has learned as 'academic' or 'irrelevant'. As a result any compromise dictated by political expediency may pass. An alternative syndrome is that which was mentioned by Keynes (1986) - the practitioner sticking to theories which he had learned in the distant past but are no longer valid.

An economic analyst trying to sell an idea has to wander into the political jungle or labyrinth which has its own laws of survival. There is

always the danger of succumbing to the laws of the jungle. As in the Greek myth of Ariadne wandering into the Labyrinth a thread must continuously be kept to the outside realm of rational economic thinking so as not to lose the basic perception of where one is going.

B. The varied market roles of an academic economist

It is important to keep in mind the varied personal roles that economists may play in the ideas market, while distinguishing between the role of the economic analyst permanently employed outside or inside the public service system. Let me first take up the varying roles that an academic economist might play, proceeding in stages from complete aloofness to temporary but full participation in the policy formation process itself.

1. The most obvious first stage is the publication of an idea that may be or may become, policy-relevant, in a scientific journal and then stop one's involvement at that point. The economist may even base his aloofness on an age-old statement attributed to Nassau Senior [Jewkes (1953)] who argued early on that "the conclusions of the economist, whatever their generality and truth do not authorize him to add a single syllable of advice". The danger of such separation however, is that it helps to keep the quality of theory and policy discussions respectively on two very different and distant planets.
2. The next phase of closer involvement in the market is to lobby for an idea. This may be done either through the mass media (TV, radio, or the popular press, substituting or complementing professional journalists) or by talking to the public and to politicians. Sometimes, though rarely, one may be going as far as signing petitions together with other fellow academic economists. The most famous -- or by now infamous -- example is the one signed by most leading UK economists against Mrs. Thatcher's proposed policies

in the early 1980's. We have had a few, though obviously rare, examples also in Israel.

3. One important role (which I have personally found the 'cleanest' and potentially very effective) is to participate in a commission of outsider or mixed insider-outsider experts to work out a particular reform proposal (e.g., a tax reform or stabilization plan) in response to a particular request of the policymaker. This is, from the economic analysts' point of view, the case of a pure sellers' market. It is more likely to succeed in a crisis situation when the politicians or policymakers have given up hope on other haphazard policies or means of advice and genuinely intend to take a discrete step and follow the commission's prescriptions. Under different circumstances the appointment of a committee may also turn out to have been a cop-out, paying lip service to public demands for a serious 'clean-up' operation, from which the policymaker may eventually escape. In two successful committee-led reforms that I will mention in reference to my own experience (see Section III and IV) the experts were not only working out the full details of the proposed reform plan but were asked to participate in the marketing of the product to key political agents (individual ministers, the trade unions, and the employers' associations) as well as to the general public.

4. The next obvious and more committed (and therefore more problematic) role of an academic economist would be that of a full time advisor to a minister or a government agency. One of the difficulties often faced by an economic advisor is the disordered and haphazard nature of the decision-making process. Ad-hoc budget decisions may be taken at unknown points in time and with varying presence of participants. Moreover, many policy decisions are taken under pressure of uncontrollable events rather than at the point in time at which the advisor may (or may not) observe the early warning signals. An obvious example is the adjustment of a pegged exchange rate (see Section IV).

It is thus not always clear that economic advice given inside, which is obviously bound by rules of confidentiality, will be more effective than public lobbying. The reverse statement, however, is not always valid either. The relative importance of the two modes varies with institutional set-ups and particular circumstances.

5. Finally, the most committing role for an 'outside' academic economist is to take a temporary 'insider' appointment of a policymaker where he himself has to make the decisions. I say 'temporary' because permanency will in general involve eventual departure from the role of independent economic analyst.

An important distinction may also derive from the source of power on which the appointment depends. An independent Central Banker usually owes his allegiance to the general public rather than to any one political group and is in general more likely to steer closer to his academic roots than an academic appointed to be Minister of Finance, say. But this is not always the case. The advantage of being in a position to "call the shots" is clear. The equally obvious cost, however, is the greater susceptibility to political pressures.

The upshot of this discussion is that academic economists may play either individually or collectively many varied parts in the complex process of buying and selling of policy-applicable economic ideas.

C. The role of 'insiders' in the market

My next point refers to the special role that insiders play in the whole process, not only as intermediaries between the policymakers and outside advice, which is obvious, but as originators, in their own right, of important policy innovations of which the profession at large is often unaware. Such

innovations may come as a direct internal response to a policy problem, either by a trained economist or, sometimes, from an intelligent non-economist.

I believe that there is a market failure here -- the profession at large does not know enough or in updated form about such insider ideas. Why is that so? The answer, I believe, lies in two objective constraints. The insider usually conveys his ideas orally or in a written office memo that is thinly distributed and eventually may get buried. Usually he has no time or could not be bothered to write it up in a rigorous scientifically presentable form (after all, his promotion rarely depends on it). But even if published locally there will, for most countries outside the Anglo-Saxon world, be a language barrier. Many such papers could have been published in one of the key journals if, say, the data or the problem dealt with the U.S. or the U.K. economy, say, but not necessarily otherwise.

In this context important market-correcting service can be carried out by the professional journals. A good example is the AER in the 1960s when a series of special survey papers were commissioned on the contributions of economic research to policy formation in a number of countries [France and Japan (1964), India and Israel (1969), Mexico and Yugoslavia (1971)]. Important recent surveys of this kind were commissioned by JEL - Kornai (1986) on the Hungarian Reform process and Nelson (1987) on micro-policy issues in the U.S.. The importance of the domestic contributions can be gauged by the dominant share of papers or memos cited in such surveys that appeared only in the country's own language. (France, Hungary and Israel are important cases in point).

In the absence of continuous up-to-date diffusion of such information a lot of the exchange is done informally by correspondence or mutual visits of practitioners to each other's country or to international institutions such as the IMF and the World Bank (recent stabilization policy experience is a case

in point, to which I will refer again below). I am sure this highly segmented market could be improved upon.

All of this points to the importance of formalizing and generalizing ideas that often come from the field in crude or unsystematic form but have the advantage that they have worked. This brings me to the next and very major point.

D. The two-way link of theory and actual policy

It is generally wrong to think of the theory-policy link as being a one-way or uni-directional road. As I will illustrate below, the reverse link is often as important if not more so. In my experience, at least, the best applied theory for policy formulation is that which has originated from questions initially asked (and sometimes already answered) in actual policy practice. Likewise, even if initially based only on hand-waving arguments, the best and eventually widely acknowledged policies are only those that can be (very often only at a later stage) fully rationalized within the ground rules of our analytic science and its systematic empirical testing. Any single individual's intuition will get lost as he disappears from the scene. (Besides, we in the profession too have our 'packaging' requirements).

Here again there is room for market improvements through organized interchange of experience -- such as a pure academic spending at least part of his time dirtying his hands at the other end of the market for his ideas. Part-time consulting with an outside academic, as is done in some central banks (including our own) is an example. Likewise, the practitioner should keep track of (or even influence) what happens in the relevant scientific field through sabbaticals, joint theoretician and practitioner's seminars, etc. Forums like the "Brookings Panel Papers", "Economic Policy", NBER or CEPR conferences and papers are of immense importance in this respect.

Before I turn to illustrate some of these points through actual experience, there is one caveat - even good and workable ideas may have only a specific time and place for their implementation. Reality at time 2 often overturns the seeming success of time 1's policies because market conditions, world environment or the nature of institutions, politicians or bureaucrats have changed. Moreover, many seemingly good policies may turn out later, upon additional information, to have been major policy mistakes even for their own time. We should thus keep very humble even when the complex market we have described seems to have worked to our full satisfaction. The future may make things look different. That too is a lesson that can be amply illustrated from past experience. One such example, to be discussed below (Section V), is the perfection of price indexation methods which help to protect the economy from short-run evils of inflation at the cost of higher inflation in the longer run. Another, is the cost, in terms of the burden of institutional rigidities, in not being able to predict, and therefore adjust flexibly to sizeable external shocks, such as in the 1970s.

* * *

I will now go through a number of selected topics and fields in which economic analysis has, in my experience, had a considerable impact on actual policy formation and which will illustrate some of the points made earlier. In this I will mainly draw on my own country's experience because I know it better though I am sure it has had its parallels in many other countries. Israel is a small open economy that has gone through many phases of economic crises and reforms, has had far-reaching (and excessive) government involvement in the economy as a result of which it has been a testing ground for virtually all forms of intervention. It has also had a large and well

trained group of economists many of whom (though not necessarily the best known ones abroad) were at one time or another involved in economic analysis concerned with the policy formation process or its critique.

I will take up the topics by some historical order starting with real trade and development issues of the 1950s and 1960s, tax and transfer problems of the 1960s, open economy macro problems of the 1970s, living with high inflation into the 1980s and recent 'shock' stabilization experience, and finally back to the real, though less charted, area of institutional reform in over-regulated, or socialist, economies, a subject that may well take us into the 1990s. I will end with a few remarks on the most recent developments in the theory of economic policy.

II. Early Contributions to Trade and Development Policy⁵

Since most of my illustrations will refer to Israel's experience I should say a few introductory words about the development of the economics profession as well as the institutional and policy set-up into which the first input of economic analysis was directed. That, too, may be an interesting lesson as to how the market for ideas may develop.

Israel of the 1950s and 1960s was a country of large scale immigration of labor and capital enjoying very rapid growth (GDP grew at an average of 9-10% per annum throughout the first 25 years of statehood, 1948-1973, and exports considerably faster than that). Its means of production were allocated primarily through public channels (government funding through borrowing at home and abroad). The initial economic regime had strong socialist roots -- both utopian socialism (collective kibbutz and cooperative Moshav-type settlements comprised a rapidly increasing share of agriculture) as well as

⁵ For more details on the contribution of the 1950s and the early 1960s see the AER special survey by Halevi (1969).

moderate traits of Soviet-inspired central planning concepts. Ownership of enterprises outside of agriculture and with the exclusion of heavy involvement of the Trade Union Federation (Histadruth) was private, however, though mostly publicly financed.

Modern professional economics in Israel, with some exceptions, dates its beginning to the early 1950s when Don Patinkin, who had recently arrived from the U.S., almost single-handedly trained the first economics graduates of Hebrew University. The size of the graduating class grew from 2 in 1950-51 to 50 in 1960-61 [see Kleiman (1981)]. These graduates, sometimes called 'Patinkin boys', formed the early cadres of the major economic ministries where their total number grew from 50 to 200 during 1955-60. The Research Department of the Bank of Israel (founded by David Horowitz in 1954) and the Budget Division in the Ministry of Finance (started by Yaacov Arnon, a Dutch-trained economist with prior budgeting experience) became and remained the most important economic policy bases within the public sector.

Patinkin himself did some work on monetary developments (1955, 1956) and was involved in some policy advice. His main contribution, however, lay in providing the basic tools for his students. The Introductory Economics course which he initiated in Jerusalem (unfortunately written down only in Hebrew) is one of the best I have ever encountered -- it was a tough early selection process for students involving 50% chance of failure in the exam. Those who got through this and another micro-theory course were subjected at the graduate level to the systematic general equilibrium training of Patinkin's "Money, Interest and Prices". The rest of theory relevant for those going into policy-making institutions was done through learning-on-the job. In fact, some of the most important early contributions to policymaking, especially in the area of micro trade and development policy, were done by young government employees in the form of memos some of which also turned into

M.A. theses at Hebrew University -- all by excellent economists most of whom did not publish in the international professional literature.

One other great pioneering figure besides Patinkin deserves special mention because of his seminal contributions to quantitative economic analysis in relation to policy. The late A.L. Gaathon (Gruenbaum), an immigrant from Germany in the 1930s (with a 'Schumpeterian' background) set up the first National Accounts, designed total productivity measurements, and effective trade protection measures, all with a keen eye on policy application. Gaathon was the first to formulate a systematic macro-development plan for the absorption of immigrants already in the pre-statehood years (1946). The more general scientific importance of his work lies in the very early application (in 1937, published in 1941) of a 12-sector input-output table for 1936.⁵ Not aware of parallel work by Leontief he used it both to achieve internal national accounting consistency and for systematic calculation of direct and indirect import requirements (not knowing of $(I-A)^{-1}$ matrix inversion he intuitively iterated 2-3 stages through the I-O Table). Gaathon, complementing Patinkin's theoretical rigour, was a major on-the-job teacher of many budding economists at the Bank of Israel. He taught them how to look at numbers very systematically (without formal econometrics which penetrated only much later through the first Ph.D.'s returning from the U.S.), but with a sense of looking for practical relevance.

A number of important policy relevant contributions were made in the 1950s and early 1960s, all centering around the formation of macro as well as micro international trade and development policies. The choice of an export-led strategy since the early 1950s and the gradual dismantling of import

⁵ This was a Jewish Agency (the pre-state government) 100 page long memo that was only thinly circulated and achieved greater publicity only many years later (reprinted in enlarged version by the Bank of Israel in 1978).

restrictions in the 1960s was the product of economic analysis based on comparative advantage theory in international trade as well as development planning theory. This was manifested by micro empirical research work [e.g. Barkai (1956)] and more specifically in the various ways in which such concepts were brought into policy formation:

(1) Micro-calculations of effective rates of protection by sector for the argument against excessive protection of imports [Gafni, Halevi and Hanoch (1958) at the Falk Institute and later Baruh (1963) at the Bank of Israel (BOI)].

(2) Macro-construction of a series of trade and development planning models at the BOI laying out alternative government strategies, given the various primary factor constraints and using an input-output framework. This was partly done in collaboration with outside, U.N. sponsored, advice by H.B. Chenery [which eventually led to the "two-gap" model literature, starting with Chenery and Bruno (1962)] and was subsequently extended into linear and dynamic non-linear programming frameworks. These were used to calculate, amongst other objectives, shadow prices for foreign exchange over time. The detailed models were carefully hidden from the policy makers in office drawers (or scientific conference papers) and only the final products were submitted in simple language (readable by "ministers and children", as one used to say at the BOI) to the policymakers.

(3) The above macro approach had its most important micro-analog in the design of public investment criteria for tradeable goods investment funding through the relevant economic ministries. The method, based on a partial equilibrium approach [initially worked out by Kessler, Bahral (1956) and Toren (1957)] centered on the social costs and net benefits of foreign exchange savings (in the case of import substitutes) or earnings (in the case of exports). Rather than imputing shadow prices to the primary factors labor and

foreign exchange and calculating the social rate of return to capital, a shadow rental rate (over which considerable memo literature developed) was imputed. The resulting ratio (subsequently termed DRC, Domestic Resource Costs) of domestic value added per net foreign exchange saved or earned (calculated through a two-stage input-output estimate) was ranked by project. Also a cut-off rate was set (amounting to a guesstimate of a shadow exchange rate) to determine the total set of funded projects to be approved.

Only at a later stage was the whole approach systematically rationalized within a general equilibrium linear programming framework by the present author [Bruno (1966), in a detailed memorandum commissioned by the U.N. and buried in an obscure U.N. conference volume]. The idea itself, though fully rationalized by and therefore wrongly attributed to the present author, is an example of an original 'insider' innovation. Some subsequent investment criteria literature, in particular the U.N. manual prepared by Little and Mirrless (1969) was a variation on the same theme.

(4) Another micro by-product of the same conceptual approach (with an added externality argument) was the wide-spread Israeli application of export subsidies based on input-output, direct and indirect, value-added calculations for each product, as a substitute for formal devaluation. This was extensively used through the 1950s and 1960s in between step devaluations until it was prohibited by GATT and IMF agreements and henceforth partially replaced by much more distortive subsidized export credit (for which no international restrictions applied).

(5) As a final illustration of theoretical contributions that come in the wake of actual foreign trade policy practice let me mention the method often applied to import liberalization by gradual across-the board proportional reductions of tariffs. This was the way imports were liberalized in my own country and I understand this was also the method applied in the initial

formation of the European Common Market. Only subsequent literature [Foster and Sonnenschein (1970), and Bruno (1972)] showed that this method is Pareto-improving at each fall-cutting stage (i.e., not only for the obvious comparison of the initial restricted, versus final, free-trade positions).

I will not go through local contributions to short-term national budgeting and macro planning in which primarily Dutch (Tinbergen) as well as Norwegian examples (with the aid of outside advice by Odd Aukrust) were followed since the late 1950s. Nor will I mention specific original contributions to the important area of agricultural and rural planning (developed at the Ministry of Agriculture with the help of an excellent group of economists at the Faculty of Agriculture at Hebrew University -- notably Yair Mundlak, Pinhas Zusman and Dan Yaron). There was one hot subject, much researched and debated by the above agricultural economists as well as others [see Ophir (1965) and Yaron (1963)], which is an example of failure to make any headway with the politicians, driven by a strong agricultural lobby. This was the social opportunity cost pricing of water (and the allocation of water rights), a very scarce resource in an arid land ("water is like blood" was a typical saying -- i.e., it is an abuse to attach a mundane cost approach to it). The failure to come to grips with this problem led to considerable waste, even though in another related R&D field, water saving and producing techniques (e.g., the development and export of dripping techniques in irrigation, as well as early attempts at desalination of sea water) Israeli scientists and engineers were pioneers.

III. Taxes, Subsidies and Transfers

Tax and subsidy systems have always been obvious candidates for serious economic analysis involving both efficiency and equity considerations. At the same time these are also prime subjects of pressure by interest groups and

provide ample opportunity for politicians to depart from pure economic principles.

In the Israeli case, like in many other countries, economic analysis had some major contributions to make both to the design of tariff structures (op. cit.), the design of the personal income and company taxation, the introduction of a value added tax (1975) and the development of one of the most extensive income redistribution schemes through child allowances. The latter, as well as a series of other extensive social benefits, were gradually introduced in the years 1969-72, just before the worst economic growth and inflation crisis, at a time of very rapid growth (12 percent per annum!) and unanimous perception (amongst politicians, social planners, and economists alike) that redistribution of the growing cake was the dominant policy issue. Given a very high negative correlation between family size and standardized per capita income the introduction of graduated child allowances (calibrated by consumption-based 'standard-adult' calculations), to be financed and allocated by the Social Security system, seemed a perfect second-best method of redistribution [see Bruno and Habib (1976)], much to be regretted later on.⁷

The child allowances were subsequently incorporated into a new inflation-proof tax cum grant reform designed by a Commission of five outside experts headed by H. Ben-Shahar and including two other economists [Ben Porath and Bruno (1977)], a lawyer and a chartered accountant. An empirical tax simulation model was provided by S. Yitzhaki (1982). This commission was

⁷ In 1975, after the first great supply shocks and the dramatic fall in growth rates, an attempt was made by the present author, along with others, to come up with a better growth-inducing scheme. Rather than giving the allowances to the parents, the idea was to allot grants directly to their offspring as they come out of army service, in the form of explicit human or physical capital formation funding. However, given the inertia of parliamentary legislation and politics as well as vested interests, it was too late to change anything.

appointed in the wake of a prolonged deterioration of the tax system. It was one of the two best experiences of outsider involvement in economic policy formation we have had. The Minister of Finance at the time (Rabinovitz) took the daring step of pre-committing himself in public to full implementation of the eventual far-reaching reform that the Committee would come up with (here is a case of a pure sellers' market - see Section I). Subsequently he asked the members of the committee to go around the country with him to explain the details of the reform to workers and employers as well as to the mass media so as to obtain a social consensus before parliamentary approval. It was a clear example of moving the system in one go from a non-cooperative equilibrium to a new Pareto-superior equilibrium for the tax and transfer system. Tax collection as well as equity and efficiency measures simultaneously improved. The subsequent protracted economic mess into which the country ran had to do with the mounting expenditure side of the budget and not with the revenue side of it which remained fairly robust for almost a decade before that too succumbed to 300 to 500 percent inflation by 1984-5.

IV. Exchange rate Regimes and Open Economy Macro-Policies of the 1970s

The breakdown of the Bretton Woods system of fixed exchange rates, the onslaught of world inflation at the turn of the 1970s and the subsequent oil and commodity price shocks of the 1970s have all contributed to the flourishing of macroeconomic theory geared to the handling of fiscal, monetary, exchange rate and wage policies in open economies.

The distinction between tradable and non-tradable goods [Dornbusch (1974); Helpman (1976); and Bruno (1976)], the related two-sector Swedish model (Lindbeck, ed. (1979)), the monetary and portfolio approaches to the balance of payments [Frenkel and Johnson (1978), Kouri (1976)], the theory of optimal exchange rate regimes under supply and demand shocks [Fischer (1981), Helpman

and Razin (1979)], these theoretical contributions fed right into the way economic analysis has affected macro-economic policy formation in individual economies, my own country included. All of this is well known and I will not go into specifics here. I would like to discuss only one field which has been much in focus both in my own country as well as in other small economies and where political economy considerations (some of which were already mentioned in Section I) have played an important role and that is the choice of exchange rate regimes. Since Israel has been through all possible exchange rate regimes and in retrospect made some policy mistakes (all of which were based on good theoretical reasoning at their time), it merits separate mention.

Throughout 25 years, from the early 1950s to 1975, Israel, like most other small industrial economies, has been on a formally pegged exchange rate, in spite of a fairly steady, though moderate, inflation rate of 6-7 percent per annum (up to the end of the 60s). Large step formal devaluations were carried out every few years and in between subsidies to exports and flat tariffs on imports would be adjusted upwards so as to keep a more or less stable real effective exchange rate on the trade account (upon a step devaluation these would usually be set back to zero).

Large peg adjustments have their known sharp repercussions on speculative capital flows, and resulting monetary fluctuations even under fairly strict formal exchange controls. Most importantly, large devaluations required political consent and a whole rigmarole of cabinet sessions, bargaining over budget cuts and over Trade Union suspension of COLA, etc. Because of this institutional and political cost, actual devaluations (as in 1962, 1974) usually tended to take place only at considerable delay with respect to the early warning signals sent by the economists, insiders and outsiders alike. As a result capital flows as well as monetary gyrations were magnified. What was more natural, when inflation started to go up in the early 1970s and more

frequent need arose for exchange rate adjustment, than to switch to a crawling peg regime? The idea was independently suggested by two non-academic economists at the Ministry of Finance (Asher Schlein) and the Bank of Israel (Yosef Yoran), respectively (there was some previous experience in some Latin American economies, notably Brazil and Colombia, but I am not sure they knew of it) and it was finally adopted in June 1975. All at once the whole issue of exchange rate adjustment was removed from the full cabinet agenda (being relegated to monthly adjustment by a small committee) and accordingly moved out of the newspaper headlines to the back-page reporting. For a time, also, there were no more large discrete speculative movements of foreign exchange and no need to adjust export subsidies and import tariffs.

There was only one crucial snag -- discovered much later -- by reducing the exchange rate adjustment process to small gradual changes, a politically built-in stabilizer of immediate concomitant fiscal and wage restraint was removed. Subsequent research has also shown that this seemingly rational decision heralded the loss of the nominal anchor in an inflationary open economy in which money and wages were, by institutional restriction, highly accommodative.

An even greater policy mistake was committed two years later (with the blessing of several economists, including the BOI and the objection of only a few in academia) when in 1977 a new government came in with Begin as Prime Minister and a political liberal Ehrlich, as Minister of Finance. In an otherwise regulated system only the market for foreign exchange was liberalized -- a large initial devaluation was followed by a float together with the introduction of foreign exchange linked bank deposits (PATAM) and free short-term capital inflows without the concomitant fiscal ⁸ and wage

⁸ Apparently, the original intention of Ehrlich had been to accompany the reform with a substantial budget cut. Because of Sadat's sudden visit and the need to attain a cabinet consensus over withdrawal from the Sinai

restraint. The subsequent effect on the inflation rate was disastrous (learning from similar experience elsewhere could have avoided that). Foreign exchange controls (including a temporary capital import tax)⁹ were quickly re-imposed and the exchange rate regime returned to a more-or-less PPP-rate crawling peg which lasted up to 1985. Exports kept rising but inflation (see figure) went off-the-rails. Only with the July 1985 stabilization program was a nominal exchange rate anchor re-established (the economy is now following an EMS-type exchange rate adjustable peg against a trade-weighted basket of currencies) and the political-economy advantages of the ancien (pegged exchange rate) regime, with all its faults, have been recognized. All this, at each stage, was primarily the work of economists, based on memos and research papers, both in and out of academia.¹⁰

V. The Art and Science of Living with Moderate Inflation

I don't know any other economy where so much thought and so much related policy implementation went into the problem of minimizing the costs of inflation. That, too, may help to explain why it eventually took the government and the country so long to try and eradicate the roots of inflation rather than its symptoms. Wage indexation was already introduced by the British authorities during the 1940s. Much relevant economic analysis was

Penninsula, Begin was reluctant to enter a fight over the budget. Ehrlich threatened to resign but subsequently gave up. Here is a case of an economists' policy package which came too easily apart.

The idea of a capital import tax (to create a wedge between the domestic and foreign interest rate and thus allow greater freedom for exchange rate policy) is a good example of an idea that came up in 'insider' discussions (at the Bank of Israel) and was later fully worked out in theoretical terms by an 'outside' advisor, N. Liviatan (1979). A tax of 9% was introduced in 1978 and subsequently removed. A lower tax rate (of 3%) was reintroduced in 1986 but had to be removed due to non-compliance and strong political pressure from the business sector.

¹⁰ For a detailed analysis of the exchange rate regimes until 1980 see Bruno and Zusman (1979, 1981).

done on the role of and the various methods of indexation [an early contribution to the theory of wage inflation and Israel's "wage-standard" was by an illustrious foreign visitor, Abba Lerner (1956); among other early contributions see Morag (1962) and Kleiman (1964)]. All the long-term bonds that the government of Israel issued since its inception were fully indexed, leading to an exceptionally high private savings rate for an inflationary economy, but also resulting in private financial wealth which, in one form or another, almost exclusively takes the form of a public debt. This reached 130 percent of GNP at the height of the 1984-5 crisis [important theoretical contributions to the role of public and private indexed debt were made by Liviatan and Levhari (1977)].

We have already shown how exports were protected from domestic inflation (first through subsidies and then crawling PPP exchange rates). Taxes, transfers and company financial accounts became systematically indexed after the 1975 Tax Reform (op. cit.) and finally even money became virtually indexed when foreign exchange linked deposits were introduced in 1977 (op. cit.).

With low (6-7 percent throughout 1950-1970) and even medium rates of inflation (up to 70 percent per annum, say, which Israel reached by 1978) the almost perfect indexation could see to it that no particular group or sector in society or in the economy suffered from inflation and thus had no particular interest in fighting it. It was nonetheless agreed that an external supply shock (as was the case for the devaluations in 1962 and 1974) could justify an explicit partial suspension of COLA. Thus indexation of new bonds was gradually reduced to 80% during 1975-76. This was subsequently changed. Wage indexation was reduced to 70% at the recommendation of a government commission (largely consisting of economists) headed by Zvi Sussman (then director of the Bank of Israel Research Department) which complemented

the 1975 Tax Reform. ¹¹ [In the general literature the different wage indexation treatment of supply and demand shocks came to be treated systematically in papers by Fischer (1977) and Gray (1976).]

The only item that was not indexed until around 1980, in spite of continuous pressure on the part of the economists both in and out of government, was the extensive government development credit to the business and housing sectors. These loans were handed out at low nominal interest rates which effectively became very high real negative rates [amounting, on average, to -17 percent during 1973-80! see Litvin and Meridor (1983)] and thus introduced a large negative inflation tax into an already deficit-ridden budget. Only by 1979-80, after reaching 130 percent inflation, did the economists' prolonged and persistent lobbying (finally affected by A. Razin who was briefly advisor of the Minister of Finance in 1979) manage to set the record straight. However, with everything almost perfectly indexed, it took the economy another four years and reaching close to 500 percent inflation before the political and economic inflation anti-bodies finally developed in the sick economy. The social cost of excessive indexation under such circumstances is the considerable delay in the stabilization and real reform effort.

VI. Economic Analysis and the Political Economy of 'Shock' Stabilization

In 1973 Israel went into a deep crisis which lasted 12 years -- very low growth (down from 9-10 percent per annum to a mere 3 percent), recurrent balance of payment crises and step-wise acceleration of inflation from 10-15

¹¹ A proposal by the present author, as advisor to the Minister of Finance during 1975-76, to apply the same rule to all outstanding indexed government debt was turned down, curiously enough, as a result of pressure on the part of the Secretary of Trade Unions(!) The reason was to protect the trade union ownership of government debt which comprised the sole backing to their large-scale holdings of indexed pension funds.

percent in the early 70s, 30-40 percent after the 1973 oil shock, a relatively stable 130 percent during 1979-1983 with a final jump to 500 percent by the first half of 1985 (see figure). The major root of the crisis was a very large and protracted government budget deficit of 17 percent of GNP on average during 1973-1984, mostly the result of an increase in transfers, subsidies and real interest payments over and above rising tax rates. The second major element was the well-lubricated and accommodative wage exchange rate, money and price system which was mentioned in the previous section. As a result any price level shock (oil and commodity price hikes, devaluation, subsidy cuts, etc.) immediately translated into an upward jump in the inflation rate.

In July 1985 a comprehensive stabilization plan was enacted comprising two major parts -- an orthodox though budget balancing move and a so-called heterodox, synchronized, wage-exchange rate -- money and price freeze based on social consensus and involving temporary price controls.

Success on the inflation front was fairly immediate. Inflation, however, is still running at 15-20 percent per annum today. Argentina tried the same thing two weeks earlier, in June 1985, and Brazil tried in March 1986. Both countries have failed and are now into hyperinflation. Mexico conducted a systematic similar attempt during the last two years and so far seems to provide another success story.

The history of the crisis and the evolution of the program of action in the Israeli case illustrate many of the points made at the beginning of this lecture.

a. Understanding the inflationary process. A collective effort by a number of researchers mainly in the academia and the BOI went into the understanding of the special nature of the high chronic inflation process which seemed to be divorced from the real economy in almost a classical

dichotomy' (e.g., lack of correlation between the high but stable budget deficit and the step-wise rise in the inflation rate).

The issue is a crucial one because there was a popular tendency, supported by quite a few economists (in Israel and similarly in the Latin American case) to think of this inflation as merely an expectations and exchange rate driven nominal bubble which had nothing to do with real underlying causes (such as the budget deficit). A temporary nominal-freeze, by this argument, is all that is needed. This philosophy inspired in the Israeli case, as elsewhere, an attempt (1982-83) by Minister of Finance Avidor to control inflation by a gradual slowdown in the rate of devaluation, which inevitably led to a subsequent explosion.

Yet the inflationary process differed from hyperinflation in being a much more stable and protracted one due to institutionalized inflationary inertia.¹²

b. Proposing a program of action. The European hyperinflations of the 1920s, especially Germany's [see Sargent (1981)] provided the inspiration for a shock-treatment yet these were short-term (3-4 years' duration at most) explosions while the Israeli (and similarly for Argentina and Brazil) case was of much longer duration (8-12 years) and exhibited all the institutional arrangements making for inertia in the dynamic process. This yielded the idea of coupling a massive budget cut with a simultaneous coordinated freeze on all nominal magnitudes as a signalling and expectation-changing device. I have first conveyed this 'heterodox' idea in some detail in an interview (dated February 1981) to an obscure local monthly (Miqvan) essentially using 'hand-waving' arguments. Similar ideas were subsequently raised in various internal

¹² See Bruno and Fischer (1986), Liviatan and Piterman (1986) and also an earlier Bank of Israel memo by Litvin, Meridor and Spivak (1982). A similar process at much lower inflation rate was described by Pazos (1972) in the context of the Latin American experience of the 1950s and 1960s.

memos of the Bank of Israel Research Department (including the use of PATAM, the foreign exchange linked bank accounts, as the basis for new money).

In 1983 a secret government committee started work on an alternative "full-dollarization" plan which was even discussed with the U.S. government ¹³. This program was leaked at a time of a major banking and foreign exchange crisis in October 1983. Aridor, the Minister of Finance, had to resign and subsequently the crisis deepened and inflation jumped from 130 to 300 percent (see figure). Alternative programs of action of various kinds proliferated during the subsequent period (e.g. the idea to start printing only price-indexed money).

c. Early failures to sell the right program. The heterodox anti-inflation program, originally laid out in 1981, was subsequently widely circulated as an informal memo including also the idea that was subsequently discarded to move to a new currency, substituting a new biblical name "Sela" for the Shekel. (Eventually three zeroes were removed from the old Shekel in August 1985, two months after the launching of the program). However, the Lebanon war and internal political turmoil dominated the economic scene.

The first serious opportunity to come up with a new program came during the 1984 election campaign when a self-appointed team of independent experts proposed the plan to Mr. Peres who was thought to lead the labor party to a victory. The election ended in a draw and in the broad coalition outcome, with a new liberal Minister of Finance, Modai, policy turned instead to more of the same previous partial economic policies. A large devaluation was undertaken without a sufficient budget cut. When inflation blew up a series

¹³ See Liviatan (1984). E. Helpman and N. Liviatan, who had been 'outside' members of the Committee resigned when it became clear that the required budget cut would not be carried out. In the 1977 failed reform (op. cit.) only insiders were involved. Their protest, upon a similar frustration over the budget, came too late.

of agreed freezes (so-called 'package deals') on wages and prices were negotiated without, however, tackling either the budget or the exchange rate. This was a typical stop-gap measure of the kind politicians favour.

Another attempt to 'sell' the comprehensive program in December 1984, by an internal advisory committee, failed and the subsequent loss of control over exchange reserves and a final inflationary explosion in the first few months of 1985 (when the freezes failed) led to a complete loss of credibility of the new government. Often things must get much worse before real improvements can be undertaken. Only then, after all partial policy alternatives had been exhausted, was the Prime Minister (Mr. Peres), with some external pressure and his 'back to the wall', ready to act ¹⁴. He appointed a small informal five-member (mixed insider and outsider) ¹⁵ expert team to secretly prepare a detailed plan of action, within three weeks.

d. Political launching of the program. The program took final shape in detailed discussions of the team with the Prime Minister and the Minister of Finance and it was subsequently sold to the rest of the cabinet in a long and stormy session in which the economic team actively participated. ¹⁶ There remained three groups of important agents that had to be convinced. The

¹⁴ Another political impediment was the election campaign for the Histadrut (the Federation of Trade Unions). Only after this election, which took place in May, 1989 was there hope of achieving a consensus over a major reform. For a recent political science discussion of Histadrut - government relations throughout the crisis and reform periods, see Shalev and Grinberg (1989).

¹⁵ The two outsiders, Professor Berglas from the University of Tel Aviv and the present author, were completely independent and were not even paid consultants. This had the advantage of being able to exercise considerable moral pressure, even including the actual threat to completely withdraw from the plan at a crucial moment of decision-making. The insiders were the Director of the Ministry of Finance who also headed the team (E. Sharon), the economic advisor to the Prime Minister (A. Neubach), and the Director of the BOI Research Department (M. Frenkel), all professional economists.

¹⁶ The plan itself was written up in a short and simple-worded memo. For details of the program, its background and its initial phase see Bruno (1986). A later account, including that of Argentina and Brazil, appeared in a book [Bruno, Dornbusch, Fischer and Ditella, eds. (1988)].

first, our own colleagues in academia, were at first extremely skeptical. The proposed formal budget cut seemed only half of what was required (this was subsequently automatically remedied through the large tax and expenditure dividends coming endogenously from the stabilization of prices). No less objectionable was the proposed wage-price freeze, especially the introduction of price controls which we have all learned to be problematic on both theoretical and empirical grounds.¹⁷

The second politically more important group were the trade unions and the employers' associations. The trade unions staged wild strikes and protests which eventually ended in an agreement on the wage-price freeze only two weeks later (mid July 1985), in large measure due to the help of the third, most important, group which is the force of public opinion. The public at large was fed up with the loss of control over prices⁹ and willing to give this new government one more, maybe last, chance to get matters in order. In all of these, economists both in and out of the team, played an important role, mainly through discussions in the mass media, especially designed TV programs,¹⁸ etc. Credibility of the program eventually was built up only gradually, very much in the spirit of a reputation-building dynamic game of which more will be said later.

e. The program and economic theory. Was there any systematic economic theory behind the non-conventional part of the program? The answer is no, just some intuitive hand-waving argument about the need to avoid the real costs of sharp initial changes in relative prices due to unsynchronized

¹⁷ For early skepticism also among outside observers see Minford's discussion of Bruno (1986). Criticism was likewise voiced by Milton Friedman (in private correspondence).

¹⁸ For example, a simple diagrammatic flow-chart describing the major economic sectors and policy components, was displayed both in the cabinet session, in press briefings and on TV.

nominal signals. Likewise, the actual empirical estimates by the team of the likely effects of the program were only back-of-an envelope type calculations.

To establish the full validity of a program of action, it is not enough to show that it has worked once. This may have been an accident or due to the wrong reasons. There is obvious need, from the point of view of economic science, to get a full theoretical and empirical rationalization of economic policies. (Let us remind ourselves again that after all, we too have our own professional packaging requirements.) Moreover, success obviously breeds substantial scientific interest. This has centered on a number of important research issues. Let me mention some of these here:

(i) One line of approach to the problem of high inflation and its stabilization is based on seignorage financing of the deficit in which the economy is capable of exhibiting dual (or multiple) inflationary equilibria. Conditions can be defined under which the economy may get stuck in a stable high-inflation inefficient Nash equilibrium. The monetary reform then consists of a discrete switch to a low-level cooperative Pareto-superior equilibrium which has to be made stable too. This may be rationalized as the combined result of a budget cut and a change in the dynamic adjustment rules [see Bruno and Fischer (1987), Bruno (1988)]. Alternatively, this can be rationalized on the basis of a "discretion" (high-inflation equilibrium) versus "rules" (low inflation equilibrium) a la Barro and Gordon (1983) [see Kiguel and Liviatan (1989)]. Another related idea [Aizenman (1989)] is to look at the fight of cabinet ministers over budget shares of seignorage revenue or the fight of individual states in a federation (Argentina, Yugoslavia) over such revenues. Because of the externalities involved this leads to two alternative equilibria (non-cooperative and cooperative) of this kind.

(ii) Another important aspect of the Israeli program is the wage (trade union) versus exchange rate adjustment (government) game [see some preliminary analytical work by Horn and Persson (1985) and Cukierman (1988)]. In the Israeli case there is a complicated gradual learning process on part of the business sector as well as the unions, which could be modeled as the result of a dynamic game. This showed in the deceleration of the increase in unit wage costs from 6 percent (1986) to 4 percent (1987), 1 percent (1988) and ending up with -2 percent and a substantial increase in unemployment (1989).

(iii) Another important issue that has recently led to an increasing number of studies is the theoretical justification for direct meddling with the price system. There is relevant recent work by Helpman [1987, justifying price controls in a monopolistic competition model] Ball and Romer (1987, on price coordination failures), Zeira (1989, on the informational role of price controls during disinflation, also rationalizing the gradual removal of controls); Persson and Wijnbergen (1988, how price controls may help to establish credibility).

(iv) Why do governments drag their feet before stabilization is finally in place? Recent game-theoretic political economy models can be invoked for this purpose [e.g., Alesina and Drazen (1989)]. Alesina and Tabellini's (1987) intergeneration voting model with differential preferences for public goods can be used to justify why, for example, a broad two-party coalition of the Israeli kind (or, for that matter, a dictatorship....) is more likely to come up with a cooperative conflict resolving solution.

The example of the inception and final execution of the stabilization program illustrates several of the points made at the outset of this lecture about the workings of the ideas and policy formation market. Let me add two more illustrations having to do with the informal supply and exchange of ideas. We argued before that much of the 'inside' thinking that goes into the

design of economic policy does not readily enter the general scientific literature -one example in the present context is the sophisticated way in which price controls were calculated and imposed and then gradually removed (David Brodett, at the time a senior economist at the Ministry of Industry and Commerce, who designed the process, will hopefully write this experience up for general use).

Another related issue is the informal cross-country diffusion of policy experience. It is no accident that the heterodox programs launched almost simultaneously by Argentina and Israel were so similar, since informal exchange of news had taken place in the preceding year or two. Likewise the economic team of Mexico (composed of the highest number of first-rate Ph.Ds in key government positions that I have ever encountered) did a very thorough job of learning from first-hand experience of the various earlier country programs (Argentina, Brazil and Israel) including the marketing processes, before they embarked on their recent, so far very successful, stabilization program.

VII. Deregulation Processes and Major Institutional Reforms

The reader of the preceding sections may be led to think that Israel's economists, especially given the most recent experience, have had a handle, during much of the time, over the most important economic developments. This is definitely very far from the truth. I have not dealt with some of the major failures and, in particular, there is one major area in which economists as a group have so far failed to make serious headway and this is the need to reduce the size of government and its heavy involvement in the economy. Total government expenditure as percentage of GNP increased from 30 percent in the 60s to 75 percent during the 1970s and early 1980s (65 percent if government imports, primarily of defence purchases, is excluded). At this period in time domestic government expenditure and taxes are still running at

the impossible rate of 50-55 percent of GNP. Much of that, almost 20 percentage points, are social transfers of various kinds which in the sixties hardly amounted to 5-6 percent of GDP. There is a problem of restructuring of some major government services (e.g., health and hospitalization) and privatization of some government-owned industries (as well as the resale, with voting rights, of the commercial bank shares that have been taken up by the government during the 1983 banking crisis). Substantial progress has been made on the deregulation of the financial [Klein (1989)] and the capital [Ben-Bassat (1989)] markets in line with the reduction in the budget deficit, but the mere size of government and of gross tax revenues leave a lot to be done. Also there is a sizeable non-government sector, primarily in agriculture but also in industry and construction for which Kornai's (1986) description of bureaucracy-run rather than market-run, "soft budget constraint" financial management, is still relevant. [For a detailed account of impediments to the competitive environment in Israel see Hillman (1988).]

I would like to single out this whole area of institutional and market-oriented reform which in the communist bloc economies clearly must achieve much greater proportions, as one in which actual policies proceed with very little theoretical or empirical body of knowledge to go by. It is one thing to de-regulate a single industry in an economy which is otherwise fully market-oriented (and there are some excellent examples as well as recent literature for the cases of the U.S., the U.K. or France, for example). However, there is very little to go by (in either theoretical or empirical work) for cases in which a large segment of the economy has to be de-regulated, let alone the whole economy, when capital markets are extremely thin or where the financial institutional set-up must undergo radical reform. Moreover, the major practical difficulty in this general area is the natural opposition to any change that may come from politically appointed ministers

whose main concern is to protect their share of the public pie or of bureaucrats for whom de-regulation may imply loss of a power base and often also loss of a job.

There are very simple theoretical and empirical questions for which there is no clear answer, even where the political will exists, e.g., how should one gradually decontrol a centrally determined wage and price system (in present-day Poland or Soviet Russia)? It may be clear where the starting point and the desired end-point of the reform may be but we know next to nothing about optimal gradualist transition paths in which all the tough relative-price distortions and open inflation issues crop up.¹⁹ This is definitely an area in which a lot of additional work needs to be done.

VIII. Concluding Remarks

In the illustrations given I have not covered all relevant fields of policy analysis. There are many detailed policy issues even in my own present domain of central banking (e.g., the conduct of monetary and exchange rate policy, bank supervision issues, etc.) in which economic analysis has had major influence and was not covered here, mainly because the issues are relatively well known and universal.

I have mainly tried to stress and hopefully illustrate the complicated interplay of various factors in the long chain that ties economic ideas and analysis with the process of policy formation. Of the various problems raised I would, in particular, underline the importance of the two-way relationship

¹⁹ In one reform area, relevant to the external "opening up" issue in many regulated economies, there is some accumulated information and analysis pointing to the order in which the current-account and the capital-account of the balance of payments should be opened up, having to do with differential speeds of adjustment in asset and commodity markets [see, for example, Edwards (1984)]. For a recent discussion of the problems of transition from central planning to market socialism, see Nuti (1988, 1989).

of ideas and policies involving as much a reverse flow of intuitive ideas from actual policy practice to the realm of pursuit of our economic science. The main lesson from this is the importance of continuously promoting channels of communication at all levels to the benefit of both ends of this complex market.

I would like to end this lecture with a comment on the most recent theoretical developments in the theory of economic policy formation as a game in which government is regarded as an endogenous player (or set of players). There are the whole set of issues having to do with dynamic inconsistency of policies [Kydland and Prescott (1977)], "discretion" versus "rules", government credibility and reputation-building ²⁰ with specific policy applications to such questions as the EMS as a way of "tying the policymaker's hands" [Fischer (1988), Giovannini and Giavazzi (1989)], the choice of a conservative central banker [Rogoff (1985)] and the explicit modelling of the politico-economic process (Alesina and Tabellini's work, mainly).

In reference to this theoretical line of development it is easy for a practitioner to fall into the line of the skeptics -- like in the well-known case of Moliere's actor who discovered he was "speaking in prose", it could be argued [e.g., by Blinder (1987)] that it is at best pure common sense which is well known anyway. After all terms like "government credibility" or the need to build up reputation of a "strong" government (e.g., in wage policy "lick the strongest trade union first and the others will come on their knees") have been known as long as policymaking exists -- so what news have we learned from these formal and often very simplistic models?

²⁰ This has been pioneered mainly in a series of papers by R. Barro and D. Gordon. For an up-to-date summary of this literature see Persson and Tabellini (1989).

I beg to differ with this criticism. As in other fields of policy formation issues I believe it is very important to formalize and attempt to generalize imprecise concepts and ideas and make them part and parcel of our science in both theoretical and empirical research. I have cited, as recent relevant examples, various applications deriving from stabilization issues. There are also some insights of this line of development which one could not get just by intuition or introspection.

With much of economic theory the relevance to policy formation does not necessarily derive from specific quantitative or 'engineering' solutions to a particular problem (specific models are usually only illustrations of a general point anyway), but from a general point of view which a theory represents. There is the need to look always afresh at new policy problems as they come up. Up to date economic theory can help one in the fertilization of the ad-hoc intuitive thinking that lies behind much of practical day to day decision-making. In this way, policymakers may try to avoid being "slaves of defunct theory" [Keynes (1936)].

In finally referring again to the varied roles of the economist in all of this let me end with a quote of Paul Samuelson's (1970) on Joseph Schumpeter. Bernard Shaw wisecracked: "He who can, does. He who cannot, teaches." According to Samuelson, Schumpeter, also something of a believer in the superman thesis, gave this canard an extra twist, asserting in effect: "And he who cannot teach, agitates".

If "doing" is economic research and "agitating" is interpreted to be an activist role in propagating the fruits of this research to the policymakers and the public at large, then I would argue that economists both individually and collectively must "do", "teach" and sometimes also "agitate" at the same time.

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Israeli CPI Inflation
(Annual % - quarter to corresponding quarter)

