Upanathi

Vol. 1 No: 2 July 1986

The Journal of the Sri Lanka Association of Economists

Subscription Rates: (Annual – Two Numbers)

Foreign (inclusive of surface mail; Air mail extra)	US $ 20
Domestic: Institutions	S.L. Rs. 200
Individuals	S.L. Rs. 100

The printing costs of this publication were met partly through generous assistance from the Mercantile Credit Ltd., Colombo, for which the SLAE is grateful to the company and its president, Mr. N.U. Jayawardena.

V. Muthiyamudali 27/7/87

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Vol. 1 No. 2, July 1986.

THE STATE OF DEVELOPMENT ECONOMICS: AN OVERVIEW*

C. Suriyakumaran

1. CROSSROADS

In accepting this invitation to talk to you I have had a problem of choice myself. It was necessary for me beforehand, in the treatment of this subject, to decide whether to be general or to be specific; to go at length into topics or to touch only briefly on them. It was a choice between being comprehensive and cursory or detailed and partial. In a sense, now, I have decided upon both, with what success we shall have to see. As for the justification itself, I have no doubt. It is that we are deeply in crisis and there seems no escape from the fact that we must address ourselves to all the issues that must be addressed and pursue the answers to them. What happens in the coming years to the economic prosperity and stability of us all may depend entirely on what we all do now to handle this.

Kindleberger, reacting recently to my suggestion of Crisis in Development, himself thought the reasons for it were cogent, but pointed to Sir Arthur Lewis' lecture on "The State of Development

* A special lecture delivered on 18 January 1986 at the University of Colombo, Sri Lanka for the benefit, in particular, of the students in the programme of studies leading to the Postgraduate Diploma in Economic Development of that University. For most of the discussions below the main source of reference is the author's book: *The wealth of Poor Nations*, LSE and Croom Helm Ltd., London and Canberra; St Martin's Press, New York, 1984. Dictated by the original purpose of the paper, detailed references are not generally given when other authors are referred to but interested readers can obtain these details from the above book.

Theory", delivered in December 1983 to the American Economic Association, wherein he felt that while not at its most spectacular, it was alive and well. In a subsequent communication, I mentioned to Kindleberger that while Theory was one thing, Development was another; and as for crisis, the latter was at its most spectacular!

Doubtless, there is a looming crisis, more correctly a number of crises, and the Bastille has indeed to be stormed at a number of important points in the Development and Co-operation System, in quite fundamentalist terms. So far, we have had only (i) that GDP as an indicator of growth has failed to reflect inequalities, without looking at its more important failure to reflect structural capacity for sustained growth; and (2) the theorem that "growth of the rich countries was necessary because their expanding market was needed for the growth of the poor countries", making the latter forever developing![1]

The weaknesses in the present situation for the world and particularly for the developing countries are many. One must face the fact that there is no proper thinking available to us on growth theory; trade arrangements; payments mechanism; international co-operation machinery; integration of economics, environment, culture and politics in development formulation; and others.

The word crossroads itself is a much used term, meaning perhaps too many things. A distinguished internationalist described at least some of the major problems when he said that development and environment were at the intersection of two problematiques; perhaps introducing a meaningful modular conceptualization of the problem of integral analysis in these two major fields. One could fairly extend this description to all unsettled topic areas that I have just mentioned and rightly state that we are at the intersection of problematiques of all these urgent areas, that need confronting in a proper review of the State of Development Economics.

Before we proceed, a little caution may be in place on the possibility of economic modelling to answer our questions. It seems that the inter-relations between the areas need, in any case, models that must become simple and fundamental, not abstract and hypothetical. On the use of modelling and especially over-reliance on them, we seem to have Leontief's own presidential address to the American Economic Association in 1970, which would encourage caution:

1. In some ways this second theorem looks like a hangover from early Trade Cycle theories and their long line of exponents.

"Mathematical model-building industry" as a branch of economics is questioned for its ability to support itself on an empirical foundation, with assumptions not assessed or verified against observed facts. "If you do not like my set of assumptions, give me another and I will gladly make you another model". When it comes to normative models, which are frequent in literature, there is even less obligation to test assumptions. Leontief considers the situation scandalous and does not think that it is redeemed by the large volume of econometric work. "In no other field of empirical enquiry has so massive and sophisticated machinery been used with such indifferent results", due to the pre-occupation with hypothetical rather than observable reality.

For the purposes of this lecture, we may best divide the field as a whole into six major groupings, which I may describe as follows:

a) The Models that failed, the four decades since 1945

b) The Mechanics of Growth, conditions and invariables

c) Trade and Payments, the "right side up"

d) The International Co-operation System, from plurality to singularity

e) The Resources of Development, and the Environment–Development Model

f) Organisation, Politics and Culture in Development.

Let us now take these in turn, I am afraid, all too briefly. Yet, at the end of it, we shall find an enormous Agenda awaiting us; large enough to go through the rest of this century, and urgent enough to be taken up immediately.

II. AREAS

(a) The Models that Failed

From the forties of this century, a broadly defined yet clear promise of rapid growth was made available to the developing economies. It grew out of the aura of post-war humanity and rising expectations, was conceived on the theoretical foundations of growth economics of the thirties and the early forties, and saw strong pillars of international co-operation for development emerge. In order to assist in this effort, voluminous literature poured forth through periodicals, pronouncements and learned studies, and from many parts of the developed and, to some extent, the developing world. Many developing

countries, charted their developmental course on the political-democratic-welfare-Statist and international co-operation based philosopy, that was to be their guide in and after the forties. Thus they readily used also many theories that came from the source of the expected aid and trade.

In the early years, development based on import-substitution was such a theory. It was impeccable and, further, attractive to the developing countries.[2] In practice, however, this became mostly and at best import of machines to produce consumption goods. It had little lasting implications for a developing economy in its capacity to reduce imports, establish tolerable terms of trade, reduce continual dependence on aid flows, or its ability to build up its own internal structure.

With the end of the import-substitution phase as a solvent, the international co-operative community went into a new idea of export-led growth and of lead sectors. In the previous case, as well as in this, and others, none of these ideas by themselves are false. But what has been curious, and wholly false, is the way in which international and national dialogues have got on to one or other of panaceas singly as the solvent. Lead sector and export-led growth were in the same category, except that each failed for its own reasons. In this case, there were two reasons. Firstly, internal agrarian and economic revolution was never established. Secondly, the so-called export lead mostly came from the same colonial type primary or quasi-primary production lines, with their own capacity to earn foreign exchange or to produce adequate local incomes quite inadequate to the demands of development.

Then there were the theories of balanced growth of a type, which said that what was wrong with the development efforts was the lack of a balance between agriculture and industry and that something should have been done with agriculture much earlier. A failure to do so explained the foreign exchange and debt servicing limits and even the capacity to produce inputs to industry within the countries. Again there was nothing new or objectionable, but countries during a certain phase were all practically giving up everything else and single-mindedly pursuing this development as the panacea. While interest in agriculture revived, it was presumed industry was less important, whereas what was less important was the dependent type of industrialisation pointed out earlier.

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2. Having had, at one time, no less a leadership than that of Raul Prebisch, with great influence on the Third World and on UNCTAD during the '60s.

Then there were also supporting facets of ideas to prop up one or other of such theories. One of these facets was a series of "imported" policies for rural development. At one time, it was all community development. When disillusionment came upon this some years later, serious examination had to be undertaken internally to realise what should have been realised at the beginning, in order to start an alternative strategy. Community development—as community services and public works programmes, even with some economic and related assistance as obtained—was a thing apart from integrated resource-based planning and development by the community itself at autonomous level. In such a context, infrastructure and other support had a place and had to be given a place, but in accord with needs directly of the production resources and of production. Block development schemes in India were different from the Commune in China, the Kibbutz in Israel, or the Shemaul in Korea, or the earlier rural programmes in Taiwan and Japan. But each shared this integrated resource based planning and production approach.

Another concept that offered to come to the rescue during these times was that of employment intensive development, as having been the missing link and the explanation for the massive insoluble unemployment, low income, foreign exchange constraints, budget deficits, costly subsidies and many other ailments. Dazzled by its immediate chemical effect, we have, mostly, preferred not to see where such an approach led. Along with a somewhat diffuse slogan about appropriate technology, it carried a wide charisma which became difficult to overthrow.[3] The countries that "suffered" seeming benefits failed later to obtain self-sustaining growth.

In Amartya K Sen's, celebrated formulation bearing on quick policies for employment creation without the foundation for its sustenance into the future, "the determination of the optimum *size* of total savings and that of the optimum *capital intensity* of investment are interdependent problems"[4].

More recently, we have had the philosophy that what was wrong was the failure of the so-called trickle-down approach to development, whereby the massive large-scale production programmes were to have beneficial chain-effects in employment and productive activity down

3. Among its well known lead agents were the ILO Employment Studies series for various countries; and Schumacher, whose essential wisdom became diluted by its later indiscrimate application. Perhaps confusion still reigns in the Environment area, with inability to discrimate among small-scale, low-cost and non-waste or low-waste technology.

4. A.K. Sen, *The Choice of Techniques* (Third Edition, Oxford) 1968, p.xiii.

the line, to the populations at lower income levels. It was very quickly agreed that the trickle-down theory was wrong, forgetting that in fact it existed as a fact of life in the experience of the last century and of even this century. What the present day developing countries did not have were the conditions in which the trickle-down "theory" worked, including the political, social and moral conditions thereto. The same effect however may be said fairly to have been simulated, partly in the socialist economies, subject to the initial provision of basic consumption goods by these economies to the population. Most other growth was highly capital-intensive and large-scale but the benefits gradually worked themselves down. From the trickle-down theory anyway an alternative was next developed to help the poor countries. This is what was called the basic-needs approach.

Under this concept, it was declared that the problem with non-development was the fact that the lower income deciles did not have basic incomes to meet basic needs. The meeting of these needs would be development by itself; would also be efficient and represent economic use of local factors of production; and would, through demand effects, generate other growth. This again was not something to quarrel with by and large, and by itself. But as a single panacea it was rather a trap (like the many other traps that the poor countries got themselves into) than an adequately compulsive theory of growth. As in the employment intensive theory, so in this too, there remained a serious question of the optimal combination of factors in every production process to ensure maximum surplus creation, as well as to ensure overall full use of national resources. If the primary object of government was to raise the rate of growth of output, then it should maximise the rate of investment at each moment.[5] Subsequent writers have recognized that the level of modern sector employment and rate of investment are inter-dependent.[6] Even in early discussions on attaining full employment, it was noted that "the labour intensive ideas could be pursued only in conformity with the principles of optimal grouping of factors in the unit".[7] "It is the capital-labour ratio of the development process as a whole which has to take account of the relative capacity of the various factors of production and not the choice of

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5. W. Galenson and H. Leibenstein "Investment Criteria Productivity and Economic Development", *Quarterly Journal of Economics*, LXIX : 3, August 1955, pp.343 – 70.

6. E.g. D.M.G. Newberry, "Public Policy in the Dual Economy", *The Economic Journal*, June 1972, pp. 567 – 90.

7. C. Suriyakumaran, *The Economics of Full Employment in Agricultural Economies with Special Reference to India and Ceylon*, 1957, p.171.

productive techniques in each production unit".[8] These are fundamental points of view which, in a practical way, the Chinese have questioned in international forums, suggesting that it may border on being simply another trap to be cautious about, diverting countries away from the essential strategies for lasting growth. Sound development planning will inherently have basic needs, both as benefit and as instrument for high rates of re-investment of surpluses and rapid growth.

Then of course there was the other set of ideas provided to the developing countries around new headings of development. For example, it was important to have social planning and provide for social changes as pre-conditions to development, perhaps including cultural and spiritual conditions as well. There was hardly anybody to consider the fact that social change precedes development, but also accompanies it and flows from it. Similarly, there was the concept of population planning as one more pre-condition for development to take place. There was again hardly any to consider the fact in history that development was the most assured solvent of the population problem. Or again, there was environment as something to be preserved and considered before development. There were few to consider the fact that environment management, as sustained resource use management, was a support and an essential support to development.

And so on. They all add up to a somewhat simple fact that there were as many theories or philosophies as there were "disciplines". There was no integrated theory of growth which after all must be more in conformity with the realities of life. It is somewhat surprising that all these separate theories have carried weight and conviction with the developing countries, with the developed countries themselves, in times of trouble, simply prescribing more of the same. One reason at least that they did so, surely, is that they were tied to the grants and loans and the markets that were supposed to be made available by the developed countries.

As one of the final steps to advice on development, there was a dethroning of GNP, as we saw at the beginning, without knowing of or finding an alternative. GNP itself was always a means to welfare in the end, even to the mercantilists! The change that had to be made was in the automatic inference of social welfare from economic production. But GNP was needed for welfare, and this fine thread was not really researched.

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8. J. H. Adler, "The Fiscal and Monetary Implementation of Development Programs", *The American Economic Review* XLII : 2, May 1952, pp. 584 –600. The citation is from p. 589. See also Yale Brozen "Invention, Innovation and Imitation", *The American Economic Review* , XLI : 2, May 1951, pp. 239–57.

Neither the conventional financial ingredients of sustained growth (given savings and investment ratios, plus demand maintenance by incomes policy or "monetarism") nor the establishment of Rostowian indices (of percentages to national output and savings and so on) can, or will, assure take-off for these countries. These are indices, not causative instruments. The structural changes posited will inevitably reflect later in emergence of Rostow and Colin Clark type phenomena – critical-mass investment ratio to GNP and thinning of agricultural work-force and population in favour of industry and tertiary sectors.

(b) The Mechanics of Growth

It seems that development should result in the following two goals. One, an enhanced welfare basis, obviously through use of material means for the population; and two, a sustenance of the production structure, not to be mistaken with Rostowian indices, that would ensure continuation of that welfare basis to the present and future populations. After all these years, what has gone wrong? I wish to set out something that must be simple, even self-evident, but seems to lie buried in the mass of international policies, theories and refinements that have cumulated over the years. This is the invariable condition for wealth creation in any economy. In this sense, it is a simple mechanics of growth which carries universal validity. The mechanics itself does not depend on, nor does it necessarily question, the innumerable theories of development in the literature of economics. It simply points to a constant process, under growth, which goes beyond the broad factors of production – of capital, labour and so on – and the aggregates – of savings, investment and the like.[9] The Marxian dynamic or the Tableau Economique, perhaps provide example of invariables, in their light, on which development must depend; and on which Governments may trace practical policy paths for growth.[10] What is therefore attempted at the outset is a simple description, fundamental to Governments' strategies, overlooked amidst the profusion of other sophistications, and central to the growth process.

The basis for growth, as for existence, is the environment of all of our resources. This is the "land" (natural resources), "labour" (human resources), combined to productive advantage by the application of capital (cumulative labour or technology or both). But the mechanics of growth itself is determined by a process and not the existence of the factors; nor of the aggregates. The combination of the factors at a

9. For example, the Harrod-Domar model, in itself consistent and useful.

10. In another connexion, I had once observed that economics had for the most part never created development, only annotated it after it had occurred!

given time produces an output which divides itself partly into consumption and partly into investment. The production process creates a "surplus"[11] , however called, which has to be ploughed back into the process, for growth to be continued. This is the cause of wealth. There is no other cause. All the rest may accelerate or decelerate the process, sometimes halt it, enhance or adversely affect the composition of the wealth created, and so on. These are, of course, many and the pre-occupation of various national, as well as international, actions. But the mechanics of growth is single and invariable.

This is indeed how the process of rapid wealth creations occurred in the nineteenth century; while the consumer privation, exploitation, depression, compensatory aggradisements, determined the scale and composition of that Wealth. But the mechanics was this. This was also the process of wealth creation later, in the societies having state ownership of the means of production. In these, in contrast to the last century, there was less conspicuous consumption out of the "surplus", less privation and exploitation of the non-privileged class, and a policy based package of low priced basic consumption goods mainly food, clothing and accommodation. Whatever the political system, where countries succeeded, the accumulation process, necessarily and inexorably, took place; and the surpluses were repeatedly re-deployed into continued productive expansion.

It was the same mechanics which the Third World countries, thereafter, were having to apply. It was an impersonal mechanics. But they were left without the means by which these mechanics were made to work, either of the countries that developed in the last century or of the countries that did so in this century. It was the dilemma of these countries that they had willingly eschewed the nineteenth century free market model, had not pursued the twentieth century socialist model, and were left without the Aid and Trade premises which were supposed to provide the brave new basis for the undisturbed operation, in effect, of the predicated post-war Third World Model. Here, we are faced with the need to see how these may be overcome, because that is the only means to growth. Some basic characteristics seem to be part of such a growth mechanics and these may be considered here.

An essential pillar in the growth mechanics has to be the consumption capacity of that part of production that is meant for consumption.

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11. A writer on the 100th anniversary of Marx's death wrote: "Marx discovered the law of motion of capitalist society through the theory of surplus value . . .". Indeed in it was also the law of motion of socialist society, save that ownership and management of the surplus was in another segment of society.

In practice, these are not only the "end goods" normally so understood, namely the final consumption goods like food and clothing. All outputs, intermediate and capital, are also each consumed at respective stages and represent consumption capacity of the disbursements from investment out of the national product. However, the end goods have a special connotation, not only as the end purpose, hedonistically, of a Society's productive activity. Its level and its composition will be crucial, firstly, to absorbing the portion of the production process set aside for consumption goods. Secondly, it will reflect back on the ability to market that coming out as investment goods. In other words, the set of capital and intermediate goods in an economy can only continue to sell if the consumer "end products" they are producing, or will produce, are such in quantity and composition as will be consumed. The quantity and composition of the end goods are therefore crucial. Given proper decisions as to what these shall be at a given phase in an economy, each of the innumerable segments and items of both investment and consumption outputs will complement each other, and through this inter-locking support, become each other own's market. This is not a new theory. [12] The above pattern of goods produced becomes the basic set of goods for economic movement and sustenance. If the consumers in a society are seen as wage-earners or workers, then the most visible basic industries in developing economies are the wage-goods industries.

As may be inferred in the foregoing, the basic industries are not just consumption goods in the popular sense. It is these, plus a configuration of closely related intermediate and capital goods, that are involved in rational sustenance of the pattern of the planned wage goods themselves. Countries that were dependent on Metropolitan countries in the past, politically or economically, typically never had this basic essential of self-reliance, or self-development. Later, in the post-war phase, the promise of Aid and Trade eschewed the adoption of this strategy as a basis again. Yet there was no commensurate outlet in exports to absorb the increasing production that was not in any case diversified enough for the low income domestic market to take, but had to be sold, if the pace of reinvestment and the growth rate were to be maintained. Having adopted a development style that was internationalist, it also became practically impossible later for a dependent country to find the margins to reduce imports, since these were mostly development imports. Nor could they find leverage in expanding exports, since these were practically primary or similar goods. In any case, when it came to bargaining, the buyers knew

12. A survey of its pioneers such as Mandelbaum, Allyn, and Young in the 30s and 40s appears in my 1957 book referred to in footnote 7.

who was dependent on whom. The concept of progressive "non-dependence", in significant form, on imports for developmental inputs was a crucial component of the growth mechanics that was not adopted.

This "non-dependence" was also crucial in another, somewhat interesting, way. Developed countries that originally relied on colonial patterns in order to develop, did not collapse after that pattern was lost, but continued to prosper, in fact, contrary to many opinions in the early post-War years. While advantageous inputs and sales of outputs were crucial in their early stage of development, they ceased to be important, relatively, with the technological advance and giant superiority that they had attained subsequently. These provided the new competitiveness and even price advantage for their goods subsequently. In a different situation, even Marshall Aid to West Europe would have had to take a longer, varied course before "reconstruction" took place.

Parallel with this, the transition "from the first shovel to the first hydraulic forklift" proved similarly crucial. For too many cases among developing countries, the transition achieved was chimerical, since what came about was the end of the indigenous "shovel" making handicraft industry and the beginning of a vigorous import industry for the hydraulic "machinery". This could be multiplied with a thousand more examples in various production lines in the history of these economies. In effect, there was no transition in which a machine or a component became also a prototype to fabricate and to multiply appropriately as domestic equivalent. This distinction between countries which failed to do so and those that did runs like a golden, or not so golden, thread dividing today's new prosperous countries and those still "developing". Japan and in certain ways, the "four little dragons"[13] of Asia illustrate the former; too many countries exist around the world illustrating the latter; while a few, like India or Brazil illustrate a mid-way mark.

Thus, internal "fabricating capacity", without at all presuming that everything is to be fabricated internally, is integral to planning for wage goods industries, as bedrocks of the growth mechanics. Indeed, no country has become developed, which has not developed a highly advanced agricultural system; a meaningful industrial pattern; the range of wage goods output; and, coupled with it, the internal fabricating capacity as appropriate to each economy. If one may exclude ready exceptions, like small city states, the pattern seems invariable. Where one or two such countries have been lucky, so as to receive a

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13. A complimentary term referring to China: Taiwan, South Korea, Hong Kong and Singapore.

much larger volume of per capita aid and foreign market opportunities than others, the pace of growth has been faster. But the pattern of the basis for growth was the same.

Yet, some of the developing countries that have so far failed must also take some of the blame. They have complained long and loud at, and about, the international system. All too true, but not complained enough about themselves. In that sense, so far at least as the growth mechanics described goes, the still developing countries have lessons to learn, irrespective of ideology and whether they are so-called market economies or socialist. Given those invariables we have talked about, other issues, ideas and theories, advanced from time to time, on how to develop, can find due place; but not without these invariables. That was the tragedy of the many intrusions that went as theories: balanced versus imbalanced growth; export-related versus domestic based growth; agriculture versus industry; environment versus development; social versus economic; consumption versus investment; monetarist versus non-monetarist and others. That was also the tragedy of the international postures on aid and trade, self-reliance, even NIEO, so the developing could "catch-up" with the developed. Such realisation required in fact sound national structures with international efforts based only on these. Were the basis for "self-sustained" growth properly established, "catching-up" would then take its course.

The whole question of dependent development, full value added, and fabricating capacity is so central to creation of wealth and welfare, that they must be considered fundamental and foundational, making for the lasting differences between the rich and poor countries– tying down terms of trade, income, sustainability and capacity. Below (Table I) we set out a simple hypothetical illustration of the significance of "non-dependence" as an invariable condition for self-reliant growth. A look at the varying "development benefits" in the move towards real development bases, shows how diversionary and superficial, in a sense, current Aid role is vis-a-vis suppressed national capacities for surplus generation.

What comes as aid to the Third World is a small part of what would have been "value added" resources within these countries. All countries that are developed had gone through this change first– incidentally putting them in a position of superior trading, payments, and "aid giving" power. Not having done so, the developing countries had no autonomous growth capacity and no own created surpluses. Their concepts of growth were then beset with consessions, grants, loans and aid and continuing ways of seeking short-term relief. The real growth path for them was elsewhere.

TABLE I

"NON-DEPENDENT" DEVELOPMENT: BASED ON INSTALLED MACHINE FABRICATION CAPACITY, FOR OPTIMUM "VALUE-ADDED" PRODUCTION

Production Patterns

			$ million	
1.	(i)	Raw material exported unprocessed	100	
	(ii)	Imports of finished products of above [using 1/20 of (i)]	25	
	(iii)	"Development benefit" 1/ ("dependent development")		100
2.	(iv)	Part value-added 2/	250	
	(v)	Import of capital equipment for (iv)	50	
	(vi)	Development benefit 3/		275
3.	(vii)	Full value-added	500	
	(viii)	Import of capital equipment for (vii)	100	
	(ix)	Development benefit 4/		425
4.	(x)	"Non-dependent" machinery fabrication	600 5/	
	(xi)	Import tooling/equipment/materials for (x)	200 5/	
	(xii)	Development benefit on (4)		400
5.	(xiii)	"Non-dependent" fabrication based development benefit 6/		825
			or	900 7/

1/ Defined as "net" export earning [i.e. (i)-(ii) plus import value]. Under case (1)) the "Development Benefit" is not stable but on, so long as the raw material lasts (if non-renewable, till exhaustion; if renewable, subject to degradation/deterioration/synthetic substitution).

2/ Say light consumer stage, etc. (for 1/2 final value stage) exported.

3/ 1/2 x (i) + (ii) + (iv) – (v).

4/ (ii) + (vii) – (viii).

5/ Hypothetical; could be lower.

6/ Made up of (ix) + (xii), or (vii) + (xii)

7/ Being the difference in economic strength between a developed country (xiii) and a developing country (iii). Also a measure of falsity of foreign aid instead of trade, so far the outcome of current economic cooperation.

But we are at a point of time in which dependent economies have been created. One of the most fundamental starting points for an effective fourth model[14] must, therefore, be the ability with which a country may depart from its pattern of import dependence on a number of semi-luxuries, which have even come to be considered necessities. Thus, motor cars, household equipment, a number of tertiary, tourist and other services, and a host of other categories, become ultimately tied to established policy thinking. Secondly, the eradication of these in vacuo would immediately depress income, employment and other benefits so drastically that a policy change, particularly as a governmental decision, may be inconceivable. Yet, the success with which and the degree to which an economy could change to a different track would determine the speed with which it could implement a fourth growth model. The examples are there in a historical sense. These are Japan after the War, Taiwan, India and so on, in which such imports were held back for the purpose of capital construction—as the socialist economies term it—or creation. Whatever other shortcomings, India laid two structural foundations even before independence, which became her most lasting creations during these decades and stood between her and collapse when the oil and concomitant crisis hit during the seventies. The Indian National Congress in the forties said, "the whole success or failure of all our planning hangs by the single thread of our agricultural production and, specially, food production." The second stand was the unswerving decision to establish heavy industries in all areas and not least in machine-making machines. Immediately after the War, Japan, in building up its investment surge, not only contained consumption, but developed a priority mix in investment, holding down on many road systems and cars, houses and even some light consumer goods, until the fabrication basis had been established. Even in the U.K. right up to the early fifties, it was easier to have delivery of a new car for those who had foreign exchange than for the locals; and so on. Such a direction also gave a better bargaining power in the traditional sense for a developing country's exports.

(c) Trade and Payments

Growth, trade and payments all relate closely to each other. Each has also been considered separately important enough to be pursued in specific strong forms. Theoretically, a very good trade or payments system can induce strong national growth structures. In practice, prior strong national structures determine the capacity for real advantage in trade and payments.

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14. See p. 9, para 3 for the first three models referred to.

World forums have, in a recent crescendo, sought to solve these problems, particularly the serious international monetary crisis that has now come to the fore. In reality, all forums so far have simply been pouring palliatives at the least, and at the worst, providing solutions which postpone the crises, only to bring them on in worse form at a future date.[15] In the payments sphere, the forums have proclaimed their attempts to solve without indeed ever having had the mechanisms to do so; they were talking with mechanisms that were derived from a past era and made for different trade and growth situations.[16] Sound, but bold "ideas for alternatives" gestated and sustained into the future for final achievement, are obviously overdue.

In trade, developing countries have been trying to seek refuge in commodity and stabilisation arrangements and other concessional devices which are all marginal palliatives (save in OPEC type initiatives). They all ended up in the same place. Developing countries simply continued with a market disadvantage, being weak and non-resilient economically, and not being able to modulate their production in trade terms, since their policies were determined by the sore needs of sheer subsistence, well before development. Even otherwise, the vast mass of social, infra-structural capital that is demanded in all development, became a fixed import commitment, over whose price or quantum variations there was little capacity for control.

In the Third World situation, there was a mutual conflict, of clear enthusiasm in principle along with intellectual doubt in practice, as to the scope available for trade co-operation, in which a Western type tariff dismantling approach was dominant. It represented an obvious "upside down" situation, which has to be turned "right side up". The formation of a positive programme of trade expansion and co-operation must be based on an opposite principle, making co-operating countries involved in an "additional export" rather than an "additional import" commitment. This idea of a commodity flow matrix, depending on quantitative rather than tariff bases, introduces a system that depends not on request for tariff reductions but on offer of export additions. The structure provides assurance because of its promise that no participating country can lose, but only gain.[17]

15. To start with, the economic structures of these countries were never capable of attaining sustained growth; in large measure, Aid only acerbated the distortions and sustained these structures.

16. Hans Singer, among others, has lucidly pointed to the anti-developmental natures of the now classic IMF prescriptions for bringing sick economies round to health and to expected growth.

17. Such a structure is applicable at varying levels – for the Third world as a whole, the UN designated Economic Regions, or for Sub-regions, for ASEAN and now SAARC.

Payments on trade account, though ostensibly for a temporary situation, do not stop at that. Deficits on development account merge in reality into liabilities on capital assets being thus continuously related to the balance of trade and payments. Questions of capital inflow are therefore an integral part of wider monetary co-operation and arrangements. Meanwhile, the problem of international liquidity was being continuously approached with palliatives rather than solutions; whereas the problem, particularly for developing countries, was endemic. So, in practice, using devices cloaked under various phrases, the rich countries were giving to the poor so called grants or interest free loans equivalent to receiving payments in the local currencies of the developing countries. P.L. 480 arrangements partook of this character even more directly.

The financing of international trade based on deficit countries fighting to export and surplus countries resisting imports,[18] was a clearly "upside down" phenomenon which had some day to be set "right side up", if a world order were seriously contemplated. This indeed applies as much to the developed as to the developing world. Such a lasting solution, in fact the only possible durable solution, is tied with establishment of the idea of "local currency" settlements, wherein globally deficit countries' currencies made out to the surplus countries in trade balance settlements constitute the resources for the monetary "International Fund". In this idea, implying automatic creation and adjustment of the required foreign exchange media for settling the net dues of international trade, we have a different situation from what prevails. What prevails is an essentially unnatural limitation on the scope of such trade imposed by the volume of monetary reserves available in the case of strong countries and by the volume of international income transfer decided upon in the case of weak countries. In either case, import or export possibilities are not determined by internal economic capacity, as evident in the case of trade between areas within one country. Clearly the important missing factor at the international level has been the absence of a single currency. The task is to achieve this or, more correctly, to re-outline financing methods in a way that would approximate to this in the ultimate. Under a local currency holding system, world income tends to remain high with exports continuing at unhindered levels and imports by surplus countries tending always to increase. Among industrial countries, equilibrating at a high level of total trade is much more likely, while among developing countries, the chances of others absorbing exports are

18. Bretton Woods envisaged that the onus of redressing payments imbalances should be on the "surplus" countries, quite contrary to what is happening and is being preached.

equally increased. Widely ramifying investment and technology developments will emerge almost naturally out of this, with global benefit overall and developing countries' genuine self-reliance in particular.

The practical achievement of such a rational conclusion would undoubtedly be enhanced by the creation of a World Central Bank, that may transform net local currency holdings into WCB notes; an experience not dissimilar to the history and current status of national monetary evolution. To be emphasized, however, is that no World Central Bank can function by increasing its own fiduciary notes–tranches, drawing rights, or just notes–whatever they are called, in vacuo. The linkage, through the local currencies and the trade that they represent of their respective countries, is the essential economic basis of that currency creation and management.

The greatest need is to overcome the mental subordination to past ideas and to cease interpreting the present world with a past theoretical instrument.

(d) The International Co-operation System

At the international level, we have one set of decisions that developing countries must now take. It belongs to de-emphasising their total reliance on the developed countries for their own growth. More than the physical, it appears to be a major psychological step for most of the Third World, away from a posture originally created by the First World, but in which the Third World has allowed itself to be trapped. Its hallmark is the system of international conferences, plans, programmes, declarations, resolutions, calls to developed countries and development institutions, and so on. The proclamations of self-reliance by the Third World have often been merely slogans, with total continuing structural, financial and resource dependence on the First World and its international systems. Thus, also, when it came to co-operative mechanisms among developing countries, global or regional, the proclamations have not proceeded beyond verbiage; and countries have continued to go back, almost exclusively, to the offers and mechanisms of the international aid institutions and systems. This has to break, if the developing countries are to break through to genuine co-operation among themselves, as one major support to their developmental aspirations.

Thus it is necessary, even if it may come as a shock to some countries, to re-think the emphasis given to, and energy spent on, drawing up charters of a new international economic order with hopes of

activating global leverages. As we have reiterated, what flows from global capacity should be welcomed, within nationally determined policy frameworks; the catastrophe has been to rely on the former.

As a counterpart to self-reliance, a serious examination of the major international system—namely the United Nations and the allied Specialised Agencies—must at least begin to be made for a complete overhaul, both of the type of development support it could give and of its overgrown and duplicating structures. Hopefully, such an examination should be made and an overhaul completed, as a high priority on the international Agenda.

Obviously, a rearrangement of a structure such as the United Nations system and its ramifications requires an intensive separate look at its origins, the reasons for its various ramifications, its realities and essentials and its future credit worthiness. The problems and the solutions have been and will be both political and management. There seems to be a co-existence of two political stances. Contrary to a general concern, and even conviction, that the growth of the United Nations System should be arrested and if possible reversed, a whole array of "sectoral" clientele inside governments make decisions at international governing bodies which have been always expansionist. Often they have also been divisive and conflicting in terms of new bodies or offices created. There is also another peculiarity that has been allowed to emerge inside the United Nations bureaucracies, which is again a co-existence of two contrasting characteristics. On the one side, it is overloaded with people whose work cycles seem to be getting together pieces of paper and organising conferences, many of which may as well not take place. On the other side, for substantive research and hard ideas for development breakthroughs, with very few exceptions, there is serious inadequacy. Too often a serious problem of this sort is handled by farming out to outside personnel, with the finances needed to develop internal capacity for work on this type of work already taken up by the regular bureaucracies.

Amidst all these limitations, one may be vain to visualize a radical transformation, such as one must hold is in any case necessary. It may not materialize immediately yet it may be worth seeing the lines of such a real transformation. We refer here to the economic and social area, not to the political and security work of the organisation.

At the base, there has to be one interdisciplinary United Nations system and no more, whose main function for each developing country, shall be to prepare a pre-investment and investment assistance programme, as counterpart to the country's development plan. Its purpose

should not be merely to serve as the framework for the United Nations assistance which is small, but as a "frame of reference" for all sources of assistance to the country. This is the strongest contribution that the United Nations character and capacity can ever make to a country at the country level. No matter that a new trend in favour of the private sector and the market-place emerges or is canvassed as in the case of the United States in recent years. No assistance stances make sense outside of a single aid plan or frame – insofar as the country benefitting itself is concerned. It is a function in which the United Nations, more than any other source, can be the most valued contributor. In order to fulfil this, the United Nations system in the country must have two supports. One is that its country office must have, at the top, not only known general capacity but technical capacity and understanding of economic needs and priorities.

The other, and even more important, is that there must be a single United Nations organisation at the regional level for each of the regions presently designated or such other regions as may be marked out. At least from the viewpoint of the countries, there cannot be room for a system of bodies and agencies and others all purporting to help. This does not mean elimination of some and continuing one; but elimination of all first. Pursuing their own furrows when not "developing conferences" there is need to reconstitute a much streamlined and inherently capable single regional United Nations for development. Its main thrust will be (a) to forge the much needed international trade, monetary, commodity and other co-operation systems and subsystems within its area, as well as transregional arrangements on them and (b) to provide, by virtue of its wider specialized human resource base, concrete inputs to the country United Nations system for the preparation of the pre-investment and investment assistance programmes that we talked of earlier.

At the global level, there is probably greater proliferation, duplication and non-productive use of human and financial resources than elsewhere in the system. Agencies have, ostensibly, their own separate specializations. However, components of the system have distinguished themselves as often by specializing in bits and pieces of the others' specializations, with justifications that were entrenched in sophistry as well as mandates from their governing bodies. Meanwhile, committees on co-ordination do not co-ordinate and contributors to programme funds remain increasingly unimpressed. A solution may indisputably require that the entire global level structure should be located in one place, perhaps in Europe, such as the European Office of the United Nations, incidentally, with considerable release of funds to productive

activities, now tied up on often unproductive, in any case duplicative, personnel. Any concept of dispersal of UN presence must not be by distributing global head offices, but through an "outlying field" offices concept. These may not only be the re-arranged regional headquarters offices, but sub-regional units of both regional and global head-quarters, as needed. The unified character of a United Nations structure is indispensable if we look forward to a future value out of the system. It may be sobering to reflect, not only that countries developed in the last century before a United Nations system existed, but that all those that became developed this century did so very much irrespective of United Nations inputs, even if in certain cases these were indeed visible. The United Nations economic and social system has still to find its capacity to create a developed country out of a poor one.

The developing countries must stop paying only lip service to organisation for regional trade co-operation, pursuing global "will-o-the wisps" in hope of largesse or miracle. The Third World has to take itself seriously, recognising that success involves serious re-orientation, honest hard labour, and an assured outcome. It is in this background that we considered a pattern of regional trade co-operation in an earlier section.

Similarly, although this has global implications, the Third World should take up for consideration, as well as lead, the institution of a sensible monetary co-operation system, in which the financing limits to international trade are set by the capacities for growth of all, rather than the ability of one to block the imports of the other.

(e) The Resources of Development and the Environment–Development Model.

Integrated development planning or management is not, as traditional policies tended to let pass, a series of "labels" called economic planning, social planning, demographic planning, environmental planning, and so on, done separately and then let loose, without method or concept, to get the best out of harassed governments, donors and treasuries. It has to seek a methodology of ideas and their coalescence. In so integrating environment and economics, we take this approach here.

The environment is the totality of all our resources, natural and human. Development relies on these resources, and non else, for its attainment as well as its sustenance. "Environment management" is the management of the use of these resources and not the non-use

of these resources. "Environment management for development"– that is environment planning– is the use of all these resources alongside sustained maintenance of future resource levels.

One of the most heartening things in a concept like this is that this is nothing new to economics, giving immediate scope for a bridgehead to be established with economic planning. It is nothing new to economics or to economic planning to conceive of optimal use of resources. At least sometimes, sledge hammers may have been used to criticise economic planners and economists as going for maximum use and over killing. There is a truth in this in a different sense, but the concept mentioned is nothing new to economic planning. We could cite some examples. Land and forest management existed traditionally and one cannot think of better environment management than in very sound land management programmes that have been instituted in several developing countries and also several other countries. Crop rotation has existed and this is environment management. Child labour was abolished and, when this was done, the supply of labour was diminished. Now, this is insane by so-called economic standards. Working hours were shortened, fair wages were established and so on. Even labour-intensive policies or capital-intensive policies reflect certain questions of balance between resources of various types which is made irrespective of economic analysis, as value judgements, or societal judgements.

These are then given as assumptions, on the basis of which economists and planners formulate their development plans and then produce data lists, of supply of resources to meet total national demand over a given period. This is basically economic planning. The society has a certain demand target, for which it has to produce, and has to identify resources or supplies to meet this demand and it does this. But as we tried to emphasize, contrary to popular impression, the economic planning process does this on the basis of certain assumptions which have very much in common with the features of good environmental management in the sense that we have been talking about. Environmentalists may not have been knowing about it, because they have not had a dialogue with the economists, nor seen that here is a common bridgehead that could perhaps be used to benefit. So, environment planning, if there was anything like this so far, never approached the development equation in these terms and it never produced a complementary data supply. This is the point that we need to come to now, that environment planning failed to produce something which was within its competence– a complementary data supply which would be the beginning of the whole process of environmental management

in development. Under the traditional "agenda", marginalist/environmental economics left physical environment management to fend for itself and, therefore, was incompetent to penetrate the development planning structure. The obvious consequential policy prescriptions under a new agenda of action are perhaps best seen not as a catalogue but as a framework or a planning module. In order to do this, we set out in Table 2 a schematic presentation of what a framework or a planning module carrying environmental dimensions into economic planning would look like. This would be the essence of environmental planning. Basically a framework of sequential and schematic linkages, it follows in very broad outline modalities of economic planning and has the three broad categories of perspective planning (grouping medium and perspective together for convenience), sectoral programming and project or implementation phases.

A crucial concept here is the distinction between "physical supply" and "effective supply" of a resource. This is a terminology of convenience; one is free to invent better terminologies. As used here, physical supply would normally refer to assessment of resource supply or the availability under a techno-economic criterion. In other words, so many million tons of oil, or so many million tons of iron or so many million tons of wheat are physically available over a given period for the plan purposes, and that is it. The effective supply would be distinct from the physical, in that if we merely use so many million tons of oil we are going to finish this up and after that we are going to be left high and dry. Or, if we use so many million acres of land exploiting forests, we are going to run the soil down and after that we are going to have wide-ranging resource and sustenance problems. These are classical situations which are well known.

This constitutes the basis for the "first" assessment of effective supply. Having assessed such an effective supply, in order to meet the posited demand for resources—demand including resources required for social, cultural and spiritual needs—we come to the next stage, which is par excellence the gap area in environment management in macro terms. This is a challenging area, where we have to give up the luxury of being only critical or negative vis-a-vis economics and take up the challenge of providing positive answers. In this next step, we have to attempt an "approximation" of the effective supply with the physical supply. There is in this a whole gamut of things but basically as we see in the module, it refers to the construction of "resource balance sheets", a matter which was also referred to in studies by other sources of late. Again, we can use any words we like; one can call it accounts, audits or whatever. But the construction of resource balance

TABLE 2

THE NEW AGENDA FOR ENVIRONMENTAL ACTION--PLANNING MODULE
(Framework of Sequential and Schematic Linkages)

A. Perspective/Medium Term Planning Phase:

(i) Identification of initial "effective supply" to meet posited total national Demand (as under economic planning) for goods and services (N -- This includes goods and services needed to serve expressed social/cultural/spiritual needs) ---⟩

(ii) Approximation with "physical supply", thus ---⟩
(Non-Renewable Resources) ---⟩ (a) "Resources balance sheets" ---⟩ (b) Rate of use ---⟩ (c) Re-use policies ---⟩ (d) Alternatives ---⟩ (e) R & D and SC & T application to (c) and (d) :

(Renewable Resources) ---⟩ (a) "Resource balance sheets" ---⟩ (b) Restoration ---⟩ (c) Maintenance ---⟩ (d) Expansion ---⟩ (e) R & D and SC & T to (b), (c) and (d); ---⟩

(iii) Establishment of final "effective supply".

B. Sectoral Programming Phase:

(i) Operational balance sheets ---⟩

(ii) Operational programmes

for (c), (d) and (e) (in non-renewable resources)
for (b), (c) and (e) (in renewable resources) ---⟩

(iii) Integrated cost/benefit assessments for major sectoral categories.

C. Project Planning/Implementation Phase:

(i) Integrated cost/benefit project assessments and capital/output ratio assessments for major projects ---⟩

(ii) Projects scheduling (as under normal Planning) for pre-investment and investment follow-up ---⟩

(iii) Given all the foregoing of the Module, "maximization" of production in all projects, sectors and areas of entire economy.

sheets by environmental planners, co-operating with economists, is a key step. For all resources we would proceed as that shown by the arrows as in A (ii). From the construction of balance sheets we proceed to the real implications, where it is an exhaustible resource or a non-exhaustible resource, according to its nature. The society, in its planning, will make decisions on the rate of use in non-renewable resources, on re-use policies, on application of science and technology to alternative resources, and so on. On renewable resources, again, by the construction of balance sheets it would make decisions on restoration, maintenance, and expansion and follow them through as part of development planning. This is not theoretical, it is not vague, but absolutely concrete and it is not difficult to find ample illustrations. For planning, this is the stage for approximation of effective to physical supply. As a result of this, where there has been a dialogue between the environmentalists and the economists there is A (iii)—which is the establishment of "final" effective supply. The challenge for environmentalists in establishing a final effective supply is to end up by increasing the supply and not diminishing supply. The point is that they can do this.

Having done this, we go on to the other, sectoral and project phases. We may draw attention here just to one thing. It is at the sectoral stage and much more intensively at the project stage that environment impact assessment or environment assessment begins. We have, therefore, been peddling the tool of environment assessment without realising this relevant stage, as if at variance with economic goals, and without having a macro setting. We could have very good environment assessments of projects with totally irrelevant macro meanings, coming out of such individual assessment.[19] This is not a new point, many others have made it elsewhere, but it is very important to realise, when we talk of environment impact assessment or environment assessment, its place in the scheme of things. It comes way down as a planning tool, less over-valued and as only one in a total planning Module.

One more point about the project stage. As the last step, there is a deliberate emphasis on the fact, like the finale of a symphony between the environmentalists and economists/planners, that finally both join in "maximization" of production. For, given the assumptions, it becomes inherent.

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19 A detailed study of micro (project level) cost-benefit analysis, in a macro setting as we outlined here, is provided in "The Wealth of Poor Nations", *op.cit.*

(f) Organisation, Politics and Culture in Development

The year after Cancun, in confirmation of its standstill, 44 developing nations met in Delhi for consultations to see how they could help "poor countries to be less dependent on rich nations by sharing their wealth, trade and technology". This is an aspiration that comes very close to the realities; it shares the priority concerns we have discussed earlier on systems for national development, and others. Such a co-operation of developing countries is, of course, based on the premise that the goal is attainment of the same level of wealth as other already developed countries—we shall not talk of the most developed at this point; and sustenance of this level thereafter.

This premise is not always a fully accepted one by developed countries; and, sometimes, surprisingly even by some developing countries. Among the latter, the philosophies of minimum needs, employment-intensive approach and small technology, as well as narrow refuge in cultural pasts, have on occasion taken pride of place. Leaderships have been found sometimes to state that what the poor people of their country want is simply some clothing, and housing and food and they are so simple and so pious that they would be satisfied. This is somewhat near to the remote pictures of an idyllic countryside, drawn from the comfortable distance of urban centres and almost always totally wrong, unknown until the ferment becomes a social revolution. On the side of the developed countries, the ideas of less than optimal growth for the poor countries has been based, apart from so-called technical arguments of trade propelled growth that we saw earlier, also very much on a premise that all these will take so long and in any case will be so uncertain, that what is needed is some significant upping of per capita incomes. Thus, there is no catching up and, of course, no internal sinews of self-reliance such as of a wage goods pattern or fabricating industries, and the like. One may be almost certain that, if Japan had not become a developed country—which it did without clearing a strategy from the advanced world of the time—the developed community today would truly be saying that it need not try to catch up, but could simply move to eradicate poverty, provide employment and, with assistance from the developed world, provide for steadily improving incomes. One could see the parallel with many other developing countries today, certainly with different time horizons for attainment, but as much justifying their aspirations as discounting the international co-operation mechanisms, that have up to now given little more than marginal growth.

Given a dynamic co-operation pattern from the developed world as we have discussed earlier, the record should certainly have been different and the future, for the developed countries themselves,

much more assured, not only in terms of overcoming their own economic strains, but also of social unrest, overall. Assuming such a policy in the past, say from and after the forties, one could perhaps say in Asia, that countries such as Malaysia, (Cambodia) Kampuchea, Laos, Thailand, Sri Lanka, India would have been in a self-reliant and sustained growth league already: and possibly Indonesia and Philippines, given certain social, cultural pre-conditions. Vietnam remains the product of a complex political see-saw, which otherwise could have been one of the earliest success stories; such as, already, the four "little dragons". So it need not only be Japan or the Western countries. Yet the realities are otherwise.

In this context, there is need for a view—a clear view—of the organizational, political and cultural basis for such development. We touch only a little on these at this point. Within the time before us, we cannot do more just now.

The political structure, as the organizational basis for development, is the first area of need, a fundamental prerequisite for all other policies to succeed—economic, social or cultural. As we know, such a basis for development has been established in some countries, as considered appropriate to each country. While being one mould, they are perhaps also varying and different from one another. We have to look at Japan, Taiwan, Korea, Israel, India or Singapore, to see this diversity. Even the Socialist bases of political organization carry a refreshing range of variations, from the original mould in the USSR, through China, to Yugoslavia, Cuba or Vietnam as examples. Whatever the variations, therefore, and whatever one's personal value judgements on each of them, the incontrovertible perceived need has been a firm, development supportive, organizational basis for a country.

A country may even go back in search of some of its own strengths, legacies which may have lain buried under the impositions of modern constitutional patterns. This need not mean the creation of a fourth policial mould, assuming that the Nineteenth Century Western political system is the first. Already, as we saw, there are mixtures, with a little of French, British and American imprints, reflecting also the wide spread of mixed economies, sometimes proclaimed as democratic socialist and sometimes as socialist democratic. Presumably in the democratic socialist structure, utilities and services are "socialized" upon a basically private enterprise philosophy; while in the socialist democratic structure, public ownership of the means of production is perhaps more "socialized", while attempting to preserve the Western democratic modes. Except where societies have found an answer for

themselves, one salutary approach may be to probe for stability and potential in "a guild concept"—with resource-based planning and participatory democracy—inspired from past ideas of village and rural-based self-determining organizations, which then temper the basically unproductive and often contra-developmental nature of the standard two-party democratic governmental systems that had been imposed. It is for example, a historical truth that no country was a "democracy" at the time of its take-off to growth.

Then we have, at least immediately following revolution, a magnificent phase of fulfilment of the "Marxian dynamic", in which the means of production are organized to rid the society of stark privation, and to fulfilment, at basic level, of that highly moral socialist declaration, of obligation of the State to provide employment. The next phase, of the move to higher growth, begins to present the inescapable problems of rising expectations and of political organization to meet them, and related economic organization. Where socialist societies have ensured adequate organizational basis for continued growth, we may obviously accept them as solutions. But where socialist societies have not done so and are obviously probing, a basis has to be stimulated, not necessarily the same mould of the free market democratic countries, but nonetheless an additional evolution. It seems, even as two-party systems in the political democratic countries were no help to organization for development, so the one-party system in the socialist economies has, in quite a few cases, been no help at all to this second growth phase.

The concerns under both political structures, while being understood, must yield to realities. One does not cease to be "socialist"; and the other does not cease to be "capitalist", as political systems. Although the latter, in concession to its tenet of "freedom", concedes the existence of communist parties, the system expects that socialism will always be introduced only by democratic process; implying, that it may also be voted out. Anything less would be anti-State. It should be possible to apply a similar principle in socialist countries, in which two-party elections could prevail, but on the unconditional premise of fully socialist platforms. One should think that such a recourse would positively enhance the capacities of socialist economies also to provide for healthy successions to leadership, as much as to carry an economy through to the next, higher, phase of rising expectations and ramified growth. By the same token going back to our observation on a "guild concept" in free enterprise democracy, it seems necessary to look seriously to establishing a pattern of economic democracy, in which the mode must be "participatory development". We could

see this in concentric circles, from village area upwards. We may even thus have a "free enterprise two-party democracy with intensive participatory "development"; and on the other, "intensive socialist planning from down up and up down, but with two-party elections as well".

While it may not be customary to afford a place to cultural or spiritual attributes in conditions for development, in truth, no "group motivation" and group action, which through history has been the bedrock of means to success, has been possible without such basis. It may go by many names: social ethos, ethnic trait, national cult; and based on tradition, leadership, religion, or plain materialism. An article of faith, once a help, may lose relevance and become a hindrance; but a new article of faith has to be discovered; else the society stagnates. A transforming cultural ethos is essential to put together and to carry forward the inert forces of growth towards creative wealth and welfare. History is full of them, but for us, perhaps, it is best illustrated by Japan where deep cultural heritages were turned as powerful support to the new development and the new ethic. In that sense, all societies have religions to enshrine value systems—some call them religions, some have them as "secular" religion, in ideological imperatives that must be served; but all need them.

As I said, we have not spent enough time on all aspects of these subjects. The thinking we have advanced here obviously is individual, but the need for a search is inescapable; and developing countries have seriously to address themselves to this as a development premise. Politics, culture, organization are simply an integral part of successful development.

III. OUTLOOK

I do not mean here to prophesy. So let me be brief , in reality, only to state some points that I may not have stated fully in the main discussions earlier. Let us, therefore, get clear about some foundational aspects of translating this development economics into development and change.

First, if as was seen, the whole process is completely multi-faceted in nature, it is derived from the very unified nature of development. It is economic, social, cultural, political, administrative, technological and environmental. While management would seek to use each of these as instruments in attaining stated objectives, its final purpose would be to attain the overall objectives in all these put together, which is development. We thus need to understand the terms development and change, as I have put it in the discussion, in this frame and, therefore, as representing both ends and means.

Secondly, in at least four of the change agents – social, demographic, environmental and technological – perhaps in more, desired changes are the products of constantly interacting processes in which these are the result of overall development as much as they are the cause. It would be a fallacy to talk of these as "non-developmental" pre-conditions, before any development may take place. Though often by-passed, we need here to distinguish between "mass" change and "marginal" change. Social change for example is at least as much the result of development as a proper social foundation is a basis for it; and mass change is the result of development. It is the marginal changes that must still be effected even after development has taken place. It is evident that social change precedes development, accompanies it, and flows from it. The same may be said for demographic change in which, in the long run, the surest solvent to the problem of containing population growth is a state of development itself. On environmental change, it has been said that it is development that solves many, if not most, of the problems of environment. In management of all these, concurrent policies must certainly have to be developed and applied. For example, the problem of population for this century is one of the enormous resource needs to satisfy the basic humanitarian and economic requirements of existence. It is, therefore, a problem of development and production. The twenty first century population problem is obviously one of the unremitting policy application, from now itself, for containment of population growth, though obviously based on a much more decent economic foundation than these populations have at present. So too in environment, which we have discussed, the problem of "degradation" – of both human and natural resources – is based as much in poverty as it is, later, threatened by affluence. The policy need is, therefore, for a combination of the conservation of the resource base of development and of use of several times the volume of present resources available for development of the Third World.

Thus, thirdly, the core of development is bending these other facets of cultural – social, political, organizational, environmental and technological availabilities to the best advantage, but not waiting for positive changes in them before development can be considered to take place.

Fourthly, too many Third World countries have proceeded with so-called development during the last four decades on imperfect or inadequate concepts and theories. As we said, under the Models that failed, we had ideas of development through Keynesian demand management; then, development by import substitution; export-led and lead sector development; balanced growth theory of development;

employment intensive development; basic needs based development; and, of course, the ideas of "preconditions" of social, cultural, environmental and other planning, before the development process.

In more specific strategy terms we need to sharpen much more than we have shown in the past, our sense of the relations for development between investments, their financing and sustained growth. Rising welfare cannot be found by distributing non-existing income, building production from non-existing machines, or providing the large "tertiary" infra-structures from non-existing equipment. In many of them, not indigent borrowing or repeated purchase of capital equipment, but "built-in" interested foreign partnership within, is the much needed policy approach; through a selective creation of capacities inside and the fostering of a powerful "fabrication" culture Welfare cannot be imported, it must be built.

Investments for Production: (i) of Capital Goods—within it of machine-making, other machine and intermediate goods, serving all sectors of transport, agriculture, industry, services; (ii) of the Distributive Services, serving communications, trade, education, health; and (iii) of Consumer Goods, are each distinct—not an aggregate to be lumped together, if sustained development and rising prosperity are envisaged. A low level in one is not compensated by a higher in another; in some situations, it might even promote collapse. By the same account, the Gross Domestic Product (GDP) of "Production" is distinct from the GDP of "Services"; and Development Strategy must contain these distinctions.

If the rich and the poor could reverse some entrenched doctrines as to their self-interest in mutual co-operation, results could emerge much more quickly and with more uniform benefit. But if they cannot, they would still emerge except, as one commentator observed, more slowly, with more upheaval and, in the end, at higher cost to both the First and Third Worlds, not to mention the "Second World".

Most Third World economic structures were incapable of commanding the vast industrial, infrastructural and social capital that inevitably went with sustained growth; and Trade-Aid policies based on these structures often only perpetrated continuing dependence on rich countries. Poor countries—all countries were poor once!—in the last Century and this, that did otherwise, had success notwithstanding varying social or political styles. One must think that these changes—economic, political, cultural—will come upon all countries at some time; either forced upon them or, as we should very much hope, seen

by them early on, as the few countries that have developed saw it themselves. As I concluded at an international conference on an earlier occasion, I shall leave you to decide whether we are at the end of a beginning; or the beginning of the end. In fact, much of that may depend on what the young, like you, decide about these things. A wealth of ideas and challenges, for research and resolution, await you.

Upanathi

Vol. 1 No. 2, July 1986.

SUPPLY FUNCTIONS OF PERENNIAL CROPS RE-EXAMINED: THE CASE OF TEA*

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INTRODUCTION

The formulation of international primary commodity models to analyze various aspects of international and inter-governmental commodity policies has been in focus over the past few decades. (Labys, 1975). One important component of such commodity models is the estimation of the supply function for a particular perennial crop. Most studies here recognise the lack of detailed data, especially concerning the age distribution of trees, necessary to estimate complex supply response models and have therefore accepted simple models.

In this paper, we consider these simple models and emphasize that despite the lack of detailed data and small number of observations, the data available are sufficient to introduce certain features peculiar to perennial crops and certain important modifications into these

* This paper draws from the author's Ph.D. thesis at the Australian National University. The valuable comments on earlier drafts of the paper by Dr. P.K. Trovedi are gratefully acknowledged. An earlier draft of the paper was presented for discussion at the Monthly Seminar series of the Sri Lanka Association of Economists. The author is also grateful for many comments made by the seminar participants.

models. Although we consider the case of a particular perennial crop, tea, it is necessary to emphasize that these modifications are applicable in the estimation of supply response functions for most other perennial crops.

In estimating supply functions for tea for the major tea exporting countries such as Sri Lanka, India, Kenya, Tanzania, Malawi, Mozambique and Indonesia, we conclude that estimation of a particular form (with a common lag structure) of supply function for all the countries is erroneous and that the nature of the perennial crop suggests that greater care is necessary in considering the length of the lags in the variables such as future price expectation or bearing acreage for each producing country.

It is also our conclusion that the aggregate estimation of the supply response of a perennial crop grown with different seedlings, in different soil conditions in the various regions within a country precludes an assumption of fixed gestation period and that the gestation period should be determined empirically.

PERENNIAL CROPS

A perennial crop exhibits a variety of interesting complications not found in annual crops. Firstly, a perennial has a life expectancy of many years. Over the course of its life, a perennial crop will be expected to yield a stream of outputs. A typical tree passes through a sequence of stages from planting to death. There is an initial period of several years (gestation period) during which the tree matures. Over this span of time no output is forthcoming. The length of this period may be shortened or extended somewhat depending on the choice of planting material and the extent of care taken in husbandry. It is always the case that the farmer must wait several years before receiving the initial return on his investment. Once fully established, the perennial is expected to yield over the course of its adult life. There is an initial phase where yield grows rapidly to peak levels, followed by a plateau in yields of several years at peak levels; and finally a slow but steady decline in yields over the perennial's late years. During these later years, the farmer may elect to abort the tree life cycle by uprooting existing still productive trees and replanting the land with new seedlings of the perennial if he finds their maintenance uneconomical.

In reviewing the consequences of these features and surveying almost all the published supply response functions that have been estimated for perennial crops, Hossein and Cummings (1976) indicate that:

> "Perennial crops may require treatment on almost every level of quantitative analysis. The basic reason for these departures from the methods employed (for annual crops) is of course the longer time horizon that must be considered in the cultivation of perennials. However . . . this *time* element may affect the representation within the supply model of factors such as output, price and yield expectation, weather and technological inputs each in a different way".

In brief, the dynamics of supply response are complex, being intimately related to both the structure of production and expectation.

They also point out that the basis of almost all of the supply response models surveyed by them originates from the planting decision model given by Nerlove (1958). The Nerlove approach involves three basic relations:

(a) A theory regarding the formulation of "normal" price expectation in the current year in terms of previously observed actual prices.

(b) A relation between expected "normal" prices and other relevant variables to determine desired acreage.

(c) A partial adjustment model for actual versus desired acreage.

Although several modifications have been suggested to improve the above formulations of supply response model, [(Bateman (1963), Ady (1968), French & Mathews (1971) etc.] [1] it is not clear how the farmers' or producers' decision variables are obtained. Nerlove (1979) in a brief survey of the developments in supply response models since his original work has suggested some useful ideas on how the producers approach this problem.

PRODUCER'S DECISION

The producer's aim is to maximize the profit by the optimal utilisation of the factors of production at his disposal.

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1. See Lim (1975) and Hossein & Cummings (1976) for details of these and other similar models.

The case of perennial crops presents a problem which is analogous to the vintage production problem. In this case, the producer has production units in the form of trees planted in different years, which could be considered as different vintages. Let us assume that the capital stock is a unit of land consisting of trees planted in a particular year (i.e. vintage). Hence K(t, v) denotes capital stock at time t of vintage v. We further assume that all the productive vintages produce the same output, i.e. the output is homogenous.

Total output at time t, Q(t) is the sum of the output of different vintages q(t, v) at the time t.

$$\text{i.e. } Q(t) = \sum_{v \epsilon V} q(t, v). \qquad (1)$$

Where V is the set of all profitable bearing acreages[2] , excluding the set of immature vintages $\bar{V}$.

The producer has the following factors of production through which he can adjust his production: (a) the capital stock K(t, v) (trees) and (b) labour L(t, v). Further, the producer can obtain 'normal' output from each vintage or he can intensively cultivate if and when necessary to increase the output. Intensive cultivation has adverse effects on the life of the tree and as such it is not a regular phenomenon.

If (i) K(t, v) is the stock of trees of vintage v, at time t, (ii) L(t, v) is the labour used on capital of vintage v at time t, and (iii) U(t, v) the rate of utilisation [3] of capital of vintage v at time t, the vintage production function could be written as

$$q(t, v) = F[U(t, v), K(t, v), L(t, v)]. \qquad (2)$$

The rate of utilisation of a given vintage could be varied but in order to simplify the decision, we shall assume that the utilisation rate is constant for all the vintages.

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2. Initially we assume that non-profitable acreages are abandoned or replaced, we shall later discuss the marginal land which could be made profitable by intensive cultivation due to the difference between actual and expected prices.

3. Physically utilisation could be defined as one of the following:
   (i) Use of the capital 'normally' as recommended by production techniques
   (ii) Use of the capital intensively well above the 'normal' level
   (iii) Use of the capital sparingly well below the 'normal' level.

i.e. $U(t, v) = U(t)$.

Further the utilisation rate is applicable only to the capital stock. Here we assume that the utilisation rate and the labour used are independent.

Hence the production function may be rewritten as

$$q(t, v) = F[U(t) \cdot K(t, v), L(t, v)].$$

$$F_U > 0, F_K > 0, F_L > 0; F_{KK} < 0, F_{LL} < 0. \quad (4)$$

Where $U(t) = \alpha$ (a fixed constant) for normal utilisation, and

$U(t) > \alpha$ for intensive utilisation.

For a particular rate of utilisation $F_L = \psi$ (a constant) and $F_K > 0$, implying that increase in labour does not necessarily increase output, but increase in the profitable bearing acreage increases the output.

Furthermore, if the gestation period of a tea bush is k, then

$F = 0$ when $t-v < k$, and

$F > 0$ when $t-v \geqslant k$, or $v \leqslant t-k$

Capital Stock Accumulation: Since the plants have a long life span the producer has to decide each period.

(a) how many trees to be newly planted or replanted, and

(b) how many trees to be abandoned or removed.

Although the two decisions seem to be interdependent it is not necessarily so. New plantings could be on new land and it may not be necessary to remove any old trees. On the other hand, all the trees that are removed may not be replaced.

Hence the capital stock of vintage v at time t could be written as

$$K(t, v) = I(v, v) - \sum_{i > t-v} [R(t-i, v)] \quad (5)$$

I(v, v) is the newly planted and replanted trees of vintage v planted at time v and R(t−i, v) is the trees of vintage v removed or abandoned from i = v . . . t.

It is noted that K(t, t) = I(t, t).

Prices of Output and Input: We assume that the output price of the commodity and the input prices are exogenous to the producer and that the producer has some expectation of how these prices will be in the future. Let the expected future prices of

(i) the output be given by p (t)

(ii) the labour wage by w(t) and

(iii) the user cost of capital (maintaining trees) per unit of land be g(t).[4]

The output and input prices have been adjusted for taxes and subsidies paid and received by the producer.

Revenue & Cost: The revenue received by the producer from each vintage v, at time t is

$$h(t, v) = q(t, v) \cdot p(t). \tag{6}$$

Hence the total revenue at time t from all 'profitable' vintages.

$$H(t) = \sum_{v \epsilon V} h(t, v) = p(t) \sum_{v \epsilon V} q(t, v) = p(t) \cdot Q(t). \tag{7}$$

The cost of production in using trees of profitable vintage v, at the time t is

$$c(t, v) = K(t, v) \cdot g(t) + L(t, v) \cdot w(t). \tag{8}$$

Hence the total production cost of all profitable vintages at time t is

$$C(t) = \sum_{v \epsilon V} c(t, v). \tag{9}$$

Adjustment Costs: Adjustment costs arise when the firm is undertaking new investment or depreciating its capital stock faster than would naturally occur. In the case of a perennial crop, due to long gestation period there will be a series of non-bearing acreages (vintages). Further, in order to plant the new trees some of the existing "non-profitable" vintages have to be removed. Although they are termed non-profitable they still produce and as such provide some revenue to the producer. In removing these vintages the producer loses that revenue.

Let

$$\ell (t) = I(t, t) + \sum_{v \epsilon V \cup \bar{V}} R(t, v). \tag{10}$$

4. The user cost of capital could be defined along the lines indicated by Jorgenson.

ℓ (t) denotes the area which is newly planted plus the total area which is cleared at time t.

Assuming that the costs of adjustment function is

$$CA(t) = \psi[\ell(t)]$$

Where $\psi(0) = 0$ $\psi'(0) > 0$ $\psi''(0) > 0$.

i.e. it is a convex cost of adjustment function. Convexity is assumed for mathematical convenience. The adjustment cost implicitly includes the cost of new investment.

Hence the profit earned by the producer at time t from all vintages is

$$\pi(t) = H(t) - C(t) - CA(t).$$

$$= [\, p(t). \sum_{v \epsilon V} q(t, v)\,] - [\, g(t) \sum_{v \epsilon V} K(t, v) + w(t) \sum_{v \epsilon V} L(t, v)] - CA(t) \qquad (12)$$

Assuming that the life span of the trees is infinite, the discounted profit over the life span of the trees is:

$$\Pi(t) = \sum_{t=0}^{\infty} \frac{\pi(t)}{(1+r)^t} \qquad (13)$$

Where r is the rate of discount.

The Producers Problem: The producer, given the output and input prices, wishes to maximize the discounted profit subject to certain constraints.

$$\text{Maximise } \Pi(t)$$
$$[I(t, v), R(t-i, v), U(t), v_t^*]\ .$$

subject to

(1) $q(t, v) = F[U(t), K(t, v), L(t, v)]$

(a) $F_K' > 0, F_L' = \psi$.

(b) $F = 0, t - v < k; F > 0, t - v \geqslant k;$

(c) $U(t) > \alpha$.

(2) $K(t, v) = I(v, v) - \sum_{i > t-v} R(t-i, v).$

(a) $I(v, v) > 0$.

(b) $R[t-i, v] > 0$.

(3) v_t^* is the oldest vintage that is possible to be used "profitably". i.e. oldest vintage on which quasi rents are zero.

(4) given $p(t), w(t), g(t)$ for $t > 0$.

The optimisation problem involves sequences of decision variables. It is not easy to prove that the optimal solution even exists. We have already assumed that the adjustment cost function is convex. Similarly, further assumptions such as that the production function exhibits constant return to scale may be necessary for the existence of a solution.

Since we are interested in the insights we might obtain to guide the empirical work, we shall not delve too deeply into the existence of the solution. Suppose a solution exists. Further, suppose that if v_t^* is the optimal vintage at time t, then all capital goods older than v_t^* cannot be profitably employed and all capital goods which are newer within the set V will be profitably employed.

The optimal values of the decision variables that will be determined from the various marginal conditions and is likely to be of the following type

(i) $I^*(t, t) = f_1[[p^e(t), g^e(t), w^e(t)]\ [I(t, t'), t' < t]\ [R(t, t'), t' < t]]$

$= f_1[\cdot]$

This implies that the optimal investment decision at time t depends on the future expected price of inputs and output, the series of investments in previous periods and the series of removals in the previous periods.

(ii) $L^*(t, v) = f_2[\cdot] \qquad v \in V.$

The optimal or planned labour is also obtained from the same variables. We can assume that the use of labour is proportional to the capital stock. As such, once the planned or optimal capital stock is determined the optimal labour is also simultaneously determined.

$L^*(t, v) = \phi \cdot K^*(t, v)$. $\qquad \phi$ = constant

(iii) $U^*(t, v) = f_3[\cdot] \qquad v \in V$

There is also a lower bond on $U^*(t, v)$ which is α, which indicates normal utilization. Further, it is possible that over a given period of time, the particular vintage of capital stock could be intensively used. Hence $U^*(t, v)$ could be greater than α. Physical and other constraints prevent intensive utilization throughout the life span of the tree. Furthermore, there is also a limit to the intensive cultivation. As such there is likely to be an upper limit to $U^*(t, v)$.

$$\text{(iv)} \quad R^*(t, v) = f_4 [\cdot] \qquad \begin{matrix} v \in \bar{V} \\ v \leqslant v_t^* \end{matrix}$$

The planned removals again depend on the past decision to invest (plant) as well as the past patterns of removals. Although we assumed earlier that all non-profitably bearing or non bearing acreages within the set V, are removed or abandoned, we shall show later that this is not strictly correct; hence the condition $v \leqslant v_t^*$

$$\text{(v)} \quad q^*(t, v) = F[U^*(t, v) \cdot K^*(t, v), L^*(t, v)] \qquad v \geqslant v_t^* .$$

Where $F = 0$ when $t - v < k$; and $F > 0$ when $t - v > k$,

k is the gestation period.

Replacing $L^*(t, v)$ from (ii) the above function could be written as

$$q^*(t, v) = F_a [U^*(t, v) \cdot K^*(t, v)] \cdot v \geqslant v_t^*$$

Where $F_a = 0$ when $t - v < k$; and $F_a > 0$ when $t - v > k$,

When the planned capital stock is increased then after the gestation period the output will increase i.e. $F_{aK} > 0$ for $t - v > k$.

$$\text{(vi)} \quad Q^*(t) = \sum_{v \in V} q^*(t, v) \qquad v \geqslant v_t^*$$

By obtaining the planned or optimal capital stock, utilization level, and removals we can get the planned output from each vintage summing all profitably operated vintages we get the total output. We note that the planned output $Q^*(t)$ depends upon *inter alia* the age structure (different vintages) of the capital stock.

The solution to the optimisation problem as explained above depends on the value of v_t^*. Where v_t^* is given as the vintage whose quasi rents are zero. Suppose that the optimal solution leads to a sequence $[v_t^*, t > \tau]$ and consider any two neighbourhood value say v_T^* and $v_T^* + \tau$. Suppose the real price in the future are expected to be higher so that there will be some capital goods that can be profitably employed at $T + \tau$ but not at T. If the gestation period k is less than

τ clearly it may not be necessary to maintain the capital stock for τ periods. But if k is greater than τ, then the firm may maintain this capital stock for future use even if it cannot be profitably employed now. We may call such capital "marginal".

We also note that the possibility of marginal capital stock arises even in a model with complete certainty about future prices. Generally speaking, if some fixed resource does not have a positive shadow price in every period, it may be held as "marginal" capital stock.

We could conjecture that in the presence of uncertainty about future prices, more land may be held as "marginal" than would otherwise be the case.

Another reason for holding "marginal" capital may have to do with adjustment costs. In general convex adjustment costs imply slow adjustment, particularly, if there is a long gestation period. This implies that it is not optimal to remove (destroy) capital goods as soon as they are not required and not likely to be required in the future.

Divergence between Plans and Actuality: In the above section, we have considered the optimal or planned levels of investment, removals and utilization. But the planned levels are obtained under the assumption that all the conditions for production remain the same. For example the weather conditions, the output of a tree crop is affected by the weather, but given the vagaries of the weather it is not possible to establish a "planned" or an optimal weather. Similarly technological changes cannot be incorporated into a planned level of output. Technological innovations in the process of production may increase production. On the other hand, there may be factors which inhibit the process of production.

Another important factor which causes a divergence from the planned level of output is the error of anticipation. Since investment, removals, utilization etc. are functions of the expected prices of input and output, errors in the anticipation of these prices necessitates an adjustment to the planned levels.

As stated earlier, the proof of the existence of a solution to the optimisation problem is itself a complicated issue and even if it exists, solving the problem has further complications. The form of the solution indicated above gives us a guide to the decision variables and processes affecting the producers' decisions.

The important variables are the total number of units and the age structure of the capital stock (or the vintages) which can be profitably used. This involves the gestation period, k, as well as v_t^* (the oldest vintage whose quasi rents are zero) of the capital stock. Expected prices of output and input also play an important role.

However, it must be noted that in a steady state the vintage differences disappear and the focus is on the total amount of capital stock rather than the composition of the capital stock. In the case of a perennial crop it will be the total bearing acreage rather than age structure of the acreage.

The producer has to make a sequence of decisions at each point in time, due to the irreversible nature of his investment decision. He tends to correct his plans by making an adjustment to his planned levels based on the difference between the actual levels reached from previously planned levels. Further, he has to distinguish between the planned output from the factors within his control and the output he finally obtains by the influence of factors which are not under his control. This we shall later distinguish as "normal" output and "actual" output respectively.

The original Nerlovian model has taken into consideration some of the decision variables discussed above. In this article, we shall begin with the same variables and generalise the model to incorporate the factors discussed earlier. We show that the supply response models of perennial crops so far estimated have been inadequately estimated and that with the available data they could be further improved to include the salient features of a perennial crop.

THE MODEL

The Nerlovian model in discrete time was:

$$(a)\quad {}_tA^*_{t+k} = f({}_tp^e_{t+k}) \tag{14}$$

where ${}_tA^*_{t+k}$ is the acreage desired k periods ahead and ${}_tp^e_{t+k}$ is the expected rate of return or expected future profitability in period t+k both made at the time t.

(b) The adjustment of desired and actual acreage

$$A_t - A_{t-1} = \lambda(A_t^* - A_{t-1}) \tag{15}$$

$$0 < \lambda < 1 .$$

These two equations represent the estimation of planned levels of capital stock, the acreage variable representing the sum of all vintages as distinct from the different vintages specified earlier.

(c) The expectation variable is considered as a function of past prices (or relative prices) and in most studies it is assumed that expectation adjusts adaptively

$$p_t^e - p_{t-1}^e = \gamma (p_{t-1} - p_{t-1}^e) \qquad (16)$$

$$0 < \gamma < 1 .$$

The planting decision of a perennial crop is analogous to the decision of an entrepreneur to invest in a piece of capital equipment since both result in a stream of output over more than a year. Since most perennials take several years before any output is obtained, clearly the planning horizon over which the investment decision is taken, must span many years.

In this context, the simple adjustment of desired and actual acreage considered in equation (15) is an over simplified function. The uncertainty of the lag structure of the process of adjustment as found in the investment literature is relevant here too. We do not propose to dwell on investment theory but assume that a Jorgensian type rational lag model (Jorgenson, 1966) should suffice to generalise the adjustment structure.

Hence we propose that equation (15) could be generalised as

$$A_t - A_{t-1} = \frac{\omega(L)}{\mu(L)} \; {}_tA^*_{t+k} \qquad (17)$$

i.e. $\mu(L)\, A_t - \mu(L) A_{t-1} = \omega(L) \; {}_tA^*_{t+k}$

$\mu(L)A_t$ can be written as $A_t + \mu(L)A_{t-1}$

where $\mu'(L) = \Sigma \mu_i L^i$ and $\mu_0 = 1$.

which gives

$$A_t + \mu''(L)A_{t-1} = \omega(L) \; {}_tA^*_{t+k}$$

where $\mu''(L) = \mu'(L) - \mu(L)$

Let $\mu''(L) = \lambda - 1$ and $\omega(L) = \lambda$

these specific values yield the form

$$A_t - A_{t-1} = \lambda (A^*_{t+k} - A_{t-1}) \cdot \quad (18)$$

Hence we find that equation (16) is a very restricted specification of the adjustment process. Combining (14) and (17) we get

$$A_t - A_{t-1} = \frac{\omega(L)}{\mu(L)} \quad f({}_tp^e_{t+k}) \quad (19)$$

$$\mu(L)\,[A_t - A_{t-1}] = \omega(L)\, f({}_tp^e_{t+k})$$

$$\mu(L)A_t = \omega(L)\, f({}_tp^e_{t+k}) + \mu(L)A_{t-1}$$

$$A_t + \mu'(L)A_{t-1} = \omega(L)\, f({}_tp^e_{t+k}) + \mu(L)A_{t-1}$$

$$A_t = \omega(L)\, f({}_tp^e_{t+k}) + \mu''(L)\, A_{t-1}$$

$$\therefore A_{t-k} = \omega(L)\, f({}_{t-k}p^e_t) + \mu''(L)A_{t-k-1} \cdot \quad (20)$$

The output of perennial crop is considered in two parts, (a) "Normal" output[5] and (b) Actual output. This distinction has been implicitly or explicitly recognised in the literature of supply response models of perennial crops [Wickens and Greenfield (1973), Labys (1975), Bateman (1965)].

Error Correction Model

The generalisation of the Nerlovian partial adjustment model (PAM) as described above satisfies the error correction models (ECM) proposed by Davidson et al (1978), Salmon (1982). They suggest that PAM is a special case of ECM.

Currie (1981) has pointed out that when target (desired) variables exhibit growth, the "equilibrium solution" generally depends upon such growth and that PAM does not take into account the effects of growth in the target variables.

Pagan (1984) considers a standard PAM derived from minimizing a quadratic function penalizing deviation of actual from target value as well as rapid adjustment, with one essential difference he assumes that adjustment costs operate only if growth in the control variable deviates from a value α_t.

5 "Normal output" could be defined as output obtained when usual level of inputs are used with the current technology and with exact climatic conditions i.e. the "normal" utilization levels.

Minimizing the quadratic function

$$\text{i.e.} \quad \min_{A_t} \; a(A_t - A_t^*)^2 + b(\Delta A_t^* - \alpha_t)^2 \qquad (21)$$

and rearranging the variables, he gets

$$A_t - A_{t-1} - \alpha_t = \gamma(A_t^* - A_{t-1} - \alpha_t) \qquad (22)$$

where $\gamma = \frac{a}{a+b}$

If $\alpha_t = 0$ equation 22 reduces to a PAM. The role of α_t is to detrend the control variable, A_t and target variables A_t^*, so that PAM is applied to a detrend data. Three types of corrections to PAM are suggested by Pagan. They are:

(i) Intercept Correction:

Here $\alpha_t = g$ and this reduces the equation 22 to the traditional PAM with an intercept $(1 - \gamma)\, g$

(ii) Dynamic Order Extension:

To get trend neutrality α_t is set such that $\alpha_t = \Delta A_{t-1}$ Then equation 22 could be written as:

$$\Delta A_t - \Delta A_{t-1} = \gamma\,(A_t^* - A_{t-1} - \Delta A_{t-1}) \qquad (23)$$

which when expanded gives:

$$A_t - 2A_{t-1} + A_{t-2} = \gamma(A_t^* - 2A_{t-1} + A_{t-2}) \qquad (24)$$

$$A_t = \gamma A_t^* + 2(1 - \gamma) A_{t-1} - (1-\gamma) A_{t-2} \qquad (25)$$

Generalising equation 25 it could be written as:

$$A_t = \gamma A_t^* + \phi_1 (L) A_{t-1} \qquad (26)$$

where ϕ_1 (L) is a polynomial lag function.

(iii) Target Correction

Rather than setting α_t to previous growth in A_t , by setting it to growth in A_t^* and ΔA_{t-1}, target correction could be introduced.

$$\Delta A_t = (1-\gamma)\,\Delta A^*_{t-1} + \gamma(A^*_t - A_{t-1}) \quad (27)$$

$$\therefore\ A_t = \gamma A^*_t + (1-\gamma) A^*_{t-1} - (1-\gamma) A^*_{t-2} - \gamma A_{t-1} \quad (28)$$

Generalising the equation 28 to include more lags, it could be written as:

$$A_t = \phi_2 (L) A^*_t - \gamma A_{t-1} \quad (29)$$

Combining both dynamic order extension and target correction, the general ECM suggested by Kloek (1984) is obtained.

$$A_t = \phi_2 (L) A^*_{t+k} + \phi_1 (L) A_{t-1} \quad (30)$$

Since there is a gestation period in the case of perennial crops, the target variable becomes A^*_{t+k} . Hence,

$$A_t = \phi_2 (L) A^*_{t+k} + \phi_1 (L) A_{t-1} \quad (31)$$

Equation 31 is identical to the equation 19. Hence the generalising of the Nerlovian model by using rational polynomial lag, incorporates the Error Correction Model.

Normal Output

The "normal" output of a tree crop would be defined as

$$q^*_t = \sum_{t=k}^{\tau} a_{it}\ y_{it} \quad (32)$$

where a_{it} is the acreage of age i at time t; as distinct from A_t which is the acreage at time t, $A_t = \sum_i a_{it} \cdot y_{it}$ is the yield per hectare of trees of age i.

Let us assume that the "normal" yield per hectare of the crop is defined by a function g (y). Since it is the "normal" yield function it is influenced only by the age structure of the trees. The deviations from the "normal" yield are due to factors such as (i) change in weather conditions (ii) technological factors and (iii) some other economic factors. These are the factors which influence the actual yield and are considered separately.

Actual Output

The actual output is related to the "normal" output, climatic factors, technological factors and other economic factors. The last three factors which cause actual output to deviate from "normal" output, could be distinguished as explained below, from those which are considered as "normal" inputs.

Climatic Factors

In considering the "normal" yield, we assume that the weather input is "normal", i.e. there is exact climatic condition. But in reality, it is impossible to have the required weather every year and everywhere even within one country or region. The influence of climatic factors, except in cases of extreme drought or unusually heavy rains, on the production of any perennial crop is very difficult to assess. Hence, it is difficult to assign a particular value for a weather variable. Attempts to introduce rainfall figures have not been successful. (Hossein and Cummings, 1976). Attempts to correlate a combination of weather variables such as humidity, rainfall etc. to represent the weather and the output of perennial crops have also been unsuccessful. Each climatic factor has different effects in different regions. As such it is preferable to consider it as a random stochastic influence on the output (French and Mathews, 1971).

q_t^* is the "normal" output given "normal" climatic conditions.

i.e. $q_t^* = q\,[\,\omega(L)_{t-k} p_t^e,\ \mu''(L)\, A_{t-k-1}$ /normal climate & normal utilisation level]

Then actual output when the weather condition deviates from "normal" climate is given by

$$q_t^{*W} = q_t^* + e_t \qquad (33)$$

Technological Factors

Over the years, growers have made technological advances which have increased the output of crops within the same acreage. The process of manuring, weed control, pruning, shade management; soil and moisture conservation and the control of pests and diseases have technically advanced giving higher yields.

Since so many different technological factors affect the production and since they are not uniformly applicable in all production units in the same region nor in the same form in the various countries, it is

again difficult to assign a particular value for each year to represent all these factors. A time trend (T) or a suitable dummy variable (D) should capture the overall secular shifts due to technological changes. [French and Mathews, 1971].

$$q_t^{*WT} = q_t^* + \alpha_1 T + e_t \qquad (34)$$

Other Economic Factors

The planned level of output is based on the price expected few years ahead (the actual time depends on the gestation period). If the producer has perfect foresight the planned levels need no adjustment in the short-run. But there are several factors which cloud the sight of the producer and with the uncertainty involved, there is a margin of adjustment in the short-run.

The perceptible time lag separating newly planted perennial crops from their first harvest indicates that supply of output from most perennial crops tend to be inelastic in the short run. With coarser plucking or harvesting i.e., plucking more than the usual level (in the case of tea, it means plucking three leaves and a bud rather than the usual two leaves and a bud), there appears to be some intra-year elasticity of response in the upward direction. [Sarkar, 1972].

The yield from trees decline after a certain age, then the farmer has to decide how long further could he maintain these trees. In making such a decision the relative price of the output with respect to the cost of maintaining these trees plays an important role. While farmers in general would like to replant or abandon declining yield trees, there are at the margin some trees which when intensively cultivated may produce if not profitable but at least break even production.

As explained in the section on "producers' decision," there are several reasons why marginal land is maintained by a producer. The operation of marginal land basically depends on the profitability of using that land which he would have not anticipated few periods earlier.

This is only a short-term effect where growers respond to the "surprise" or unanticipated higher price or lower prices. Hence the difference between the price at time t, and the price expected at time t, k periods earlier, is introduced as a variable to capture the effects of coarser plucking and the use of marginal land.

Other factors which are exogenous events, that could have a long term effect on the output are institutional factors. These factors originate from uncertainty in government policy, for example, in the nationalisation of multinational companies engaged in the production of primary commodities, land reform regulations, and other events such as civil war. These have caused stagnation; in certain cases, deterioration in the production of these commodities. These factors have in general nullified the effect of technological developments.

"Actual" output can now be formulated by combining the effect of all these factors with the "normal" output.

$$q_t = q_t^* + \gamma_1 (p_t - {}_{t-k}p_t^e) + \gamma_2 T + \epsilon_t \cdot \qquad (35)$$

Hence the general supply function of a perennial crop is obtained by combining (32) and (35).

SUPPLY FUNCTION FOR TEA

In the previous section we developed a general model for the supply response of perennial crops. We shall now consider the specific case of tea.

'Normal' yield functions of a tea tree

In our formulation of the producers decision, we specified a variable termed the utilisation level. In tree crops the utilisation level is reflected by the yield per acreage (or capital stock). We assumed that (a) the normal utilisation level is a fixed constant and (b) the utilisation level of the different vintages are the same. We shall consider the relevance of these assumptions with respect to a tea tree.

Given that the tea trees in a certain acreage are of the same variety, the 'normal' yield function of those tea trees is only influenced by the age structure of the trees. Hence at any time t the 'normal' yield function of the tea tree is given by

$$g(y) = y_{t,i} = \bar{y}_i \quad i = 0, 1 \ldots \tau. \qquad (36)$$

where $\bar{y}_i$ is the average yield per hectare of a stock of trees of age i and τ the age of the oldest bearing acreage under cultivation.

If the age structure of the trees is known and data could be obtained of the output in each age group, then estimating g (y) and consequently the normal output is direct. Since the data on age structure of perennial crops such as tea, cultivated in large plantations, are not readily available, it is necessary to make certain assumptions about the yield structure.

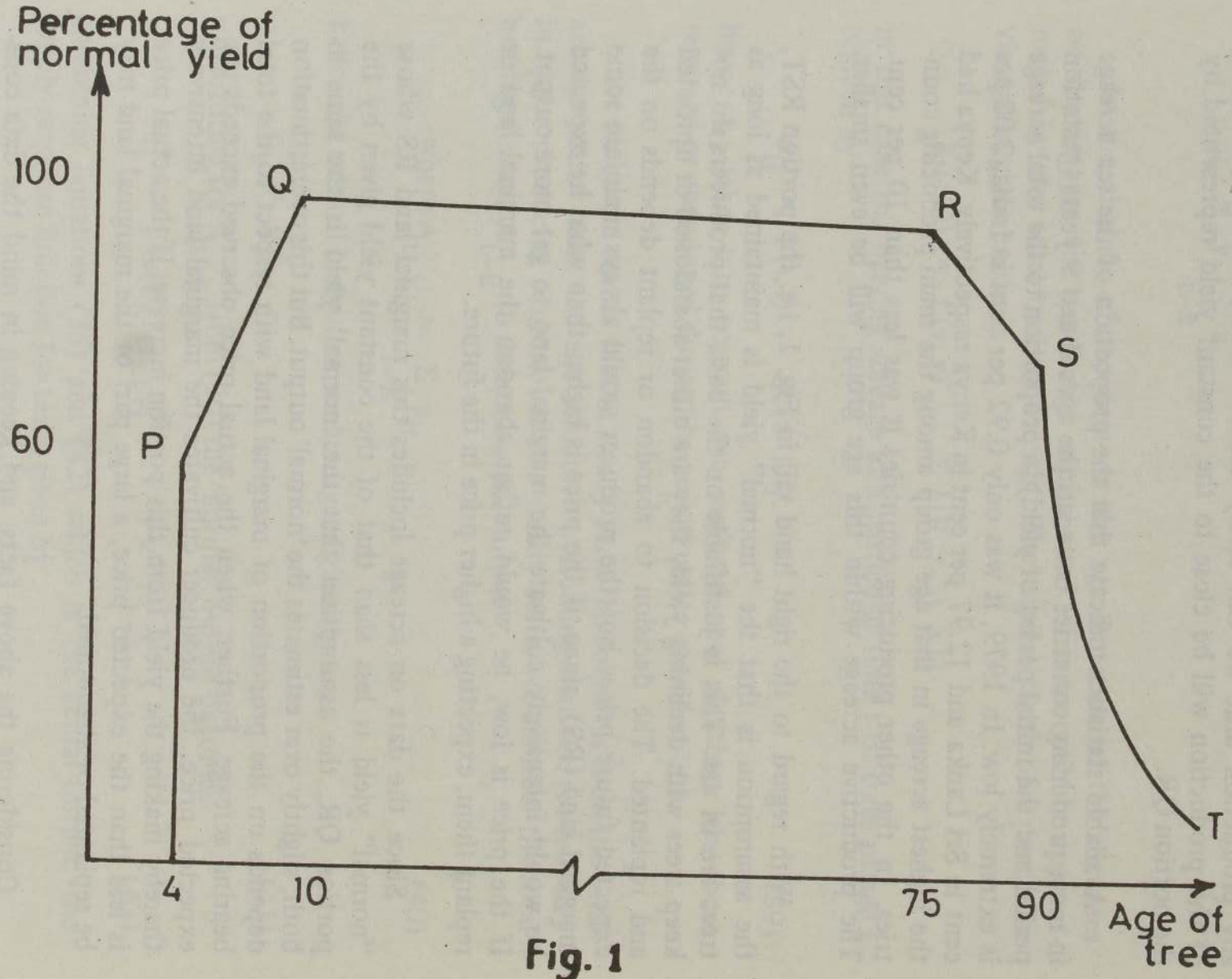

Fig. 1

The yield pattern as shown in Fig. 1 is divided into four segments explained earlier as a typical feature of perennial crops. During the long period in the portion QR (for tea tree it is about seventy to eighty years) the "normal" yield is expected to be constant. Hence, unless the age structure of the trees in the portion PQ & RST dominate in any production unit we can safely assume that the "normal" yield of the production will be close to the constant yield represented by the portion QR.

Available statistics indicate that the proportion of the tea acreage in most producing countries between the ages 0 and 9 years (gestation period and the initial period of yield) in proportion to the total acreage is extremely low. In 1979, it was only 0.92 per cent in India, 2.00 per cent in Sri Lanka and 12.97 per cent in Kenya respectively. Kenya had the highest acreage in that age group among the main producing countries. In the other producing countries it was less than 10 per cent. The productive acreage within this age group will be even smaller.

With regard to the right hand tail in Fig. 1, i.e. the portion RST, the assumption is that the "normal" yield is maintained as long as trees are in use. This is justifiable on the basis that producers do not keep trees with declining yield, they are either abandoned or uprooted and replanted. The decision to abandon or replant depends on the expected future prices but the producer would always maintain some marginal land (RS), since, if the price is higher than what he expected he would intensively cultivate the marginal land to get more output. If the price is low, he would rather abandon the marginal land or replant them, expecting a higher price in the future.

Since the data on acreage includes this marginal land RS whose "normal" yield is less than that of the constant yield given by the portion QR, the assumption that the 'normal' yield is the same in both, slightly over estimates the 'normal' output. But this overestimation depends on the proportion of marginal land with respect to the total bearing acreage. Further, when the actual price observed exceeds the expected price, the producer cultivates the marginal land intensively thereby making the yield from this portion increase. If the actual price is less than the expected price, a large part of the marginal land may be replanted or abandoned.

Considering the above facts, and keeping in mind the data constraints, it is quite reasonable to approximate the yield per hectare of large, long existing plantation crops such as tea to a constant which differs for various producing countries.

$$g(y) = y_{t,i} = \bar{y}_i = \bar{y} \text{ for all } i \tag{37}$$

where $\bar{y}$ is given in kgs/hectare.

Hence the 'normal' output of an hectare of tea is given by

$$q_t^* = \bar{y} \sum_{t-k}^{\tau} a_{it} \tag{38}$$

In the absence of the data on the age structure of the tea trees or the vintages, the productive capital stock of trees could be approximated by the total bearing acreage. The capital stock of a particular vintage as given earlier is

$$K(t, v) = I(v, v) - \Sigma [[R(t-i), v]]$$

in this case the bearing acreage at a particular time t of trees of age i is given by

$$a_{ti} = I(i, i) - R(t-i, i). \tag{39}$$

hence a_{ti} takes into account the matured new plantings less those removed or abandoned during the period under consideration.

As we stated earlier that in steady state the emphasis is on the total acreage rather than the age structure. Assuming that the tea industry in major producing countries is in a steady state, we consider the total bearing acreage A_{t-k} to determine the output.

$$\text{where } A_{t-k} \approx \sum_{t-k}^{\tau} a_{it} \tag{40}$$

hence the normal output of tea acreage is given by

$$q_t^* = \bar{y} A_{t-k} \tag{41}$$

substituting for A_{t-k} from (20) the 'normal' output becomes

$$q_t^* = \bar{y}\, \omega(L) f({}_{t-k}p_t^e) + \bar{y}\, \mu'' A_{t-k-1} \cdot \tag{42}$$

combining equations (35) and (42) which is the actual output, the supply response function for tea is given by

$$q_t^s = \bar{y}\, \omega(L) f({}_{t-k}p_t^e) + \bar{y}\, \mu''(L) A_{t-k-1} + \gamma_1 (p_t - {}_{t-k}p_t^e) + \gamma_2 T + \epsilon_t \tag{43}$$

Price Expectations

A number of variables could be hypothesised as affecting growers' expectation about the future profitability of their crop-growers' gross revenue, gross return per unit of output (kg of tea), net return per unit of output relative to either cost or alternate crop. As stated earlier since the future profit or return is not observable, it has been hypothesised that expected future price and hence profitability is a function of recent past prices.

In studies of perennial crops the expectation of prices has been formed in different ways. The simplest is the naive expectation where the past years price is considered

$$\text{i.e.} \quad {}_{t+k}p^{e}_{t} = p_{t-1} \tag{44}$$

A slightly more general version of this is to consider the average price of the past few years (French and Mathews, 1971).

$${}_{t+k}p^{e}_{t} = 1/m \sum_{i=0}^{m} p_{t-i} \tag{45}$$

The Nerlovian method of adaptive expectation, although more suitable for annual crops, has also been applied for perennial crops.

$$p^{e}_{t} - p^{e}_{t-1} = \gamma(p_t - p^{e}_{t-1}) \quad 0 < \gamma < 1. \tag{46}$$

This can be shown to be a combination of infinitely lagged past prices.

A third approach in estimating the expected price has been to regress the present price on a fixed length of lagged prices and jointly estimate the expected price function and the supply function. [Baritelle and Price, 1974].

$${}_{t-k}\hat{p}^{e}_{t} = \alpha_0 + \alpha_1 p_{t-k-1} + \alpha_2 p_{t-k-2} \cdots \alpha_m p_{t-k-m}.$$

substitute ${}_{t-k}\hat{p}^{e}_{t}$ in the supply function for ${}_{t-k}p^{e}_{t}$.

Considering the case of tea, the producers are price takers. Even countries such as India and Sri Lanka which individually supply more than 25 per cent of total world export of tea are in no position to control the price of tea in the world market. The concentration of buyers in the world tea market makes it a monopsonistic market. As such, the producers are only price takers.

The revenue obtained by individual producers fluctuates according to the exchange rate variation and government taxes including export duty, cess and other levies. Furthermore in the absence of futures trading in the tea commodity market, the producers have very little information on how prices will be in four to eight years in the future.

We assume that the producers look at the average price of past three years in forming their price expectations to make future plans for planting, replanting or abandoning land available for tea cultivation. The justification for assuming such a mechanistic formation of price expectation is that, there is uncertainty in so many factors which affect their income. They are not in a position to determine the price for their produce. The price is exogenous to them but they are to an extent able to respond in the short term to unanticipated price changes by coarser plucking and use of marginal land.

In our analysis we shall use this information and formulate the price expectation as follows:

$$_{t-k}p^{e}_{t} = 1/3 \sum_{i=0}^{2} p_{t-k-i} \qquad (47)$$

The acceptance of such a mechanistic formulation of price expectation depends on the errors of prediction using that formula. The rational expectation hypothesis states that the errors should be random. This is one of the tests which would enable us to justify the use of the above formula.

Gestation Period

The consideration of proper gestation period in the supply function of any perennial crop is very critical. Due to technological developments the gestation periods of many perennial crops have been considerably reduced (Sarkar, 1972). In tea, the different varieties of seedlings have different gestation period. The climatic conditions, the elevation at which the crop is grown etc. are among other factors which alter the gestation period.

The above facts indicate that not only gestation periods differ among different tea producing countries but they differ between different producing units within one country. As such, the gestation period in tea varies between 3 years and 8 years. This means that some tea trees begin to yield from the 4th year of planting while some others yield only in the 9th year of planting. Since there can be no

definite fixed gestation period it is necessary to consider the range between 3 and 8 years in estimating supply function of tea. The consideration of fixed gestation periods in supply models of tea for different producing countries as estimated by Adams and Behrman (1976), Chung and Ukpong (1981) and Murti (1966), therefore does not present an adequate picture.

EMPIRICAL ESTIMATION

The inadequacy of the number of observations limits the length of the lags that could be introduced into the model both in respect of the expected price as well as the bearing acreage variables.

The data available consist of annual data for 1948–1981 (34 observations).[6] In order to have at least 20–24 observations for estimation we had to impose certain limits to the polynomial lag functions $\omega(L)$ and $\mu''(L)$ which were limited to 2nd degree.

We considered the following alternative lag functions

$$\omega(L) = \omega_0 \qquad \mu''(L) = \mu''_0$$

$$\omega(L) = \omega_0 + \omega_1 L \qquad \mu''(L) = \mu''_0 + \mu''_1 L$$

$$\omega(L) = \omega_0 + \omega_1 L + \omega_2 L^2 \qquad \mu''(L) = \mu''_0 + \mu''_1 L + \mu''_2 L^2$$

The combination of the two longest lag structure gives the following model:–

$$q_t = \bar{y}\,\omega(L)\, f({}_{t-k}p^e_t) + \bar{y}\,\mu''(L)\, A_{t-k-1} + \gamma_1 (p_t - {}_{t-k}p^e_t) + \gamma_2 T + \epsilon_t \cdot \qquad (43)$$

$$q_t = \bar{y}\,[\omega_0 + \omega_1 L + \omega_2 L^2]\, f({}_{t-k}p^e_t) + \bar{y}\,[\mu''_0 + \mu''_1 L + \mu''_2 L^2]\, A_{t-k-1} + \gamma_1 (p_t - {}_{t-k}p^e_t) + \gamma_2 T + \epsilon_t \cdot \qquad (48)$$

where $f({}_{t-k}p^e_t) = 1/3 \sum_{i=0}^{2} p_{t-k-i}$ and simplifying further the above equation can be written as

$$q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_2\, {}_{t-k-1}p^e_{t-1} + a_3\, {}_{t-k-2}p^e_{t-2} + a_4 A_{t-k-1} + a_5 A_{t-k-2} + a_6 A_{t-k-3} + a_7 (p_t - {}_{t-k}p^e_t) + a_8 T + \epsilon_t \qquad (49)$$

6. See Appendix B for sources of data.

The expected signs on each of the coefficients a_0 to a_8 are difficult to determine since they are a combination of different parameters originating from the derivation of equation (20).

The only *a priori* restrictions that could be placed on the coefficients are as follows:

(i) The producer will not invest or plant more trees unless he expects to obtain profit from the sale of the output after the gestation period. If the price expectation is higher more planting would take place; hence more output at the end of the gestation period. This suggests that there is a positive correlation between price expected and the output at the end of the gestation period. The coefficient on the price expectation at the time of planting must be positive.

(ii) Given the assumption of constant yield in all bearing acreages, the increase in bearing acreages will increase the output. Hence the bearing acreage will be positively correlated to the output. The coefficient on the bearing acreage at the time of cultivation should be positive.

(iii) If actual price realised is higher than what was expected, producers tend to (a) coarser plucking and (b) intensive cultivation of marginal land which will tend to increase the output. This means that when the unanticipated price change is positive, there is an increase in output. If the actual price is lower than that expected, the producer will pluck at the 'normal' level due to the irreversibility of the investment. But the marginal land will not be cultivated and there will be a decrease in output. Hence the unanticipated price change variable has a positive correlation to the output.

In the list of models given below we expect the following signs on these coefficients.

$$a_1 > 0, \quad a_4 > 0 \text{ and } a_7 > 0.$$

The models[7] estimated were:

(i) $q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_2\, {}_{t-k-1}p^e_{t-1} + a_3\, {}_{t-k-2}p^e_{t-2} + a_4 A_{t-k-1}$
$+ a_5 A_{t-k-2} + a_6 A_{t-k-3} + a_7 (p_t - {}_{t-k}p^e_t) + a_8 T + \epsilon_t$

(ii) $q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_2\, {}_{t-k-1}p^e_{t-1} + a_4 A_{t-k-1} + a_5 A_{t-k-2}$
$+ a_6 A_{t-k-3} + a_7 (p_t - {}_{t-k}p^e_t) + a_8 T + \epsilon_t$

(iii) $q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_4 A_{t-k-1} + a_5 A_{t-k-2} + a_6 A_{t-k-3}$
$+ a_7 (p_t - {}_{t-k}p^e_t) + a_8 T + \epsilon_t$

(iv) $q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_4 A_{t-k-1} + a_5 A_{t-k-2} + a_7 (p_t - {}_{t-k}p^e_t)$
$+ a_8 T + \epsilon_t$

(v) $q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_4 A_{t-k-1} + a_7 (p_t - {}_{t-k}p^e_t) + a_8 T + \epsilon_t$

(vi) $q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_2\, {}_{t-k-1}p^e_{t-1} + a_4 A_{t-k-1} + a_7 (p_t - {}_{t-k}p^e_t)$
$+ a_8 T + \epsilon_t$.

(vii) $q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_2\, {}_{t-k-1}p^e_{t-1} + a_4 A_{t-k-1} + a_5 A_{t-k-2}$
$+ a_7 (p_t - {}_{t-k}p^e_t) + a_8 T + \epsilon_t$

(viii) $q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_2\, {}_{t-k-1}p^e_{t-1} + a_3\, {}_{t-k-2}p^e_{t-2} + a_4 A_{t-k-1}$
$+ a_5 A_{t-k-2} + a_7 (p_t - {}_{t-k}p^e_t) + a_8 T + \epsilon_t$

(ix) $q_t = a_0 + a_1\, {}_{t-k}p^e_t + a_2\, {}_{t-k-1}p^e_{t-1} + a_3\, {}_{t-k-2}p^e_{t-2} + a_4 A_{t-k-1}$
$+ a_7 (p_t - {}_{t-k}p^e_t) + a_8 T + \epsilon_t$

Each of the above models were estimated for gestation periods of 4 to 9 years, i.e. k was given values from 3 to 8.

We considered the major tea exporting countries, Sri Lanka, India, Kenya, Tanzania, Malawi, Mozambique, Indonesia separately and other tea exporting countries grouped together.

7. These models are obtained by considering the different lag structures on the expected price variable as well as that on the bearing acreage. Although all the models listed above could be obtained by imposing restrictions on the model given by equation 49, they are estimated as mutually exclusive models in the sense that they are obtained from different specification of the lag structures.

In previous studies on tea mentioned earlier, the prices of the different producing countries have always been considered in a common currency, either in pound sterling and pence or in US dollars and cents. But due to the fluctuations in exchange rates in the producing countries, the producer's price also fluctuates. Further, since his costs do not fluctuate directly in response to the changes in the exchange rates, it is appropriate to consider producer prices in the domestic currency of the producing nation rather than in a common foreign currency.

We also used the following variables alternatively to represent prices, (a) producers' price[8] (b) producers' price relative to the cost of production (c) producers' price relative to the price of alternate major crop[9] in the country.

Further, we also performed two sets of estimation in terms of price expectations, (a) moving average of past three years' prices, (b) joint estimation of present price regressed on appropriate past three year prices and the supply function. But only the moving average form yielded significant results.

The models were estimated by OLS using annual data for 1958–1981 and corrected for autoregressive errors wherever appropriate. They were further tested for parametric stability through recursive OLS estimation. [Brown R.L., Durbin J. and Evans J.M. (1975); Durbin (1969)].

The supply functions for input tea given in Table 1 were selected on the basis of the conditions given below.

(i) coefficients a_1, a_4 and a_7 satisfied the *a priori* condition i.e. $a_1 > 0$, $a_4 > 0$ and $a_7 > 0$

(ii) t-ratios of the estimated coefficients were significant in most cases.

(iii) the estimated coefficients were stable and the Cusum and Cusum squared were both within the one per cent confidence level.

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8. Producers' price for all countries except India is the export revenue per kg. Wherever applicable, the export and other duties per kg. less the subsidies per kg. received by the producer, have been deducted. For India, the producers price is the weighted average price of export revenue per kg. less export duty and the auction price per kg. of tea for local consumption plus the subsidies per kg. received by the producer. For "other countries" n.e.s. the price variable used was the London Auction average price per kg.

9. See appendix A for details of indices used for cost of production or price of alternate crop.

Estimated Supply Functions

The following supply functions have been estimated for the different countries:

1. Sri Lanka

$$q_t^{SL} = \underset{(1.1635)}{13.156} + \underset{(3.3515)}{1.1951}\ {}_{t-4}p_t^e + \underset{(1.9558)}{2.9780}\ A_{t-5} - \underset{(2.0606)}{2.9691}\ A_{t-6} + \underset{(1.7962)}{0.1336}\ (p_t - {}_{t-4}p_t^e)$$

$$\bar{R}^2 = 0.3298 \qquad SER = 0.9454 \qquad DW = 1.8177$$

2. India

$$q_t^{IN} = \underset{(21.583)}{-144.86} + \underset{(3.6453)}{0.7252}\ {}_{t-5}p_t^e - \underset{(1.9310)}{0.0217}\ {}_{t-6}p_{t-1}^e + \underset{(29.069)}{5.2682}A_{t-6} + \underset{(4.1754)}{0.5588}\ (p_t - {}_{t-5}p_t^e)$$

$$\bar{R}^2 = 0.9789 \qquad SER = 1.1912 \qquad DW = 2.3365.$$

3. Kenya

$$q_t^{KE} = \underset{(0.7826)}{-1.4990} + \underset{(2.3835)}{0.1482}\ {}_{t-4}p_t^e - \underset{(2.4698)}{0.0995}\ {}_{t-5}p_{t-1}^e + \underset{(7.9642)}{1.3878}A_{t-5} + \underset{(2.0174)}{0.052}(p_t - {}_{t-4}p_t^e) + \underset{(2.2385)}{0.0981}\ T$$

$$\bar{R}^2 = 0.9754 \quad SER = 0.4634 \quad DW = 2.2079 \quad \rho_2 = \underset{(2.1573)}{0.378} \quad p_3 = \underset{(4.0578)}{0.727}$$

4. Malawi

$$q_t^{MW} = \underset{(0.7205)}{0.2811} + \underset{(2.3336)}{0.7230}\ {}_{t-4}p_t^e - \underset{(2.4436)}{0.6952}\ {}_{t-5}p_{t-1}^e + \underset{(2.5272)}{0.2344}A_{t-5} + \underset{(1.9800)}{0.2059}\ (p_t - {}_{t-4}p_t^e) + \underset{(1.6685)}{0.0915}\ T$$

$$\bar{R}^2 = 0.9605 \quad SER = 1.5329 \quad DW = 1.9099 \quad \rho_1 = \underset{(3.2265)}{0.607}$$

5. **Indonesia**

$$q_t^{IA} = \underset{(0.1740)}{-0.8851} + \underset{(1.9536)}{0.3461}\, {}_{t-3}p_t^e - \underset{(2.3835)}{0.7692}\, {}_{t-4}p_{t-1}^e + \underset{(2.2016)}{0.674}A_{t-4} + \underset{(1.9913)}{0.3460}(p_t - {}_{t-3}p_t^e) + \underset{(1.9920)}{0.0987}\,T$$

$$\bar{R}^2 = 0.8863 \quad SER = 0.4644 \quad DW = 2.5275 \quad \rho_1 = \underset{(7.1146)}{0.9256}$$

6. **Mozambique**

$$q_t^{MZ} = \underset{(0.3332)}{0.6088} + \underset{(2.0996)}{0.1972}\, {}_{t-3}p_t^e - \underset{(2.0633)}{0.7031}\, {}_{t-4}p_{t-1}^e + \underset{(2.2590)}{0.7947}A_{t-4} + \underset{(2.2433)}{0.2390}(p_t - {}_{t-3}p_t^e)$$

$$\bar{R}^2 = 0.7972 \quad SER = 1.9047 \quad DW = 1.8243 \quad \rho_1 = \underset{(3.9481)}{-0.7463}$$

7. **Tanzania**

$$q_t^{TZ} = \underset{(0.4794)}{-0.0543} + \underset{(2.9481)}{0.6492}\, {}_{t-4}p_t^e + \underset{(3.7550)}{1.4512}A_{t-5} - \underset{(1.9753)}{0.8208}A_{t-6} + \underset{(2.1527)}{0.0887}(p_t - {}_{t-4}p_t^e)$$

$$\bar{R}^2 = 0.9776 \quad SER = 0.7570 \quad DW = 1.8837 \quad \rho_1 = \underset{(6.1111)}{-0.8402}$$

8. **Other countries**

$$q_t^{OT} = \underset{(4.6844)}{3.4963} + \underset{(1.9448)}{0.0179}\, {}_{t-3}p_t^e - \underset{(14.226)}{0.3475}\, {}_{t-4}p_{t-1}^e + \underset{(16.958)}{1.4016}A_{t-4} + \underset{(4.5779)}{0.3358}A_{t-5} + \underset{(2.8340)}{0.0097}(p_t - {}_{t-3}p_t^e)$$

$$\bar{R}2 = 0.9975 \quad SER = 0.3437 \quad DW = 1.9718 \quad \rho_2 = \underset{(2.7570)}{0.5462}$$

The figures in parenthesis are t–ratios. ρ_1, ρ_2 and ρ_3 are coefficients of the first, second and third order residual auto correlation functions.

The above results show that not all supply functions have the same lag structure. Sri Lanka and Tanzania have a different lag structure when compared with the rest of the countries ("Other Countries" excluded).

The gestation period also differs among the countries. On average, trees in Indonesia and Mozambique are plucked from the fourth year of planting, those in Sri Lanka, Kenya, Malawi and Tanzania from the fifth year and in India they are plucked from the sixth year of planting.

The coefficients on the price expectation at the time of planting (i.e. ${}_tP^e_{t-k}$) and that of the bearing acreage (A_{t-k}) are quite significant in all countries. The response to the unanticipated price change is positive and significant at 5 per cent level in all countries except Sri Lanka. In Sri Lanka it is significant only at 10 per cent level. The internal policy problems of Sri Lanka have dissipated the efficient functioning of the tea industry since the early sixties and this is reflected in its inability to respond, in comparison to other countries, for unanticipated price changes. This is also reflected in the overall fit of the supply function of tea for Sri Lanka when compared with other countries.

The technological factors represented by the time trend is significant at 5 per cent in Kenya and Indonesia, at 10 per cent level in Malawi. It was insignificant in all other countries. While technological developments as described earlier have spread to all countries, other institutional factors such as uncertainty in government policy, civil wars and transfer of ownership of tea companies from multinational companies to government or local companies etc. have disrupted the growth in the industry in several countries. This seems to have nullified the effect of technological improvements.

The short run and long run supply elasticities of real price of tea are given in Table 1.

TABLE: 1

SHORT RUN AND LONG RUN SUPPLY ELASTICITIES OF REAL PRICE

Country	Short run	Long run[10/]
Sri Lanka	0.0408	0.1083
India	0.1536	0.4275
Kenya	0.1631	1.3880
Malawi	0.1058	0.8824
Indonesia	0.0724	0.2061
Mozambique	0.0731	0.4417
Tanzania	0.0479	0.4431

10 . The long run elasticity is obtained by considering the acreage elasticity with respect to the expected price obtained from the following regression

(contd.)

The short run elasticity measures the producers' response to the current price. This response occurs over a time period too short for new plantings to come into bearing, i.e. with capital stock assumed to be fixed.

The elasticities obtained here compare favourably to those of the other perennial crops such as cocoa and rubber. [See table 3–3 p.51 Labys, 1973] As expected the short run elasticities are low, but they are not zero as assumed in previous studies on tea (Chung & Ukpong, 1981 etc.)

The difference between the long run and short run price elasticities is very much apparent in the case of East African countries which have been rapidly growing during the past two decades in comparison to the traditional tea growers such as Sri Lanka and India.

RATIONAL PRICE EXPECTATION

Rational expectation in the sense of Muth (1961), implies that individuals should not make systematic errors. This does not imply that individuals invariably forecast accurately in a world in which some random movements are inevitable. Rather, the assertion is that guesses about the future must be correct on average if individuals are to remain with the mechanism of expectation formation. (Begg, 1982, p.29)

Muth defined rational expectation in prices as price expectations which are 'unbiased' conditional on the information available. As such, the prediction errors are random. He claimed:

> ". . .otherwise there would be opportunities for the 'insider' to profit from the knowledge by the inventory speculation, if possible by operating a firm, or by selling a price forecasting service to the firm".

$$A_{t-k} = \omega(L) f({}_{t-k}p_t^e) + \mu''(L) A_{t-k-1} \qquad (20)$$

We obtain the forms of $\omega(L)$ and $\mu''(L)$ from the lag structure determined for each country in the estimated supply functions.

The acreage elasticity is then multiplied by the supply elasticity with respect to the bearing acreage obtained from the estimated supply functions.

i.e. $$\eta_p = \frac{\partial A}{\partial p^e} \cdot \frac{\partial q}{\partial A} \cdot \frac{\bar{A}}{\bar{p}^e} \cdot \frac{\bar{q}}{\bar{A}}$$

This is only an approximate estimate since the acreage function considered includes marginal land which may not have been utilised. Further, it assumes that in the long run the expected price will be equal to the actual price.

In statistical terms, the definition of rational expectation could be written as follows:

$$p_t - {}_tp^e_{t-1} = \epsilon_t \tag{50}$$

where ${}_tp^e_{t-1}$ is the expectation of price at period "t" made at period "t–1" based on the information (I_{t-1}) available at period "t–1".

$$\text{i.e. } {}_tp^e_{t-1} = E(p_t/I_{t-1}) \tag{51}$$

ϵ_t is the error of prediction (or expectation). According to Muth, ϵ_t should be random and should not be serially correlated.

Ghosh and others (1982) consider a longer term prediction and expressed the above definition of Muth in another way.

$$p_t - {}_tp^e_{t-k} = \epsilon_t \tag{52}$$

$$\text{where } {}_tp^e_{t-k} = E(p_t/I_{t-k}) \tag{53}$$

i.e. expectation of price at period "t" made at period "t–k" with the information available at period "t–k" (I_{t-k}).

Equation 52 could be written in the form:

$$\text{i.e. } (p_t - p_{t-k}) - ({}_tp^e_{t-k} - p_{t-k}) = \epsilon_{t-k,\,t}$$

$$(p_t - p_{t-k}) = ({}_tp^e_{t-k} - p_{t-k}) + \epsilon_{t-k,\,t} \tag{54}$$

The error $\epsilon_{t-k,t}$ is the new information available over the period (t–k,t) and is therefore on rational expectation hypothesis is independent of $({}_tp^e_{t-k} - p_{t-k})$. If the agent is rational, this new information must be incorporated into his price expectation at time "t".

$$\text{i.e. } (p_{t+k} - p_t) = ({}_{t+k}p^e_t - p_t) + \epsilon_{t,\,t+k} \tag{55}$$

$$\text{while } (p_t - p_{t-k}) = ({}_tp^e_{t-k} - p_{t-k}) + \epsilon_{t-k,\,t}$$

Although $\epsilon_{t,\,t+k}$ will be again independent of $({}_{t+k}p^e_t - p_t)$, it should also be independent of $\epsilon_{t-k,\,t}$, since this information has already been incorporated into the price expectation.

Hence, unlike one-period forecast in multi-period forecasts Muth's condition of non-serially correlated errors should be written as:

$$E(\epsilon_{t-k,\,t}/I_{t-k})\,(\epsilon_{t,\,t+k}/I_t) = 0 \tag{56}$$

An important difference between one-period forecast and multi period forecast is that in a single period forecast, the information set is complete at the end of the period. However, in a multi-period forecast although the information is complete at the end of the period, in between the two periods the information set is not complete. The forecaster may receive additional information each period after his initial forecast, but he would not realise his actual forecast error until the end of the period. Hence there is bound to be serial correlation between the forecast errors during the period between "t–k" and "t" because they are not independent.

$$\text{i.e. } E\left[\left(\epsilon_{t-k,\,t}/I_{t-k}\right)\left(\epsilon_{t-k+\tau,\,t+\tau}/I_{t-k+\tau}\right)\right] \neq 0 \qquad (57)$$

where I_i is the information set at time i and $t - k < \tau < t$.

In estimating the supply function for tea the assumption about the producers' price expectations was based on a moving average of prices obtained during the past few years. A three year moving average with respect to prices was to be adequate to represent the tea price movements. (International Tea Journal, 1981 pp. 21–22).

Even in countries where there are more sophisticated methods of gathering information, such price expectations using moving averages seem to be common among primary commodity producers. (Williams 1954; Jarett 1965; Witherell 1967). Labys (1976) considers the price expectation schemes cf Jarett and Witherell, and confirms that the moving averages gave a relatively good performance. An evaluation of several price forecasting methodologies with particular application to agriculture by Brand & Bessler (1983) found that moving average price expectations performed equally well as other price expectation schemes, using only quantitative data of past prices, in forecasting hog prices.

While such a simple mechanistic price expectation scheme may be justified by appeal to uncertainty regarding many factors that affect the prices, it is desirable to establish that this price expectation is rational.

As stated earlier, in the case of perennial crops which have long gestation periods, the producer's planting decision depends on his price expectation at the end of the gestation period. The rationality condition given by the equation 56 therefore implies that the k order serial correlation of errors of prediction should be insignificant.

The price forecast for period "t" at time "t–k" is defined as:

$$ {}_{t}p^{e}_{t-k} = 1/3\,(p_{t-k} + p_{t-k-1} + p_{t-k-2}) $$

Hence the error forecast realised at time "t" is:

$$ \epsilon_t = [\,p_t - 1/3\,(p_{t-k} + p_{t-k-1} + p_{t-k-2})] $$

Similarly, the error of forecast realised at "t–k" is:

$$ \epsilon_{t-k} = [\,p_{t-k} - 1/3\,(p_{t-2k} + p_{t-2k-1} + p_{t-2k-2}) $$

Regressing ϵ_{t-k} on ϵ_t using OLS, ρ_k is obtained. Similarly, other lower order correlations may be obtained.

$$ \hat{\epsilon}_t = \rho_k\ \hat{\epsilon}_{t-k} + \gamma_t $$

TABLE: 2
SERIAL CORRELATION OF ERRORS OF PRICE EXPECTATION
TEA PRODUCERS

Producer	Gestation period (k)	ρ_1	ρ_2	ρ_3	ρ_4	ρ_5
Sri Lanka	4	0.7037 (3.0333)	0.5090 (2.3025)	0.3456 (1.1767)	0.1477 (0.5161)	
India	5	0.7765 (9.7587)	0.5823 (5.6282)	0.4223 (3.5075)	0.2976 (2.4507)	0.1262 (0.4178)
Kenya	4	0.8523 (7.8700)	0.7140 (4.8970)	0.5091 (3.3276)	0.2078 (0.7502)	
Malawi	4	0.7236 (5.6381)	0.5094 (3.5401)	0.1982 (1.5925)	0.0189 (0.4511)	
Indonesia	3	0.7465 (5.3697)	0.2911 (1.5050)	0.1062 (0.5099)		
Mozambique	3	0.8892 (11.750)	0.7898 (7.5646)	0.7251 (1.2576)		
Tanzania	4	0.8846 (9.0912)	0.7018 (4.6762)	0.4757 (2.5827)	0.2550 (0.7228)	

The figures in parenthesis are t-ratios and it is evident that in each case while the lower order serial correlations are significant, the k^{th} order serial correlation is insignificant. Further, the unbiasedness of the prediction error for each country was also tested and $E(\hat{\epsilon}_t)$ was found to be insignificantly different from zero.

Therefore, the assumption about the tea producer's price expectation mechanism considered in this paper justifies the rational expectation hypothesis.

Conventionally the model as a whole should be solved in order to perform the rationality test. Since the demand for consumer tea of individual suppliers is not estimated, it is not possible to identify the consumer price of Sri Lanka tea in the tea consuming countries, as such a thing does not exist in the market in general. The rationality test cannot therefore be solved for each country. Hence, in this context the rationality test performed may be accepted.

EXOGENEITY OF INPUT TEA PRICE

In the specification of the supply functions of the various countries in the earlier section, it was assumed that the price of the input tea is exogenously determined. This assumption was tested in each of the supply functions estimated. The exogeneity test was carried out by the method suggested by Nakamura and Nakamura (1981), who provided a simple test to those suggested by Hausman (1978) and Wu (1983).

The price variable was regressed on all other exogenous variables in the estimated equation and the estimated residual was considered as a variable in the supply equation instead of the price variable. The coefficient on the residual was insignificantly different from zero in each of the supply functions estimated.

The t-ratio on the residuals of price regression for the exogeneity test is given in Table 3.

TABLE: 3
EXOGENEITY TEST ON PRICE

Country	t-ratio on Price Residuals
Sri Lanka	0.4362
India	0.7218
Kenya	1.2128
Malawi	1.0318
Indonesia	0.6492
Tanzania	0.8236
Mozambique	0.9214

Table 3 shows that even for major tea producing countries such as India, Sri Lanka, the price of input tea is exogenous to the producer's decision. This is further empirical evidence that the producers are price takers in the input tea market.

CONCLUSIONS

Despite the limitations imposed by the lack of detailed data as well as the small number of observations, the supply response models hitherto estimated for perennial crops could be estimated better by giving due consideration to certain features peculiar to perennial crops.

The empirical estimation of supply response functions for tea reported in the previous section confirms the following:

(a) The nature of a perennial crop creates uncertainty in the *timing* of the various stages of its productive life. Hence in specifying a supply function of a perennial crop such as tea, the lag structure associated with the anticipation of future profitability or the bearing acreage is also uncertain. Hence it is preferable to consider a general structure as specified in this paper and derive empirically the appropriate lag structure for both the expected price variable and the bearing acreage variable.

(b) The restriction that there is a single fixed gestation period for a perennial crop is shown to be untenable. We estimate that in Sri Lanka, Kenya, Malawi and Tanzania the average gestation period is 4 years. In India, it is 5 years and in Indonesia and Mozambique it is only 3 years.

(c) The highly significant coefficient of the price expectation variable confirms the assumptions about the formation of price expectation among the tea producers. The mechanical formation of expectation by moving averages of past prices (in this case, three years) seems reasonable on *a priori* grounds and also appears to be roughly consistent with the rational expectation hypothesis.

Further the ability of the producer to respond in the short run to errors of past expectation is evident from the empirical analysis. This may suggest that producers have an additional margin for adjusting to past errors of expectation.

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APPENDIX A

Cost of Production

The actual cost of production is only available for Sri Lanka, hence indices have to be chosen from the different producing countries which could approximate the cost of production. Since labour cost constitutes about 70 – 80 per cent of the cost of production of tea, we have estimated either a labour cost index or an index of the price of other agricultural products which more or less compete for the same labour.

Sri Lanka: Cost of Production per kg. index (1975 = 100.0).

India and Kenya: Labour cost index was estimated as follows:

The labour used per hectare was multiplied by the average wage per labourer and divided by the yield per hectare (1975 = 100).

Malawi: The other major crop competing for the labour in Malawi is Tobacco. Hence the price of tobacco per kg was used as an index (1975 = 100).

Indonesia: Data on export price indices in Indonesia is divided into oil-export price index and non-oil export price index. The non-oil exports are mostly agricultural products. Hence the non-oil export index is used (1975 = 100).

Mozambique: The export price indices available are divided into mineral exports and non-mineral exports. The non-mineral export price index is used (1975 = 100).

Tanzania: Among the few indices available the most suitable proxy was the commodity price index (1975 = 100).

APPENDIX B

Data Sources:

Production, Exports, Prices and Export Earnings of all countries:–

1953–1981 – *International Tea Committee Annual Bulletin*, Various issues.

1948–1952 – *FAO Commodity report on Tea*–1961.

Exchange rates:

International Financial Statistics Year Book, 1982.

United Nations Statistical Bulletin, Various issues.

Cost of Production or Indices thereof:

Central Bank of Ceylon, *Review of the Economy*, various issues.

ILO *Annual Statistical Report*, various issues.

Tea Board of India *Tea Statistics*, various issues.

Kenya Statistical Abstracts Annual reports, various issues.

International Financial Statistics Year Book, 1982.

United Nations Statistical Bulletin, various issues.

Upanathi

Vol. 1 No. 2, July 1986.

FOREIGN DEBT OF SRI LANKA AND ITS IMPLICATIONS, 1970–1985*

M. Marshal Fernando

INTRODUCTION

Development is a complex process that encompasses many facets of human existence. Economic development is a major component within this process. Economic development in real terms should raise the growth of output and living standards of the people. Growth is considered as facilitating the achievement of other development targets such as greater employment opportunities, redistribution of income and wealth, sharing of the fruits of technological achievements etc.

Growth requires resources for capital formation devoted to the production of both consumer goods and capital goods. Resources for

* This is a revised version of a study originally submitted in partial fulfilment of the requirements for the Postgraduate Diploma in Economic Development at the University of Colombo, in 1985, and subsequently presented as Seminar Paper No. 4/86 under the Monthly Seminar Series of the Sri Lanka Association of Economists in May 1986. I acknowledge with gratitude the contribution of the comments made by the Seminar discussants and participants towards improvement of the Paper. I am grateful to Mr. R.A. Jayatissa of the Central Bank for assistance and guidance in preparing this paper. I am indebted to Professor W.D. Lakshman, who supervised my work from the early stages and spent many hours to comment on earlier drafts to improve the quality of this essay. While I am grateful to all those mentioned for their help and inspiration, I am entirely responsible for all shortcomings that may still remain in the paper.

capital formation are derived from three sources (Thirwall, 1976, p. 11) : (i) domestically released resources by abstension from consumption which are called savings. (ii) resources generated through international trade and (iii) resources collected through grants and loans from abroad.

Although sources of capital for growth and development are thus categorised into three groups, the distinction between the first two are rather blurred since resources generated through international trade also have to be converted into resources for investment through the domestic process of saving. Thus ultimately there are in fact two sources of capital formation——domestic savings and foreign capital. The present study is an examination of some of the implications of the utilisation of certain forms of foreign capital resources to promote economic growth and development in Sri Lanka over the 1970–85 period.

Foreign Aid and World Debt Crisis

Economic growth and development within a developing economy requires foreign resources for various purposes——to purchase machinery and equipment, raw materials and intermediate products, modern technology and also necessary consumer goods for the sustenance of the people. Within the present international trading system, these developing countries were found to be unable to provide for these needs of foreign exchange resources for development through their autonomous export activities. Unfavourable price relationships under which these countries have been engaged in foreign trade over centuries are now well documented. The process of exchange of numerous resources amongst different countries created an international network of inter-dependence. If interdependence is beneficial to all countries involved in the network, then it will serve as an instrument to enhance the economic prosperity of all. However, the economic reality around the global system is very different from this ideal situation. The international trade structure which serves as a vehicle to transfer resources between different countries is under severe criticism for being tilted in favour of countries at higher relative levels of prosperity. The partiality of the international trading system is an outcome of long years of colonialism (Mydral, 1970, p.292) under which countries in Asia, Africa and Latin America were exploited by the Western powers. Therefore most of the non-oil exporting countries experience difficulties to cope with import needs of capital and other goods on the basis of export earnings. Increasing trade gaps or foreign exchange gaps have been found to be a serious problem for less developed countries.

To achieve development targets such as amelioration of poverty, unemployment, suffering etc. in LDCs, under the current international global environment, which is not favourable to the exports of LDCs, foreign resources are required over and above what they earn through exports. Such resources can come in the form of grants, loans and direct foreign investments.

The now well known "two gap" analysis (Krueger, 1986, p. 57), was widely used to show the crucial role played by foreign resource flows in the development process of less developed countries. This analysis considers the shortage of domestic savings or of foreign exchange as the main bottleneck to development. According to this analysis foreign resources play a dual role. They supplement either domestic savings (eliminate savings-investment gap) or foreign exchange earnings (eliminate export-import gap). The amount of foreign resources required is indicated by the larger one of the two gaps.

Since the 1950's the understanding of development has deepened and optimism inherent in the view that capital was the main element lacking has been replaced by an appreciation of the complexity of barriers to development. It was recognised that many other factors would be needed to achieve satisfactory growth. Foreign resource flows were expected to help improving the situation of developing countries in respect of some of these other growth hampering bottlenecks too.

The capacity of less developed countries to find solutions to the problems of capital formation for development rests on both domestic and international factors. The domestic factors are mainly related to the proper management of the economy. Though difficult, there is much any particular country can achieve in this area, however small that country may be. In the case of international factors, however, most elements of the problem are beyond a single country's control, and the degree of international collaboration determines the success of finding solutions in this area. The balance of payments problem in less developed countries is one such area crucial to the development effort, which is influenced by international factors which are usually beyond the control of a single country.

Imbalance in the international trading system creates chronic foreign exchange deficits and balance of payments problems in less developed countries. The balance of payments problems are not peculiar to less developed countries. The developed countries too face them. In the case of developed countries, they are tackled before the problem

gets out of control and those countries have the capacity to do so, controlling as they do, the levers of power in the international economic system. The problems of imbalance in the international transactions of less developed countries, on the other hand, continuously create problems for those countries. Balance of payments deficits continuously faced by many developing countries are a major manifestation of the inherent weaknesses of their economies. A long succession of deficits often leads to balance of payments crises. The current transactions balance, observed over a period of years, will show whether the country is consuming more than it earns. When it does so, the country will build up a heavy debt (Payer, 1974, p.12).

The typical balance of payments or foreign exchange crisis in less developed countries arises when fixed obligations like debt service payments necessitate the earmarking of a large proportion of foreign exchange earnings in the current account for such payments. The payment of investment income[1] is an important fixed obligation in the balance of payments of most developing countries. Accumulated deficits on current account arising from this item in the past years may result in an exchange crisis in the present (*ibid*, pp. 12,13). Payments imbalances may take different forms. They may be reversible, temporary, continuing or progressive [2] (Tilakaratna, 1971, p.2).

Temporary and reversible imbalances, which are caused by factors like seasonal instabilities in production of agricultural exports and instabilities in export prices, sudden fluctuations in capital flows and so on, are often self-correcting with the gradual return of underlying conditions to normalcy. Yet foreign reserves of developing countries suffering from even such temporary and reversible imbalances may not be adequate to meet the shortfalls in foreign exchange earnings and therefore international credit facilities are required to supplement available reserves.

The continuing and progressive imbalances create greater problems than the reversible and temporary ones. Demand for imports continues to increase as a result of normal demographic developments and the known luxury consumption bias of elite classes (Smith, 1973, pp. 31–2),

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1. Profits on direct foreign investments and debt service payments on foreign loans.

2. This division was given by F. Machlup. Tilakaratne was citing Machlup's "In Search of Guides for Policy" in W. Fellner *et al. Maintaining and Restoring balance in International Payments*, Princeton University Press, Ch: 3, p. 42.

as well as the needs created by attempts to force the pace of development of the countries concerned. Yet exports, which are subject to a variety of adverse world market conditions, either remain static or grow slowly. Continuing and progressive imbalances so generated are a long-term problem causing continuing needs for foreign capital inflows.

All the factors briefly discussed above point out the need for "foreign aid" in developing countries. Whatever was the success of such foreign capital flows, there was, since the end of the Second World War, a large flow of foreign aid, from the developed to developing countries. These flows consisted of grants and loans, with the proportion of the latter in the total growing and the grant element of loans declining over time.

Generally speaking foreign aid has come to be looked down upon unfavourably both in donor and recipient countries for different reasons. It has been criticised as suggestive of charity and dependency (Corea, 1971, p. 19). The tax payers of the donor countries look down upon aid as charitable giving with no end to it. From the perspective of the recipient, aid makes the country subservient to the donors. When aid is received in the form of loans, that entails the heavy burden of indebtedness. Those who consider the international power configuration argue that "aid" in any form is an instrument that serves the interests of imperial powers. Theresa Hayter, making a critique of the IMF and the IBRD as well as the aid programmes of the United States Agency for International Development characterised aid as "imperialism"[3]. In fact, statements and behaviour patterns of leaders of aid-giving countries give credence to that interpretation of Hayter. For instance, President Kennedy stated in 1961 that:

> "Foreign aid is a method by which the USA maintains an influence and control around the world and sustains a good many countries which would otherwise definitely collapse or pass into the Communist bloc" (Hayter, 1971, p.5).

Similarly former senior economist of the US Agency for International Development, H.B. Chenery said that:

> "Economic assistance is one of the instruments of foreign policy that is used to prevent political and economic conditions from deteriorating in countries, where we value the preservation of the present government" (*ibid*, p.5).

3. Actually she titled the book "Aid as Imperialism".

Though these negative aspects of aid are very real, the conditions of the economies of the less developed countries regulated by the market forces are so backward economically, they are often considered as virtually having no possibility of developing without foreign aid, within the prevailing world economic system. Since foreign resource flows in the current global context are mostly composed of concessionary loans[4] and commercial borrowings, dependence on foreign aid carries with it debt and debt service obligations. The LDCs are thus currently trapped in a debt crisis as a result of decades of "foreign aid" dependence.

On 20 August 1982, Mexico announced its intention to reschedule payments on the principal of about $ 20 billion of its public sector debt, owed to about 1,400 foreign commercial banks. By the end of 1982, thirty five countries were in arrears or in default in their debt repayment, and a record number of debt re-negotiations were under way (Wood, 1984, p. 703 citing IMF Survey, 1983, p. 231). In 1982 and 1983, as many developing countries as in the previous twenty five years, had to reschedule loans (IBRD, 1983, p. 34). A default by one or a combination of these countries could have led to bankruptcy of some of the biggest American Banks. Default was avoided by prompt rescue measures taken by the Government of the United States of America, by various Central Banks, the IMF and the World Bank. The debt crisis also represented a deep crisis in Third World development and a watershed in North-South relations. It has resulted in the closing off of options and a new level of disciplinary power of Northern-dominated international institutions over LDCs (Wood, *op.cit,* p. 703).

The debt crisis has acted to reduce drastically the room for manoevre available to foreign aid recipients. The IMF began to seriously impose its conditionality on borrowers in response to the growing debt crisis. Disbursements have been made dependent upon wide-ranging policy changes with concrete performance tests. The Managing Director of the Fund reported in early 1984 that:

> "Adjustment is now virtually universal . . .Never before has there been such an extensive yet convergent adjustment effort" (*ibid,* p. 703 citing IMF Survey, 1984, p. 46).

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4. The USA is openly opposing concessional loans and take the position that less developed countries should obtain loans at commercial rates. This attitude of the USA is reflected in its disagreement with the IBRD on the issue and attempts to reduce USA's support for International Development Association.

In addition, the aid programmes were restructured. A number of new international norms, which carry important social and political implications, were imposed on Third World debtors by official or commercial creditors. The central governments were forced to take responsibility for the debts of all State enterprises irrespective of circumstances under which debt was contracted, and also debts of private enterprises. Prior to debt crisis, commercial bank loans to the private sector have generally not had such guarantees. When the debt crisis of 1982–83 became increasingly serious, the commercial banks began to insist that the central governments take the responsibility for private sector debt (*ibid,* p. 710). The concessionary element in loans were considerably reduced through the imposition of economic penalties on rescheduled debts.

The commercial banks initiated to co-ordinate their activities through the Institute of International Finance which was established in 1983 (*ibid,* p. 714), thus altering relations between the banks and international institutions and among banks themselves.

Evolution of Sri Lanka's Debt Problem

During the period 1950–1951, Sri Lanka experienced an export boom[5]. The export price index (1978 = 100) increased from 13 in 1949 to 17 in 1950 and 21 in 1951. However, the resultant increase in external assets from that export boom were largely dissipated by the increased import needs of the country, particularly since agricultural food items were imported to feed the population. This problem was inherited from colonial times as non-export agriculture was neglected during the colonial period, making the country unable to produce sufficient food to feed the increasing population.

> "Sri Lanka's imports thus came to be heavily concentrated on food-stuffs, the bulk of these food imports, 91 percent in 1948–50 was made up of essential items: rice, wheat flour, pulses, curry-stuffs, fish products, milk products and sugar. These together with other consumer items, formed 73 percent of the country's imports in 1948–50; intermediate goods were 17 percent and investment goods 10 percent" (Lakshman, 1985, p. 5).

The export boom collapsed[6] in April 1951 and export prices of Sri Lanka declined by about 22 per cent between 1951 and 1952. Import prices did not fall; on the contrary they rose by about 8 per cent. The

5. Demand for raw materials increased on account of the Korean War. Hence exports, particularly rubber, registered very high prices. Sri Lanka benefited from it.
6. Rubber prices declined after the initial increases.

TABLE: 1

VISIBLE BALANCE OF TRADE AND INVESTMENT INCOME OF SRI LANKA DURING 1970–1985 PERIOD

SDR. MILLION[(a)]

Year	Total Exports at current prices (1)	Total Imports at current prices (2)	Trade Balance (3)	Investment Income (Net) (4)
1970	338.71	391.80	−53.09	−23.86
1971	324.37	372.59	−48.21	−20.33
1972	292.81	332.15	−39.34	−17.74
1973	307.35	346.39	−39.04	−14.54
1974	425.11	583.02	−157.91	−13.88
1975	459.92	626.94	−167.02	−15.16
1976	484.66	557.76	−73.11	−17.50
1977	640.99	607.20	33.79	−14.77
1978	675.72	798.16	−122.44	−12.13
1979	759.63	1121.83	−362.24	−11.88
1980	817.98	1575.98	−757.99	−20.07
1981	903.63	1591.74	−688.11	−82.31
1982	918.22	1806.20	−887.98	−85.26
1983	995.47	1797.31	−801.84	−127.78
1984	1436.41	1826.57	−390.16	−130.40
1985	1310.42	1915.20	−604.78	−123.41

Source: Review of the Economy, 1978 and 1984, Central Bank of Sri Lanka, Tables 76 and 74 respectively.

Annual Reports, Central Bank of Sri Lanka, various years.

(a) Rupee values are converted to SDR values to eliminate rupee depreciation effects using the rates given in International Financial Statistics Year Book, 1985, IMF (tables on Sri Lanka).

terms of trade became adverse with the index recording a drop of about 28 per cent within one year. The value of exports fell from Rs. 1904 million in 1951 to Rs. 1502 in 1952, while import expenditure rose from Rs. 1559 million to Rs. 1702 million. This deficit together with the deficit in invisible trade made the total deficit on current account Rs. 404.5 million. This was financed by a fall in external assets of Rs. 343 million and by an inflow of short-term capital (Indraratne, 1966, pp. 89–92). After 1956, industrial policy turned more expansionist and it required importation of raw materials and machinery. Therefore towards the end of the 1950's there was a high level of imports, including heavy purchases of consumer durables. Since there was no corresponding rise in exports, a large deficit emerged in the balance of trade (ILO, 1971, p. 12). Yet the deficit could still be covered by drawing down the accumulated exchange reserves of the country during 1950–51 and following tea boom of 1954–5.

However, the foreign exchange problem became glaring during the 1960's. From 1961 onwards, reserves were not available sufficiently to cushion the balance of payments difficulties which continued. The main solution to the foreign exchange problem at that time was to reduce the volume of imports despite the needs of the growing economy. This cutting back of imports was accompanied by import substitution (*ibid*, p. 14). Though that policy continued throughout the 1960's and 1970's, the exchange problem aggravated as the years passed by.

The situation during the period under investigation is reflected in the data provided in Table 1. Two important aspects of the balance of payments problem of Sri Lanka can be perceived from this table.

a. Worsening trade gap;

b. Growing negative investment income situation unfavourable to Sri Lanka. Investment income includes royalties, dividends, foreign bond earnings, profits on direct investment and interest on international loans.

Column 3 in Table 1 indicates a negative trade balance except in the year 1977. External payment obligations became a problem due to this worsening trade gap. The problem was further aggravated by the negative investment income situation. This is generally a crucial problem for many less developed countries as the payment of investment income is a fixed obligation in their balances of payments.

TABLE: II

EXTERNAL DEBT[a] OF SRI LANKA 1970–1985

SDR. MILLION

Year	Long[b] Term Loans (1)	Suppliers Credit (2)	IMF Drawings (3)	Bank borro-wings. (4)	Other[c] (5)	Total (6)	I as a % of 6 (7)
1970	267.9		82.2	69.1	–	419.2	63.9
1971	276.6	11.5	69.3	51.6	–	429.0	64.5
1972	321.3	12.9	64.1	48.4	–	446.7	71.9
1973	333.	60.7	57.	30.1	–	480.8	69.3
1974	358.3	75.7	76.6	32.0	–	542.6	66.
1975	460.3	87.2	92.	33.5	–	623.0	73.9
1976	484.4	61.7	89.4	30.1	–	665.6	72.8
1977	560.5	51.0	64.1	29.2	–	704.8	79.5
1978	732.1	49.0	76.5	7.7	–	865.3	84.6
1979	778.6	40.7	126.2	3.4	2.0	950.9	81.9
1980	973.6	36.6	112.6	18.7	180.2	1321.7	73.6
1981	1219.6	46.6	346.3	9.6	270.5	1892.6	64.4
1982	1471.1	42.4	341.5	77.6	457.8	2390.4	61.5
1983	1758.4	34.0	331.1	70.8	580.2	2774.5	63.4
1984	2083.9	22.8	328.3	0.1	601.6	3036.7	68.6
1985(d)	2251.8	18.7	292.5	0.2	598.9	3162.1	71.2

Source: Annual Report, Central Bank of Sri Lanka
1974, table II (H) 8, p. 238
1984, table I.40, p. 79
1985, table I.36, p. 95

Review of the Economy, Central Bank of Sri Lanka
1975, table II(H)6, p. 207
1978, table 10.7, p. 203

(a) Excludes short-term trade credit.

(b) Consist of project loans, non project loans and IMF Trust Fund loans.

(c) Comprises commercial borrowings of public Corporations; Air Lanka, GCEC and other Government approved enterprises.

(d) Provisional

Column 4 of Table 1 shows that investment income, which was a deficit of SDR 23.86 million in 1970 deteriorated to a deficit of 130.40 million in 1984. Subsequently in 1985 the deficit dropped to SDR 123.41 million. Sri Lanka's experience of a negative trade balance coupled at the same time with a negative investment balance has aggravated its problem of payments imbalance and inadequacy of external reserves.

In view of depletion of external reserves to dangerously low levels, import controls were imposed during the 1960's and intensified in the first half of the 1970's. However, there is a limit to import controls. The essentials for development and consumption have to be imported. Therefore, Sri Lanka actively sought external resources during the late 1960's. Formation of an Aid Ceylon Group in 1965 under the auspices of the World Bank was a significant stage in these increasing efforts to seek external assistance. A larger volume of foreign aid began flowing into the country, particularly from the West after this period (Lakshman, *op.cit*, p. 13). Since grants were not forthcoming in sufficient quantities, Sri Lanka was forced to obtain foreign loans in increasing amounts both from bilateral and multilateral sources.

Magnitude of External Debt

During the period 1970–1985, Sri Lanka's external debt increased from SDR 419.2 million in 1970 to SDR 3162.1 million in 1985 as shown in Table II. This represents an annual average increase of approximately 22 per cent. This percentage for Sri Lanka is higher than the situation in non-oil producing countries as a group. As indicated in the IMF World Economic Outlook for 1982 and 1983, Third World debt registered a 19 per cent annual average increase for the decade ending in 1982. The debt service payments of Sri Lanka as shown in Table III, Column 3, rose from SDR 76.18 million in 1970 to SDR 359.05 million in 1985. The interest on external debt alone rose from SDR 16.75 million in 1970 to SDR 195 million in 1985.

The debt service ratio as shown in Table III, Column 5, declined from 20.1 per cent in 1970 to 12.4 per cent in 1980 and subsequently rose to 21.9 per cent in 1983. In 1984 the debt service ratio declined to 17.6 per cent in association with the unusual increase of export prices,[7] particularly of tea. Subsequently in 1985, the debt service ratio registered 22.4 per cent. With the expansion of employment opportunities in the Middle East, private transfers increased steadily since late 1970's.

7. Withdrawal of India from international tea market in 1984 helped to increase the price of tea.

TABLE: III

DEBT SERVICE PAYMENT OF SRI LANKA 1970–1985

SDR. MILLION

Year	Amortization (1)	Interest (2)	Total Debt Service payment (3)	Earnings on Export of goods and services (4)	Debt Service Ratio 3 as a % of 4 (5)	Overall Debt service Ratio[a] (6)
1970	59.43	16.75	76.18	378.58	20.1	
1971	65.03	17.55	82.58	376.99	21.9	
1972	58.36	15.72	74.08	340.31	21.8	
1973	68.23	14.20	82.43	358.09	23.0	
1974	68.68	16.80	85.48	480.66	17.8	
1975	101.30	19.04	120.35	526.28	22.9	
1976	90.97	19.56	110.53	550.85	20.1	
1977	93.34	23.65	116.99	730.11	16.0	
1978	95.29	24.79	120.09	775.07	15.5	
1979	80.89	37.56	118.45	908.33	13.0	12.4
1980	82.78	45.60	128.38	1031.96	12.4	11.2
1981	91.86	104.24	196.07	1168.86	16.9	14.5
1982	111.56	115.48	227.04	1221.21	18.6	15.3
1983	124.07	159.63	283.71	1314.87	21.9	18.1
1984	128.00	175.97	307.82	1755.19	17.5	15.0
1985	164.03	195.00	359.05	1604.73	22.4	19.0

Source: Annual Report, Central Bank of Sri Lanka.
1974, table II(H)8
1984, table 1.40
1985, table 1.38

Review of the Economy, Central Bank of Sri Lanka
1975, table II(H)6
1978, table 10.7
1981, table 9.10

(a) Debt Service Payment as a Ratio of Receipts from goods, services and private transfers. These Ratios are taken from Annual Reports (various years) of the Central Bank of Sri Lanka.

This source of foreign exchange earnings reduced the pressure on the balance of payments of the country, as shown by what is called in Table III, the overall debt service ratio being lower than the debt service ratio. However, even the overall debt service ratio has steadily increased to 19 per cent in 1985.

These data pertaining to external debt during the period under review indicate the extent of expansion of external indebtedness. The primary reason behind this expansion is to be found in the expansion of government spending on welfare and development projects. Limitation of availability of foreign exchange required for investment was offset by external loans. Since 1975, as shown in Table II, foreign debt recorded a steady increase. However this trend was somewhat restricted on account of remission by creditors to the extent of Rs. 804 million. For example, the U.K. government wrote off debts to the tune of Rs. 792 million. Exchange variations in favour of Sri Lanka also reduced the debt liability by about Rs. 316 million (Annual Report, Central Bank of Sri Lanka, 1979, p. 68).

The Debt Structure

The debt structure is an important aspect of the external debt. It affects the debt service capacity of the country. There are five categories of debt shown in Table II. Long-term loans carry grace periods and lower interest rates. Therefore the concessional element is higher in long-term loans and it is more favourable to the economy than short-term commercial borrowings.

Since 1970, Sri Lanka's external debt structure changed substantially as shown in Table II. The proportion of long-term loans in the external debt was 63.9 per cent in 1970 and this proportion increased to 84.6 per cent in 1978. This was the result of friendly responses from the Western countries to the liberalized economic policies,[8] introduced in Sri Lanka since 1977. However, after that initial increased flow of concessional long-term loans, the proportion of long-term loans gradually declined to 61.5 per cent in 1982 and once again rose to 71.2 in 1985. Concessional long-term loans seem to have helped Sri Lanka to reduce the need to seek suppliers' credit and external bank borrowings which carry high interest rates.

Suppliers' credit and even the bank borrowings had been a measure of relief on Sri Lanka's external resources, considering the urgent needs to ensure a desired flow of capital and intermediary goods during the years when the country had difficulties in obtaining sufficient

8. Price controls were relaxed, currency was devalued, private foreign investment encouraged, private capital accumulation was encouraged.

foreign exchange. Generally, suppliers' credit is repayable at varying rates of interest on the balance outstanding, which is repayable in instalments as agreed upon. In addition there may be a flat financial charge which is added on to the capital or the interest payable (Kulasingham 1971, p. 136). This means that a high level of short-term loans is expensive and could be disruptive for the economy if not handled discreetly.

Since 1979, beginning with a moderate figure of SDR 2 million, a new element of commercial borrowings was added on to the debt structure of Sri Lanka by the Government-sponsored enterprises as shown in Table II, Column 5. These expensive commercial borrowings indicate a tendency to rise. This means that debt service payment obligations may become more problematic as the terms of private lending are considerably harder than those of official lending (Pearson, 1969, p. 155). Further to these difficulties, the need to repay these loans within a short period of time imposes pressure on the current account of the balance of payments, thereby restricting the flexibility of using the autonomous foreign earnings of the country.

Debt Service Capacity

Dependency on external borrowing to ease short-term balance of payments problems or for development purposes entails, as already noted debt service obligations. Sustained economic growth is crucial to enhance the capacity of the economy to satisfy the debt service obligations arising from external borrowings. The variables[9] such as GNP, per capita GNP, gross domestic savings, public revenue and consumption are traditionally used in discussions and measurements of economic growth. Investigation of the performance of some of these variables in relation to the expansion of foreign debt is helpful to study the evolution of the debt service capacity of the economy.

Interest, Debt Repayment and GNP

The interest payment on Sri Lanka's foreign debt as shown in Table IV, Column 5, increased from .77 per cent of the GNP at current factor cost in 1970 to 3.49 in 1985. The total debt service payment as shown in Column 6 increased from 3.5 per cent of GNP in 1970 to 6.79 per cent in 1985. These figures indicate that over time, the share of GNP absorbed by the external debt obligations had steadily increased.

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9. Wijewardena, 1971, p 111–129, used these variables to analyse 1960–69 Foreign Debt situation in Sri Lanka.

TABLE: IV

INTEREST AND TOTAL DEBT SERVICE PAYMENT AS A PERCENTAGE OF GNP AND PER CAPITA GNP, 1970–1985

SDR. MILLION

Year	GNP at current factor cost	Interest payment	Total Debt repayment	GNP per capita at current factor cost	2 as a % of I	3 as a % of I
	(1)	(2)	(3)	(4)	(5)	(6)
1970	2178.60	16.75	76.18	174.06	.77	3.5
1971	2265.41	17.55	82.58	178.40	.77	3.65
1972	2243.44	15.72	74.08	173.25	.7	3.30
1973	2349.93	14.20	82.43	177.52	.61	3.54
1974	2890.60	16.80	85.48	217.55	.58	2.95
1975	2994.59	19.04	120.35	221.91	.64	4.02
1976	2857.29	19.56	110.53	208.30	.68	3.87
1977	3323.87	23.65	116.99	238.44	.71	3.52
1978	2058.94	24.80	120.09	145.10	1.20	5.83
1979	2462.45	37.56	118.45	170.19	1.53	4.81
1980	2872.40	45.60	128.38	194.89	1.58	4.46
1981	3420.51	104.24	196.07	228.21	3.04	5.73
1982	3970.71	115.48	227.04	261.44	2.90	5.72
1983	4324.19	159.63	283.71	280.49	3.69	6.56
1984	5170.55	175.57	307.82	331.48	3.40	5.87
1985	5284.29	195.00	359.05	333.65	3.69	6.79

Source: Review of the Economy, Central Bank of Sri Lanka
1978, table 2
1981, table 2
1984, table 2
1985, table 2

(a) Provisional

When the rate of growth of GNP falls below the rate of increase of external debt liability, continuing reliance has to be placed on external assistance to service the foreign debt (Wijewardena, 1971, p. 116). As shown in Table IV, Column 7, GNP has recorded growth rates varying from 0.5 per cent in 1971 to 8.2 per cent in 1978. This phenomenal GNP growth of 1978 was the result of the spontaneous reaction of a long repressed economy to the liberalization measures intiated in 1977 (CBR, 1978, p. 1). As often happened elsewhere immediately after liberalization exercises, the aggregate yardstick of the growth rate responded impressively to new policies in Sri Lanka too (Lakshman, *op.cit,* p. 15). However, since 1979, the growth rate registered a decline and dropped to 5.3 in 1985.

Government Revenue and Debt Service Obligations

The magnitude of the government revenue is an important variable to be used in assessing the capacity of a country to service its external debt, since usually the largest external borrower is the government. Funds have to be set aside out of government revenue to meet such obligations annually. Table V, Column 5, shows the interest payment on foreign debt as a percentage of government revenue. This percentage rose from 3.64 in 1970 to 14.43 in 1985, while the total debt service obligations as a proportion of government revenue increased from 16.57 to 26.57 per cent during the same period. Column 1 of the same table highlights the increase in government revenue. Even if allowance is made for the increase in price levels since 1977, the government revenue data show a large increase. A large part of this increase was however, absorbed annually by increasing foreign debt service obligations. In 1985, over one-fifth of revenue was earmarked for debt service payments. This implies that a large volume of State funds that could have been otherwise used for urgent development work and welfare programmes was lost for such purposes, as a result of the growing debt burden. Sri Lanka as a poor ex-colonial country, depends to a very high degree on State coffers for development and welfare activities. When a high percentage of government revenue is absorbed by external debt service obligations, there has to be a sacrifice of development and welfare services rendered to the community by the State.

Debt Service Obligations and Domestic Savings

The low level of domestic capital formation is one crucial factor that inhibits the development process in Sri Lanka. This situation is further aggravated by heavy debt service obligations. The data given in Table V support this observation. As Column 6 shows, interest payment on external debt as a percentage of Gross Domestic Savings

TABLE: V

DEBT SERVICE OBLIGATIONS AS A PERCENTAGE OF PUBLIC REVENUE AND GROSS DOMESTIC SAVINGS

Year	SDR MILLION								(S-DSP)[a/]
	Public Revenue Current Prices (1)	Gross Domestic Savings (2)	Interest Payment (3)	Total Debt Service Payment (4)	3 as a % of 1 (5)	3 as a % of 2 (6)	4 as a % of 1 (7)	4 as a % of 2 (8)	GDP (%) (9)
1970	459.74	362.74	16.75	76.18	3.64	4.62	16.57	21	12.9
1971	472.92	324.37	17.55	82.58	3.71	5.41	17.46	25.46	10.5
1972	632.83	342.33	15.72	74.08	2.48	4.59	11.71	21.64	11.8
1973	528.49	301.98	14.20	82.43	2.69	4.70	15.59	27.29	9.4
1974	598.52	245.06	16.80	85.43	2.81	6.86	14.28	34.88	5.5
1975	597.50	253.29	19.04	120.35	3.19	7.51	20.14	47.51	4.4
1976	590.91	431.53	19.56	110.53	3.31	4.53	18.71	25.61	11.1
1977	645.43	636.26	23.65	116.99	3.66	3.72	18.13	18.39	15.5
1978	598	333.44	24.79	120.09	4.15	7.44	20.08	36	10.3
1979	632.74	358.77	37.56	118.45	5.94	10.47	18.72	33.01	9.7
1980	653.72	345.86	45.60	128.38	7	13.18	19.64	37.11	7.5
1981	715.10	438.18	104.24	196.07	14.58	23.79	27.42	44.75	6.9
1982	775.10	501.33	115.48	227.04	14.90	23.04	29.29	45.29	6.8
1983	1002.31	703.64	159.63	283.71	15.93	22.69	28.30	40.32	9.4
1984	1446.74	1204.88	175.97	307.82	12.16	14.54	21.	25.17	16.9
1985	1351.57	793.16	195	359.05	14.43	24.59	26.57	45.27	8.0

Source: Annual Report, Central Bank of Sri Lanka
1979, table 6 1984, table 8 and 31
1981, table 8 1985, table 8
1982, table 8

a/ $\frac{\text{Savings} - \text{Debt Service Payments}}{\text{Gross Domestic Product}}$ = Residual for investment

increased from 21 per cent in 1970 to 33 per cent in 1979. Subsequently it declined to 25.17 per cent in 1984 but again rose to 45.27 per cent in 1985. Such large magnitudes of Gross Domestic Savings allocated to meet debt service obligations, create serious constraints on the development effort. Table V, Column 9 indicates that annually as a proportion of the GDP, only a small amount of gross domestic savings is available for investment after making allocations for external debt service obligations. This also implies that the country has to depend more and more on external assistance to sustain the on-going development projects and to start new ones. The poverty and the accompanying organizational handicaps make it more difficult to raise domestic savings quickly. Therefore resource transfer from abroad may have to remain large for some time, if the tempo of development were to be sustained.

Capital Formation and External Loans

As shown in Table VI, Column 6, capital formation in Sri Lanka increased progressively from 19.6 per cent of the GDP in 1970 to 28 per cent in 1985. This ratio showed a slightly declining trend over 1970–77 but since 1978, capital formation increased rapidly and has remained throughout over 27 per cent of the GDP. The gross domestic savings (GDS) component of the capital formation remained very low as shown in Column 7 of Table VI. In comparing Column 6 and 7 of Table VI, one could see the expanding gap between these two variables. This implies that an increasing magnitude of external resources was required to bridge the gap between capital formation and gross domestic savings. The only exception to that general situation was in 1984, where GDS increased to 22.8 per cent of the GDP. That reduced the need for external borrowing to 6.06 per cent of GDP in 1984. This was an exceptional situation created by the increased foreign earnings on account of the contemporary boom in tea prices (C.B. 1984, p. 10). The relationship of capital formation and gross domestic savings to gross domestic product, clearly indicates the role of "foreign aid" in the acceleration of the rate of investment over the period under investigation. That increase was substantially financed through foreign loans.

It is believed that, by and large, the role of foreign resources in development is to supplement domestic savings. In the case of Sri Lanka, by comparing Columns 7 and 9 in Table VI, one could argue that most increases in external loans have perhaps served as a substitute rather than as a supplement to domestic savings. Especially since 1980, except in 1984, the percentage of external loans to GDP was higher

TABLE: VI

CAPITAL FORMATION, GROSS DOMESTIC SAVINGS, EXTERNAL LOANS AND GROSS DOMESTIC PRODUCT IN SRI LANKA 1970–1985

SDR MILLION

Year	GDP at Current Factor Cost Price	Capital Formation	GDS	Consumption	External Loans (2)–(3)	2 as a % of 1	3 as a % of 1	4 as a % of 1	5 as a % of 1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1970	2215.56	434.98	362.74	1932.96	72.24	19.6	16.3	87.2	3.3
1971	2296.99	453.22	324.37	2004.54	78.45	17.5	14.1	87.2	3.4
1972	2270.90	406.97	342.33	1982.26	64.64	17.9	15	87.2	2.8
1973	2347.70	331.19	301.98	2109.13	29.22	14.1	12.9	89.8	1.2
1974	2913.48	466.99	245.06	2727.06	221.93	16	8.4	93.6	7.6
1975	3019.63	486.60	253.29	2870.47	233.31	16.1	8.4	95	7.7
1976	2886.33	504.12	431.53	2678.34	72.59	17.5	14.95	92.7	2.5
1977	3348.20	507.67	636.26	2878.27	–128.58	15.2	19	85.9	3.8
1978	2071.07	437.66	333.44	1849.48	104.22	21.2	16.1	89.3	5
1979	2474.38	672.45	358.77	2245.09	313.58	27.2	14.5	90.7	12.7
1980	2892.47	1043.91	345.86	2745.54	698.05	36.1	12	94.9	24.13
1981	3495.90	1040.36	438.18	3307.53	602.19	29.8	12.5	94.6	17.23
1982	4055.97	1317.67	501.33	3840.80	816.43	32.49	12.36	94.7	20.13
1983	4451.97	1433.80	703.64	4133.51	730.16	32.21	15.18	92.8	16.4
1984	5299.38	1528.34	1204.88	4606.08	321.16	28.84	22.8	87	6.06
1985	5407.71	1496.02	793.16	4989.94	702.86	27.66	14.67	92.27	13

Source: Annual Report, Central Bank of Sri Lanka
1979, table 1 and 5 — 1984, table 1 and 6
1982, table 1 — 1985, table 1 and 6

than the percentage of domestic savings to GDP. Any continuation of this trend poses a great danger to the economy as domestic investment is getting increasingly dependent on dictates and vagaries of external sources of funds.

Sri Lanka's consumption level, as shown in Column 8 of Table VI, has always been well over 85 per cent of the GDP. The relationship between Columns 8 and 9 in Table VI indicates that side by side with the increase of foreign loans, the percentage of GDP consumed also has increased. This tendency of using "foreign aid" to increase consumption has to be understood as amounting to a diversion of domestic investment potential to consumption. This encouragement of consumption is detrimental to self-sustained growth of the economy. When a country becomes increasingly dependent on external resources and encourages a consumption level well above its means, it becomes extremely difficult to disentangle itself from conspicuous consumption. The beneficiaries of such an external resources dependent consumption pattern will not easily support any change in the dependent system (Sobhan, 1982, p. 46), required as a crucial step towards self-reliant growth of the economy.

Transfer Capacity of Debt Service Obligations

The capacity of the economy to cope with foreign indebtedness is determined not only by the availability of domestic resources to pay back loans and service the outstanding debts but also by the possibilities open to the economy to transfer resources abroad for that purpose. This aspect of the debt problem can be analysed in relation to export earnings, terms of trade and balance of payments situation of the country.

Transfer of resources abroad to meet debt service obligations depends upon the level of external earnings. Column 4 in Table VII shows a gradual increase of interest payments as a percentage of export earnings. In the year 1970, the percentage was 4.94 and it reached 16.07 in 1983. However, there was a decline in this percentage to 12.30 in 1984 due to the already noted temporary increase in tea prices, which provided a boost to export earnings. In the following year, however, this ratio rose to 15.19 per cent. This means that an increasing percentage of exports was being earmarked for interest and amortization payments on external debt.

In order to overcome the debt service payment problems the rate of growth of exports should be at least as fast as the growth of interest rate payments. Columns 2 and 3 in Table VII show that in the case

TABLE: VII

GROWTH RATES OF EXPORT EARNINGS AND INTEREST PAYMENTS

in terms of SDR Million

Year	Exports (f.o.b) SDR million (1)	Exports Growth Rate % (2)	Interest Payments on External Debt Growth Rate % (3)	Interest payments as a % of Exports (4)
1970	339			4.94
1971	314	−7.4	4.78	5.59
1972	284	−9.6	−10.43	5.54
1973	309	8.8	−9.67	4.60
1974	425	37.5	18.31	3.95
1975	464	8.4	13.33	4.10
1976	484	4.3	2.73	4.04
1977	651	34.5	20.91	3.63
1978	675	3.7	4.86	3.67
1979	759	12.4	51.45	4.94
1980	818	7.8	21.41	5.57
1981	903	10.4	128.60	11.54
1982	918	1.7	10.78	12.58
1983	993	8.2	38.23	16.07
1984	1427	43.7	9.99	12.30
1985	1284	−10	11.07	15.19
Average annual Growth rates during 1970–1985		13.89	23.77	

Source: Annual Report, Central Bank of Sri Lanka
1979, table 18
1984, table 24
1985, table 28

of Sri Lanka, annual interest payments have grown at a higher rate than annual exports. In fact the annual average rate of increase for the whole period under review was 13.89 per cent for exports and 23.77 per cent for interest payments. The margin between the two rates has obviously been quite high. The export growth has been inadequate to keep pace with the increase in interest payments. Export earnings anyway have been insufficient to meet even the ordinary foreign exchange needs. During 1978–85 period, export earnings had financed, on average, only about two-thirds of imports (WB, 1985, p. 23). The problem of inadequacy of exports even to finance normal imports is compounded by growing debt obligations. Sri Lanka's exports are somewhat more diversified now than they were during the mid-seventies. Yet with the exception of the contribution of the industrial free trade zone, Sri Lanka has not been able to expand the export base sufficiently to strengthen its capacity to service international debt obligations.

The underlying commodity terms of trade situation is crucial in view of the fact that debt service obligations are absorbing an increasing percentage of export earnings. Data provided in Column 6 in Table VIII indicate that Sri Lanka's terms of trade (1981 = 100) deteriorated from 230.4 in 1970 to 107 in 1985. Sri Lanka usually is dependent on large volumes of imports to sustain its local production capacity, creation of employment and also maintenance of consumption standards of the people. The deteriorating terms of trade situation demands a higher magnitude of exports to satisfy import requirements which are crucial to the sustenance of the economy. The needed export growth becomes much greater when combined with the requirement of a growing capacity to transfer abroad the annual debt service payments. The size of Sri Lanka's import bill was about 39 per cent of the GDP during the period 1978–84. Past experience has been that regular flows of imports are indispensable for the proper functioning of the economy (National Planning Division, 1985, p. 17). Deterioration of terms of trade has thus affected the import capacity of the country as well as the debt servicing capacity in a negative way. Sri Lanka represents an extreme, though perhaps not a unique, case of a country subject to a continuing terms of trade loss. Adjusting to continuous terms of trade losses has been found to be difficult despite considerable reduction in welfare measures and increase in production (WB, 1982, p. 28).

Some of the features of the balance of payments situation of Sri Lanka since 1970 can be seen from the data in Table VIII. There was a persistent deterioration in the merchandise or the trade balance,

TABLE: VIII

SOME DATA ON BALANCE OF PAYMENTS SITUATION IN SRI LANKA DURING 1970–1985

SDR MILLION

Year	Merchandise Balance	Goods and Services Balance	Current Account Balance	Overal Balance	Foreign Assets in Months of Imports	Terms of Trade 1981=100
	(1)	(2)	(3)	(4)	(5)	(6)
1970	−53	70	−59	+17	1.8	230.4
1971	−47	−49	−35	+41	2.7	213
1972	−38	−40	−29	+19	3.4	204.3
1973	−39	−32	−21	+35	2.1	178.2
1974	−158	−148	−113	+46	1.9	156.5
1975	−168	−157	−91	−51	1.9	126.1
1976	−73	−61	−5	+49	2.4	169.5
1977	+29	+58	+117	+153	7.1	221.7
1978	−144	−138	−75	+65	5.7	217.4
1979	−362	−325	−177	+35	3.3	115.6
1980	−758	−718	−507	−166	2.0	105.6
1981	−693	−689	−381	−26	2.3	100
1982	−890	−903	−516	−18	2.7	91.7
1983	−801	−857	−441	+0.6	2.7	114.2
1984	−453	−519	−51	+297	3.6	138.7
1985	−697	−824	−417	−111	3.8	107.4

Source: Review of the Economy, Central Bank of Sri Lanka
1981, table 77
1984, table 60 and 74

Annual Report, Central Bank of Sri Lanka
1985, table 24 and 28

except in the years 1976–7 and 1984. In 1977, there was a positive balance, continuing the improvement observed in the preceeding year. In 1984, trade account deficit was reduced by half from the 1983 level. On both occasions the improvement in the trade balance resulted from unusual price hikes of Sri Lankan tea at international markets. However, that luck did not persist long as could be seen from years subsequent to these events.

Similarly, the goods and services account and the current account indicated growing deterioration, though overall balance takes positive values in a number of years. The positive overall balance was due to the inflow of external assistance, which is adding to the external debt of the country.

Yet another indicator of a country's strength or weakness in external transactions is the volume of international reserves that is available to its credit. The 5th column of Table VIII provides some data pertaining to this aspect of the Sri Lankan balance of payments. Conventionally, the availability of foreign exchange to finance about two months' import requirements would represent some minimum acceptable level of external reserves, which a country should carry in order to avoid an exchange crisis (Abbott, 1979, p.121). From this point of view, once 1984 and 1985 are set aside as unusual years in this respect, it can be seen that Sri Lanka experienced a declining situation in respect of external reserves, further aggravated by increasing debt obligations, especially as the grace periods are about to end for concessionary loans contracted in the mid-1970's.

Three major factors have contributed to creating a weak balance of payments situation:

(a) The international recession and weakening terms of trade.

(b) Large budget deficits and

(c) Low growth in export volumes.

International recession and deteriorating terms of trade contributed significantly to the worsening of Sri Lanka's trade gap as shown in Column 1 of Table VIII. For example between 1977 and 1982, the price of tea, which accounted for 55 per cent of total exports in 1977, declined by 23 per cent, while petroleum prices doubled and unit of value of imports increased by 36 per cent (IBRD, 1984, p.12).

The budget deficit and heavy reliance on domestic bank borrowings have increased the trade deficit due to increases in total domestic demand and price levels. Since 1977, total investment also increased rapidly helped greatly by the large increases in public capital expenditure. As shown elsewhere national savings were much below investment requirements. A considerable portion of total investment had to be funded through increased foreign borrowings. All this added to inflationary processes and resulting pressures on the balance of payments.

During the period under investigation, particularly over the period 1977–80, the level of public capital expenditure increased rapidly, leading to an average annual rate of growth of imported capital goods in SDR terms by about 60 per cent (*ibid,* p.12). Most of these expenditures in the public sector have not yielded the gains in output and exports, required to service the increased external debt. This is partly due to the fact that most of the investments were in long gestation projects and also to the fact that some investments were in low return, low priority areas (*ibid,* p.13). The adverse economic effects of allowing rapid monetary expansion at the same time as import barriers were lifted without sufficiently effective incentives to export resulted in a deteriorating trade balance.

The third factor which affected the balance of payments situation was low growth in export volume. Besides garments exports, whose growth also is gradually coming up against barriers emanating from the world import quota system, neither traditional nor non-traditional exports have performed well. Between 1977 and 1985, the average annual growth rate of merchandise exports was around 12 per cent while growth of merchandise imports was at around 17 per cent in SDR values. On the other hand, World Bank estimates declines of tea and rubber production by 15 per cent and 8 per cent respectively since 1977 due to management problems and inadequate investments (*ibid,* p.13).

The real growth of non-traditional exports was low and erratic. Reforms of 1977 gave an initial impetus to the sector. Since then it has had a fluctuating fortune. Two other sources of foreign exchange earnings–tourism and workers' remittances from the Middle East–grew rapidly until 1982. Since then earnings from both these sources levelled off (IBRD, 1985, p.10). Since the ethnic riots of July 1983 earnings from tourism have declined significantly.

From the foregoing brief survey of the balance of payments situation in Sri Lanka, one could surmise that it is a difficult situation, which poses many problems that need to be resolved. The only ray of

hope was the 1984 improvement in export earnings which reduced the need to borrow. However, as repeatedly noted, it was a special phenomenon which cannot be expected to recur and the 1985 experience proves this observation. In this context, obviously, external debt becomes a heavy burden on the balance of payments. The debt service payments constitute a first charge on export earnings. This introduces an inflexibility into the balance of payments making it difficult to satisfy other demands on foreign earnings, especially when export earnings decline below expectations. Successful management of the balance of payments will depend on the conduct of the exchange rate and fiscal and monetary policies. The very inflexibility in respect of the balance of payments makes implementation of these policies difficult.

During the period 1970–85, debt service ratio averaged 18.86 per cent. Though this is a long distance away from high level debtors like Mexico, Brazil or Argentina, with over 30 per cent debt service ratios, it is indeed quite high for a low income country. Even South Korea, the number one debtor in Asia, carried a 19.4 per cent debt service ratio in 1983 (*Far Eastern Economic Review,* January 1985, p.63). Sri Lanka may not be comparable with South Korea. Yet the comparison of debt service ratio of two countries indicates that Sri Lanka's debt burden is rather high for a small country whose export performance is rather weak. This imposes severe constraints on the balance of payments. This exposes the economy to the dangerous eventuality of curtailing imports which could create under-utilization of production capacity and a low level of living. As shown in Table VIII, the external reserves are at such a low level that it cannot continue to provide cushioning support to the balance of payments crisis.

In view of the fact that Sri Lanka has drawn heavily on IMF facilities any further drawing from that source will imply higher interest payments and more rigid IMF conditionality. This means further erosion of living conditions of the people. These adverse trends all emanate from the fact that Sri Lanka during 1970–85 period suffered a decline in its capacity to transfer debt service payments–a development which resulted from the slow export growth, weakening trend in terms of trade, low international reserves and weak overall balance of payments situation.

Utilization of External Loans

The countries depending on external capital for development has to go through a long process to achieve a substantial rate of growth of the economy before it overcomes the foreign indebtedness. Ability of the economy to cope with an increased rate of growth of indebtedness

is primarily determined by the growth of the capacity of the economy to satisfy the on-going debt service obligations. When growth proceeds, the country would be in a position to generate sufficient resources to meet domestic investment requirements as well as to service the external debt. This process is described as a "debt cycle"[10] (Wijewardena, 1971, p. 111, successful emergence from which is possible only if the credit received is channelled to development oriented projects. Efficient management of the projects and the overall economy is the use of borrowed funds are crucial to this process.

In less developed countries, channelling of foreign assistance to real development activity has its limitations, due to the under-developed nature of the economy. The inflow of external capital itself is not a guarantee for successful economic growth in LDCs. Much depends on the clarity of development objectives and the type of entrepreneur class available at all times to energise development effort. It is also important to recognise the nature of the political elite behind the development effort, and the forces that influence the levers of political power. When such forces are rational and development oriented, any form of capital inflow can be put to good use. This is one of the reasons behind some of the successes of newly industrializing countries like South Korea, Taiwan, Hongkong and Singapore. However, in most of the less developed countries, fragile and irrational ruling classes mismanage the economies of their countries leading to wastage of capital. It is well known that the earnings of many oil exporting countries were not properly managed by the respective ruling classes and therefore economic development in most of those countries has failed to transform their economies to bring about sufficient impulses to overcome poverty. Mismanagement of the ruling classes is a problem relevant to many LDCs.

Even if meticulous effort is made to ensure proper investment, one would find it difficult to undertake a realistic assessment of the contribution of external assistance to economic development as many complex factors and variables are involved, which cannot always be subjected to scientific inquiry and also for various data limitations. For instance, it is a common complaint that though Sri Lanka receives a substantial amount of external resources, a very high percentage of it is wasted. This aspect of utilization problem is difficult to assess in the absence of suitable empirical data. Similarly the role played by so-called non-economic factors like cultural practices, attitudes etc.

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10. Wijewardena citing D. Avramovic, 1964, *et al., Economic Growth and External Debt*, Baltimore, pp 168 – 170.

in development is not measurable. Therefore our evaluation of foreign indebtedness in relation to development will be somewhat limited and incomplete.

Some of the data pertaining to utilization of external loans in Sri Lanka are given in Table IX. The percentage of utilized loans to total amount of loans, (utilization ratio) is shown in Column 4. The utilization rate implies the normal time lag between the signing of loan agreements and commencement of disbursements. The low utilization rate was very significant since 1977, arising from the fact that absorptive capacity of the economy did not keep pace with the large increases in the inflow of external assistance in response to the changed political climate and economic policies of Sri Lanka. However the magnitude of the projects such as Mahaweli river development does not permit the utilization of total amount of loans agreed upon within a particular year. Therefore the data in Table IX regarding utilization rates of loans do not give a realistic picture of the situation.

TABLE: IX

SUMMARY OF UTILIZATION RATES OF FOREIGN LOANS CONTRACTED BY SRI LANKA DURING 1970–1982

SDR MILLION

Year	Amount contracted during the year (1)	Amount utilized upto 31.12.82 (2)	Amount unutilized upto 31.12.82 (3)	Utilization rate 2 as a % of I (4)
1970	181.96	172.55	9.41	95
1971	271.96	266.59	5.54	98
1972	353.13	204.72	148.26	58
1973	185.12	181.71	3.41	98
1974	224.06	207.80	16.13	93
1975	624.00	464.97	159.03	74
1976	264.93	232.91	32.02	88
1977	272.42	227.44	44.89	85
1978	355.23	288.36	66.77	81
1979	359.46	241.17	118.30	67
1980	513.94	169.52	344.42	33
1981	641.62	172.64	468.98	27
1982	424.90	85.65	339.25	20

Source: Review of the Economy, 1982, Central Bank of Sri Lanka table 10.20, p.290.

Generally, problems creating low utilization of external assistance are quite familiar in the less developed countries. These problems include international factors like constraints in supply of goods and services, changes in the world market, administrative limitations of the recipient, the constraints related to timing of aid commitments during the year, disbursement procedures of the various donors etc. (Sobhan, *op.cit,* p.72). Low utilization of foreign assistance which is referred to as low absorptive capacity is an accumulated result of many such factors. It is not a simple problem that can be solved in a short spell of time, through remedial measures affecting terms and conditions of current external resources management. Low utilization rate of external assistance in fact is a development problem in itself (Brandt, 1980, p. 243), arising from the under-developed nature of the LDCs.

While all these limitations are applicable also to Sri Lanka, there is a specific issue that affected the utilization of external assistance since 1977. There was a relative shift over time from food and commodity assistance towards project assistance of slower disbursement type. According to World Bank estimates, in 1978 food and commodity assistance was 40 per cent of the total annual foreign capital inflow to Sri Lanka. This percentage declined to 30 per cent in 1979 and 20 per cent in the 1980's (IBRD, 1984, op.cit, p.34). This implies a rapid increase in project loans within a short period. It is difficult to expect the expansion of absorptive capacity of the economy to keep pace with such rapid transformation of aid inflows, unless it is improved with more purposeful technical assistance to identify, prepare and implement projects and to help to operate plants and installations already established.

Yet another important factor that contributed to slow utilization of external resources concerns with the lapses in the management policies of the authorities in terms of obtaining external assistance. During the period 1978–80, line Ministries[11] devoted most of their efforts to introduce new projects rather than implementing those which had already been approved. This eagerness to introduce new projects had adverse effects on disbursement on on-going projects. The Finance Minister in his Budget speech for 1984 commented on the problems of under-utilization of external resources as follows:

> The degree of under-expenditure serves to highlight over-ambitious budgeting by Ministries without due regard to implementation capacity. There seems to be greater enthusiasm to obtain foreign

11. Ministries involved in development activities. Approval of these Ministries are required to include projects in Public Investment programme for funding.

aid for projects than there is for implementation on schedule. Donor Governments and Agencies have for some time been critical about slow disbursement of project aid. Ironically, the enthusiasm to get new projects included in the Investment programme continues unabated while old and aid financed projects languish due to slow implementation. This means that foreign aid which could have been used very profitably for other priority areas have been swallowed up by long gestation and less urgent projects. This is a serious matter which deserves the attention of all Development Ministries.

(Minister of Finance, 1984, p. 46).

When budgetary control was strengthened, disbursement was further constrained by large cuts in non-Mahaweli capital expenditure.[12] The project loan disbursements have also tended to lag behind as a result of budgetary procedures related to the reimbursements by donors of local expenditure. There are many instances where work had been done by line Ministries under budgetary allocations from the consolidated fund, but the reimbursement claims to donors tended to lag behind. The Mahaweli aid, on the other hand, it being a lead project, was generally well disbursed. It is an indication of high priority being attached to the programme and the fact that most of the external resources were given towards financing obligations to foreign contractors, who are operating under tight schedules (IBRD, 1984, *op cit*, p.35).

In contrast to the inflow of external resources for projects, commodity and food assistance, disburse rapidly due to donors' commitment, efficient procedures and relatively few institutions involved in Sri Lanka. Such assistance continues to provide one of the quickest and most effective sources of budget and balance of payments support (*ibid*, p.36).

Lack of appropriate institutional arrangements for monitoring and controlling, utilization and repayment of loans is a common feature in most of the developing countries as much as in Sri Lanka. Inadequate knowledge of extent of assistance required, absence of an overall macro economic framework to guide amounts to borrow, limitations of knowledge or expertise to decide on the best mix of loans and credits on terms appropriate to the country, all have contributed to the problem of under-utilization of external resources (Kappagoda, 1984, p.84). The amount any country should borrow is determined not only

12. The Minister of Finance introduced cuts on allocations to various Ministries at the time of presenting the Budget for 1983/84 in the Parliament.

by demand but also by the ability to absorb foreign capital without risking a breakdown in external payments. Borrowing programmes have to be formulated in the context of long-term balance of payment projections, though such projections will provide only partial analysis of the economy.

In the case of Sri Lanka, an external borrowing programme was not properly constituted on the basis of the needs and possibilities of the economy. Especially since 1977, it was much easier to obtain concessionary loans from the West. Therefore, all efforts were focussed on raising funds more than on their effective use. The net result of this unplanned receiving of funds has been the under-utilization of external loans received (Table IX). Since 1979, an attempt is being made to centralize and institutionalise proper procedures for monitoring external resources through the external resources division of the Ministry of Finance and Planning. For the first time, the government investment plan was published in 1979. A more flexible and pragmatic concept of planning is used in this document than the practice of more familiar central planning and is referred to as "Rolling Planning". The plan keeps moving forward in five year periods, under which targets are revised every year, taking into account new resource positions and new economic challenges. High priority will be accorded to the completion of on-going projects and the consolidation of past investments. A relatively larger share of resources than in the past will be allocated for operation and maintenance of the increasing capital stock. Further decisions concerning new projects will be based on a careful examination of national priorities and the need to redress existing imbalances in the public investment programme (National Planning Division, 1985, p.3). This is a step in the right direction in terms of formulating future borrowing strategy, so that full utilization of foreign loans can be ensured, provided the economic discipline expected of the country is observed carefully. However, currently, under-utilization of external loans is an unresolved, growing problem in Sri Lanka. It is indeed a critical issue as it is directly related to the growth of the economy and its capacity to pay back external debt obligations.

Yet another aspect of utilization of foreign loans is the profitable use of such resources to generate foreign exchange, so that debt obligations can be met without having to forgo other foreign exchange needs of the economy. When foreign loans are mostly used in infrastructural development and projects taking long gestation periods, such investments are not helpful in the short run to increase the country's capacity to settle international debt obligations.

In the case of Sri Lanka many of the foreign loan agreements since 1970 have been tied to projects taking long periods to generate substantial benefits in terms of external resources. For example, the Mahaweli project is the biggest in size as well as in volume in terms of utilization of foreign loans. According to the records of the external resource division of the Ministry of Finance and Planning, thirty one agreements have been signed to obtain foreign assistance for the Mahaweli Development Project from 1970 to 1982. The total amount of aid pledged through agreements amounts to approximately Rs. 19,700 million. Of this amount, 23 loans account for 14,000 million and 8 grants for the balance 5,700 million. It is recorded that 85 per cent of these aid agreements have been signed during the three-year period from 1979 to 1981.

It is true that the public investment programme has had some inflexibility in the past due to lumpy investment projects such as Mahaweli (*ibid,* p.12), large amount of investment in this project is not going to generate substantial resources immediately to meet the debt service obligations arising from loans obtained to finance that investment. One can argue that those were mostly concessionary loans with long gestation periods and therfore they do not add immediate burdens on debt servicing capacity of the country. However, those were not the only loans that Sri Lanka received during that period. There were commodity loans, medium-term loans, which add to the debt burden somewhat in the short run, though they were not necessarily foreign exchange yielding. The debt service obligations arising from such loans should be covered by the foreign exchange yielding short-term projcts. Otherwise the country will have to seek further foreign loans to service already taken loans.

Most of the loans received during this period for projects in Sri Lanka were projects such as irrigation, rural development, road development, water supply and drainage etc. They are not projects that will bring quick foreign exchange yields or quick foreign exchange savings. This aspect of the utilization of foreign loans poses a serious debt servicing problem in addition to the problem of limitations in absorptive capacity which lead to low utilization rates.

Government policy and Debt problem

The fifteen-year spell from 1970–1985 could be divided into two periods on the basis of the different economic policies followed by the country. During the period 1970–1977, there was a debt which had a tendency to grow at a rapid rate. The short-term foreign liabilities with a maturity of less than 12 months were at the level of Rs. 130

million by the mid 1970's. The reserves of the Central Bank were declining. The total external assets were at a critically low level and only a fraction of these were available in liquid form. Large repurchases were due to be made from the IMF and repurchases were continuing to be in excess of the purchases (Hewavitharana, 1975, p.12). As shown in Table III, the debt service ratio was rising and 1/5 of the export earnings was earmarked for repayment of debt. In 1970, 65 per cent of the gross borrowings of Rs. 1124 million was required for servicing and repayment of debt. In fact after servicing the foreign debt, the remaining foreign exchange was insufficient to buy the essential requirements such as food, textiles, drugs etc. (Ministry of Planning and Employment, 1971, p.9).

Many steps were taken as a response to these problems. Import controls were hightened. The allocation of foreign exchange to industrial sector was also reduced. As a result of these measures, by 1971, imports declined by about 16 per cent compared with the preceding peak year of 1969. These foreign exchange saving methods were supplemented by the increase in earnings from the export of gems, with the setting up of the State Gem Corporation. Income from gem exports increased from Rs. 4 million to Rs. 152 million a year. Further to this, the increase in port charges by 25 per cent and the establishment of the National Shipping Corporation helped to improve the foreign exchange situation (Hewavitharana, *op cit,* pp 13–14).

These measures provided a short lived relief. Reduced current account deficit and improved foreign exchange reserves did not bring about a fundamental improvement in the balance of payments or in the general performance of the economy. The adverse terms of trade, poor export performance and economic stagnation were still present. Whatever the relief that was obtained was also at the expense of domestic investment and capital formation. Reduction of the essential raw material imports caused idle production capacity (*ibid,* p. 16).

During the early 1970's, the aim was to reach a self-reliant external payments position at which continued support from short-term overseas borrowings were no longer required. To achieve this target, several methods were adopted. The major portion of Central Bank's borrowings from foreign commercial banks was repaid and an agreement was reached with those foreign banks whereby loans with maturity of less than 12 months were to be repaid over a five-year period beginning from 1972. Foreign bank credit disappeared as a method of financing the resource gap in the early 1970's. Suppliers' credit was deliberately limited. Such loans should be used only for projects likely to result

in saving or earning foreign exchange (*ibid*, p. 17). While explaning this strategy to the Parliament, the then Minister of Finance, Dr.N.M. Perera argued that:

> "The seriousness of the foreign exchange problem though seemingly beyond our immediate control, can in the final analysis be mitigated by our own concerted efforts. The rational utilization of whatever is available in foreign exchange is a major course of action open to us. This must in effect suggest that as much of these scarce resources be harnessed to expand the productive base of the economy, and commit our people to a strategy which must inevitably bring with it intensified efforts at import substitution and adherence to ways of simple living. While the present foreign exchange crisis demands that in the short run we resort to borrowings from foreign sources, it is imperative that such measures be contained within limits, in view of the fact that cumulative borrowings of the past are now depriving the economy of a sizeable proportion of its foreign exchange earnings on account of debt servicing and can, if not arrested with purpose, cause an unduly heavy burden being cast on the future generations of this country. The implications of this difficult positon are that the country's dependence on foreign borrowings must be reduced and kept within manageable limits, an objective which can only be achieved by an adjustment of consumption and saving patterns." (Perera, 1971, p.V).

In keeping with that strategy, suppliers' credit as shown in Table II, was reduced substantially during 1971–1972. The commercial bank borrowings as shown in Column 4 of the same table was progressively reduced upto 1974. Since then it rose once again in 1975 indicating the severity of the contemporary exchange crisis. The policies followed by the Sri Lanka government upto 1975 in the form of price and import controls, expansion of State sector, welfare measures etc. were not received with favour in the Western capitals or agencies like the IMF and International Bank for Reconstruction and Development. As a consequence, the inflow of concessionary loans remained low and private foreign capital kept away (Lakshman, *op.cit*, p.17).

In addition to this unfavourable reception from the potential sources of concessionary loans, the regime in power during this period was placed at a disadvantage by two major developments beyond its control. Firstly, the oil producing countries' determination to take control of fixing the prices of their oil in 1973–1974 caused a 500 per cent increase in oil prices. This oil shock added a huge amount to the already existing deficit in the balance of payments. The total

balance of payments deficit of non-oil-exporting less developed countries reached dollars 30 thousand million in 1974 and kept on accumulating in subsequent years (Mandel, 1980, p.46). Sri Lanka as a dependent country on the world market had to pay higher prices not only for oil but also for oil-related products. Under these circumstances, Sri Lanka's drawings from the IMF rose approximately by Rs. 360 million under the oil facility for 1974 and 1975 (CBR, 1975, p.207).

Secondly, during the period 1974 and 1975, the international capitalist economy suffered its first generalized recession since the end of the Second World War (Mandel, *op.cit*, p.9). This recession brought down production, increased unemployment and pushed up the rate of inflation in developed countries, leading to an upward movement of their export prices too. This aggravated the balance of payments problems of the less developed countries as they were dependent very heavily on imports from the developed world. The foreign debt of LDCs almost doubled between 1973 and 1976 and debt service ratio rose from 12.9 to 25.6 per cent (*ibid*, p.11). As shown in Table II, Sri Lanka's foreign debt doubled during 1970–1975 and debt service ratio reached an all time record of 23 per cent in 1973. This means that the country was forced to obtain higher levels of short-term foreign commercial loans in the form of suppliers' credit to finance the import needs of the country. As shown in Table II, the suppliers' credits doubled between 1973 and 1975 and commercial bank borrowings indicated a rising trend after 1974. If not for the increased concessionary assistance from the IMF as indicated in Column 3, the situation would have been more serious in view of the fact that the share of long term loans in the total debt came down to 66 per cent in 1974. However, a high proportion of the short term loans changed the foreign debt structure of the country, pushing up the debt service ratio. The policy of the government to reach a self-reliant external payments position during 1970–1975 was positively hindered by the developments in the world economy.

The period between 1976 and 1977 witnessed indications of policy changes in the management of the economy. One coalition partner of the government, the Lanka Sama Samaja Party, left the government by then and the Finance portfolio was given over to a Minister who was not in favour of a controlled economy. The 1976 Budget indicated more market oriented trends[13] and in fact there

13. In 1975, United Front Government collapsed with the expulsion of the LSSP from the Coalition. Since then SLFP Government initiated policy changes aiming at obtaining Western economic support.

was criticism of nationalization policy in public, by important personalities of the government. These were signs that a new approach to development was emerging within the government circles. Even the free trade zone idea which was implemented after 1977, emerged during that period. What followed after 1977 could be considered as a more eloquent expression of policy changes which appear to have been envisaged after 1975. In that sense, the period from 1975 to 1977 can be characterised as a transitional period.

Though Sri Lanka was not favourably considered for concessionary loans by the centres of world capitalism till about 1977, it is to the credit of Sri Lanka's welfare policies which sustained relatively high levels of welfare in comparison with countries in the Asian region. As shown in Table X, during the early 1970's, Sri Lanka had the lowest (equal with India) level of per capita GNP, yet it had the second highest per capita calorie consumption level, second lowest infant mortality rate and the highest level of life expectancy. Furthermore, it had the highest availability of hospital beds, the highest rate of primary school enrolment and the second highest rate of secondary school enrolment. Even the IBRD considered these aspects of Sri Lanka's achievements with favourable references:

> "Sri Lanka's record of life expectancy, literacy, fertility (in relation to its low income level) is one of the best in the world. Sri Lanka has done no worse in terms of growth than other countries at its income level, while greatly out-performing them in human development" (as cited by Lakshman, *op.cit*, p.19).

TABLE: X

WELFARE LEVELS IN SELECTED ASIAN COUNTRIES – EARLY 1970'S

	GNP[a] per capita	Calories[b] per capita	School enrolment[c] 6–12	14–17	Life[d] expectancy	Infant mortality	Persons for hospital beds
India	150	2008	53.6	20.2	47.2	122	1538
Indonesia	180	2005	n.a.	n.a.	47.5	125	1452
Philippines	370	2094	61.6	50	60	68	785
Sri Lanka	150	2149	73.4	47	65.9	49	330
Thailand	350	2305	65.4	17.1	57.6	27	1345

Source: (Richards and Gooneratne, 1981, p.11)

a – US dollars, 1975
b – Average 1970–1974
c – From UNESCO and National Census
d – Males only.

In spite of such recognition extended to Sri Lanka's general performance as a poor country, concessionary loans were restricted by the same organizations. The reason for this state of affairs was obviously the fact that the policies that were pursued in early 1970's were not in the interest of world capital. This observation is vindicated by the rapidity in which concessionary loans began to flow into Sri Lanka immediately after the policy changes in 1977.

The donor agencies and countries which had been unhappy with the type of policies followed in Sri Lanka since 1970, became very sympathetic to the new regime that assumed power in Sri Lanka after 1977.[14] Management of the economy was substantially altered to usher in an open economy. This was in essence the acceptance of the general IMF prescription to the less developed countries, the basic components of which are now quite well known (Payer, *op.cit*, p.33). The objective of these IMF policy prescriptions is to ensure a fundamental re-orientation of economic policies towards growth through market mechanism, which would enable the IMF to recommend to aid donors the desirability of greater concessionary assistance to the country concerned (Lakshman, *op cit*, p. 17).

This development is reflected in the composition of foreign debt. Table II shows that the percentage of long-term loans in the total debt increased to over 80 per cent after 1977 and remained at that level till 1980. The relief that the economy received is reflected by the declining debt service ratio as shown in Table III, Column 5. In fact, debt service ratio declined rapidly and reached 12.4 per cent in 1980, although it began to rise gradully in subsequent years. This increase can be explained in relation to two factors. Firstly, the grace periods on concessionary loans contracted in the mid-1970's which held back total debt service payments were coming to an end. This is shown in Table III Column 1. Since 1977, amortization payments were increasing at a rapid pace and so also were the interest payments, which more than doubled from 1980–1981. Secondly, private commercial bank loans increased on account of borrowings of certain public corporations, Air Lanka Ltd., the Greater Colombo Economic Commission and some government approved enterprises beginning from 1979. In 1984 suppliers' credit and commercial bank loans obtained by the State declined, but this does not provide a sufficient basis to expect a continuing trend in the same direction in the years to come. The contemporary tea boom helped to reduce short term loans in 1984.

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14. Since 1977, concious effort is being made to cut down welfare measures such as subsidies on food items, health, education, etc.

Even with exceptional export earnings in 1984, the debt service ratio remained as high as 17 per cent. Showing the peculiarity of 1984 anyway, the debt service ratio in 1985 rose to 22.4 per cent.

During the period 1978–85 investment increased to an average of 27 per cent of the GDP as against 15 per cent during 1970–1977 period. Annual economic growth rate was maintained at an average of 5 per cent for the period 1978–1985. Rice production virtually reached the self-sufficiency point. The development of hydro-electricity facilities, associated with the Mahaweli has permitted some containment of the oil import bill, also helped in this regard by the collapse of world oil prices. Some success was achieved in the development of export products, mainly garments, and also exports of food products, ceramics, leather and wood products (IBRD, 1986, p.1). Though growth of exports in relation to foreign exchange needs is relatively slow, Sri Lanka's exports are considerably more diversified now than they were a decade ago. Large amounts have been invested in infra-structural development, crucial to long-term development of the country. Even the structure of imports since 1977 has changed in favour of development as shown in Table XI. More money is being spent on intermediate and investment goods than on consumer goods.

TABLE: XI

STRUCTURE OF IMPORTS 1977–1984

(SDR Million)

					Composition (%)			
	1977	1982	1983	1984	1977	1982	1983	1984
Consumer goods	270	374	482	355	43	20	27	19
Intermediate goods	262	943	844	988	42	52	47	53
Investment goods	73	505	480	500	12	28	26	27
Unclassified	17	4	5	12	3	0	0	1

Source: Public Investment, 1985–1989, National Planning Division.

These achievements were considerably helped by the positive responses of international capital towards Sri Lanka since 1977. Even within a hostile international environment characterised by the second oil price shocks of the late 1970s and the early 1980's, conscious attempts to contract the economy of the U.S.A., and general recession in the world economy, Sri Lanka received substantial amounts of concessionary loans. Even small quantities of foreign capital can contribute to set off growth impulses in a small country like Sri Lanka to an extent not feasible in a large economy. Perhaps Sri Lanka is reaping this benefit at the moment.

Notwithstanding these moderate achievements, one must take note of the fact that Sri Lanka is currently integrated to the world capital more than ever since 1950's. This dependency on foreign capital and increasing indebtedness could lead to serious balance of payments problems in future unless suitable policy measures are implemented to deal with increasing debt repayment obligations. As projected by the World Bank, Sri Lanka's debt service ratio could reach 30.5 per cent in 1987 (*ibid*, p.25). If such projections are found to be correct without much needed growth of the economy and export diversification and growth, Sri Lanka could face the same problems as the big debtor countries.

Conclusions

The foregoing investigation highlights Sri Lanka as an agricultural country, burdened with a persistent trade gap. Sri Lanka is dependent on external markets to sell its primary products and to import a substantial quantity of consumer and capital goods. The trade gap arises from high prices it has to pay for imports and low prices it earns from exports. To bridge this recurrent trade gap, Sri Lanka has depended on external assistance for some time. The loan component of this assistance increased over the years and as a result Sri Lanka has accumulated a large external debt.

During the period 1970–75, the Government of Sri Lanka followed economic policies that strengthened State intervention in the economy. The policies of that government were composed of elements like price controls, exchange controls, nationalisation of business enterprises etc. Such policies were looked upon as detrimental to growth of private enterprise by the Western world and as inimical to economic growth and stabilisation. Therefore, Sri Lanka found it difficult to obtain concessionary loans from the West. It was forced to seek commercial loans and suppliers' credits to meet urgent import needs of the economy at the time.

However, since 1977, with the change of government policies, Sri Lanka received a generous response from the Western world in terms of financial assistance. That change of attitude placed Sri Lanka at an advantageous position to receive concessionary loans which enabled the country to start numerous projects. Yet at the same time, since 1977, Sri Lanka's foreign debt increased rapidly and also its debt service obligations. In the first few years of this regime the actual debt service ratio declined, but subsequently it registered a gradual increase.

The relief that Sri Lanka enjoyed as a recipient of concessionary loans was somewhat offset by the increase of commercial borrowings of government approved enterprises after 1979. This is reflected in the increase of the debt service ratio to 22.4 in 1985, with the possibility of projected increases to over 30 in a few year's time. This will impose more severe burdens on the limited foreign exchange earnings of the country.

Low utilization of foreign loans, partly a reflection of the limitations of the absorbtive capacity of the economy, has been noted as a serious problem. Urgent measures are required to strengthen the absorbtive capacity of the economy. Improved absorbtive capacity will help to maximize efficiency and economical use of resources and also generate sufficient resources to repay debt service obligations.

The growth of the economy since 1977 has been initially encouraging. There was an improvement of the GDP growth rate, to be followed by a gradual decline in this rate in subsequent years, signifying the fact that the economy is unable to sustain very high levels of growth under the present structural and other conditions. Capital formation improved since 1980, though half of it was funded with foreign loans. Domestic savings ratio was low during this period. Sri Lanka's high propensity to consume weakens the savings capacity of the eocnomy. Increased borrowings from abroad also encourage consumption based on imported consumer goods. The situation is further aggravated by the fact that well over a quarter of the gross domestic savings had to be earmarked for payment of debt service obligations. It is detrimental to self-reliant growth of the economy as the country is forced to seek more and more external resources every year to get over balance of payments difficulties. While this trend weakens debt service payment capacity, it also adds to the debt burden. Worst of all, Sri Lanka has got deeply entangled in world capital whereby it is being forced increasingly to accept the terms and conditions of world capital. This naturally curtails the independent decision-making capacity of Sri Lanka.

The debt service transfer capacity of the country also weakened during the period 1970–1985. This is reflected in the gradual weakening of the terms of trade over the years and the growing balance of payment problems. On the whole, one could surmise that since 1980, Sri Lanka's debt service payment capacity has declined both at the domestic and at the international levels. While it is true that the inflow of external capital helped the economy to sustain a reasonable growth rate during the 1980's, the burden of accumulated debt as projected

by the World Bank could bring about many difficulties in managing the balance of payments, unless development efforts now under way facilitate the economy of Sri Lanka to reach a sustainable internal and external equilibrium in the economy.

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Upanathi
Vol. 1 No. 2, July 1986.

WORKER REMITTANCES INTO SRI LANKA FROM ABROAD: A PRELIMINARY STUDY*

R. A. Jayatissa

1. INTRODUCTION

The last thirteen years after the first oil price shock in 1973 witnessed a phenomenal increase in outflows of labour from labour surplus countries to the oil rich Middle Eastern countries. Employment opportunities were opened for all categories of labour, but largely for unskilled and semi-skilled categories. While outflows of labour from these countries helped to reduce, temporarily, their unemployment rates, home remittances by those migrant workers helped to cushion their balances of payments from the oil price shock. Among the Asian countries Bangladesh, India, Pakistan, Philippines, Sri Lanka and Thailand were the major beneficiaries from this employment boom. The total inward remittances by migrant workers of these six countries

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* This is the revised version of a seminar paper presented by the author at the Sri Lanka Foundation Institute in August, 1986 for a National Workshop on "Reintegration of Returnee Migrant workers and the use of Remittances." The author is thankful to Prof. W.D. Lakshman, Head of the Department of Economics, University of Colombo for his valuable comments on an earlier version of this paper.

increased from about SDR 328 million in 1973 to SDR 5074 million in 1982 and became a major source of foreign exchange earnings.[1]

In Sri Lanka the measures introduced with the economic reforms of 1977 removed some major institutional and administrative barriers which inhibited foreign travel in the previous policy regime.[2] Immediately followed was the second oil price shock which gave a further boost to foreign job seekers. Total private remittances consisting mainly of remittances made by Sri Lankan nationals working abroad increased from an annual average level of SDR 17 million (Rs. 283 million) during 1973–79 to SDR 239 million (Rs. 7,106 million) during 1980–85 period.[3]

This paper reviews the experience of worker remittances in Sri Lanka with a view to highlight the policy significance of migrant transfers and identifying the required areas of research. The second section of the paper reviews the past trends in migrant remittances and analyses the importance of such transfers in the context of the country's balance of payments developments. The third section of the paper examines the major determinants of home remittances by migrant workers. The fourth section of the paper looks at the existing institutional arrangements in Sri Lanka to mobilize private remittances. The last section highlights the policy significance and required areas for future research on this subject.

II. TRENDS IN WORKER REMITTANCES

Remittances by Sri Lankans employed abroad are classified under private transfers in the balance of payments accounts. Approximately 95 per cent of private transfers consists of worker remittances. Therefore, conclusions that can be drawn from an analysis of the patterns

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1. Actual data on inward remittances by migrant workers are available for Bangladesh, Pakistan, Philippines and Thailand. Worker remittances accounted for 90 per cent of the total private transfers in these four countries. The total for six countries have been derived by taking 80 per cent for India and 95 per cent for Sri Lanka.

2. Prior to the policy reforms of 1977 travel for employment abroad could be done only with a pre-paid ticket. Obtaining permission, specially for the skilled group professionals was extremely difficult. Under the present system, Sri Lankan residents are allowed once in every two years a basic foreign exchange allowance of Indian Rupees 2,000 an adult and Indian Rupees 1,000 a child under 12 years, once in every two years for travel to the "Indian Group of Countries" that has been defined as including Bangladesh, Bhutan, Burma, India, Maldives, Nepal and Pakistan. Basic allowances of £ Stg. 500 for an adult and £ Stg. 250 for a child are allowed every four years for travel to other countries. Additional foreign exchange is allowed to pay for air-fares involved in such travel.

3. Annual average of quarterly flows at quarterly average exchange rates.

TABLE: 1

PRIVATE TRANSFERS IN RELATION TO IMPORTANT MACRO–VARIABLES

Year	GPT		EXP	IMP	CRBP	FAG	GDP	Percentages of GPT to				
	Rs. Mn.	SDR Mn.	SDR Mn.	SDR Mn.	SDR Mn.	SDR Mn.	Rs. Mn.	EXP	IMP	CRBP	FAG	GDP
1975	60	7.1	464.0	632.0	533.5	98.0	26,577	1.53	1.2	1.33	7.24	0.23
1976	109	11.2	484.0	557.0	562.1	144.4	30,203	2.31	2.01	1.99	7.76	0.36
1977	190	17.1	651.0	622.0	697.9	501.7	36,407	2.63	2.75	2.45	3.41	0.52
1978	610	31.3	674.4	890.0	804.5	371.0	42,665	4.64	3.82	3.89	8.44	1.43
1979	935	46.5	758.6	1,121.0	952.0	474.9	52,387	6.13	4.15	4.88	9.79	1.78
1980	2,518	115.3	798.3	1,576.0	1,133.4	295.8	66,527	14.44	7.32	10.17	39.00	3.78
1981	4,430	195.1	902.9	1,596.0	1,356.8	387.2	85,005	21.61	12.22	14.38	50.39	5.21
1982	6,024	262.4	918.2	1,804.8	1,477.2	477.7	100,140	28.58	14.54	17.76	55.3	6.02
1983	6,916	275.1	993.0	1,793.6	1,747.6	498.5	121,928	27.70	15.34	15.74	55.19	5.67
1984	7,653	293.5	1,427.4	1,880.0	2,247.4	735.1	153,746	20.56	15.61	13.06	39.93	2.98
1985	7,991	290.0	1,291.8	1,985.1	2,063.4	557.1	159,787	22.45	14.61	14.05	52.06	5.00

Source: Central Bank of Sri Lanka

Note:
GPT – Gross Private Transfers Receipts
EXP – Exports
IMP – Imports
FAG – End year Gross External Assets
GDP – Gross Domestic Product (Market Prices)
CRBP – Credit Items of the Current Account of the Balance of Payments excluding official transfers.

TABLE: 2

PRIVATE REMITTANCES 1981 – 1985

ORIGIN	SDR million							Percentage Share						
	1979	1980	1981	1982	1983	1984	1985(a)	1979	1980	1981	1982	1983	1984	1985
Middle East	9.7	45.4	90.2	140.0	149.1	159.4	147.6	20.8	38.8	46.2	53.4	54.2	54.3	50.9
North America	16.0	34.3	27.8	28.0	37.3	48.9	50.5	34.5	29.4	14.2	10.7	13.6	16.7	17.4
E.E.C.	9.4	19.1	49.2	64.4	47.8	41.9	44.9	20.3	16.4	25.2	24.5	17.4	14.3	15.5
South East Asia	2.5	6.1	3.9	6.9	10.3	9.1	11.5	5.5	5.2	2.0	2.6	3.7	3.1	4.0
Far East Asia	4.0	3.7	6.0	4.9	8.0	10.4	11.0	8.6	3.1	3.1	1.9	2.9	3.5	3.8
Europe – Other	1.3	2.6	7.5	7.3	7.8	8.5	9.9	2.9	2.3	3.9	2.8	2.8	2.9	3.4
South Asia	0.3	1.2	1.4	3.6	5.9	6.9	7.2	0.7	1.0	0.7	1.4	2.2	2.4	2.5
Australasia	0.4	1.3	3.4	0.9	2.6	2.9	3.2	0.8	1.1	1.7	0.3	1.0	1.0	1.1
Central Africa	0.2	0.5	4.0	2.6	2.6	2.1	2.3	0.4	0.4	2.0	1.0	0.9	0.7	0.8
South Africa	1.9	2.1	1.0	2.0	2.3	2.2	1.0	4.1	1.8	0.5	0.8	0.8	0.7	0.3
North Africa	...	0.1	0.6	0.8	0.4	0.4	0.3	0.1	0.1	0.3	0.3	0.2	0.1	0.1
Soviet Block	0.1	0.2	0.1	0.1	0.3	0.3	0.3	0.2	0.2	0.1	...	0.1	0.1	0.1
Latin America	...	0.1	...	0.1	0.1	...	...	...	...	...	...	...	...	...
Other	0.5	0.3	0.2	0.8	0.6	0.5	0.3	1.1	0.2	0.1	0.3	0.2	0.2	0.1
Total	46.3	117.0	195.3	262.4	275.1	293.5	290.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Provisional.

Source: Central Bank of Sri Lanka.

Note: This country classification is not hundred per cent accurate. It is quite possible that some of the remittances originating from Middle East countries and others get classified under incorrect groups, mainly in North America and EEC groups, because most of the transfers are taking place through American and European banks and in some instances the country of residence of those effecting remittances is not available.

and trends of private transfers would be equally valid for worker remittances as well. During the 1973–1979 period, private transfers increased at an average rate of 58 per cent annually (i.e. from SDR 3 million in 1973 to SDR 46.5 million in 1979). These transfers showed a further increase of 45 per cent per annum during 1979–1984 period and reached its peak (SDR 293.5 million) in 1984.[4] Balance of payments figures for 1985 showed a marginal decline (1.2 per cent) in private transfers, a decline for the first time after 1972.[5] This could well be the first sign of emerging bleak prospects in regard to worker remittances from oil producing countries in the wake of falling oil prices. Private remittances from the Middle Eastern countries declined by 7.4 per cent during this year.

A substantial portion of inward remittances by migrant workers are deposited in Non-Resident Foreign Currency Accounts (NRFCs). The total deposits in these accounts increased from SDR 2.4 million in 1980 to SDR 97.9 million in 1985. However, information on worker remittances which are deposited in NRFC accounts is not available. The above figures include the deposits belonging to other eligible individuals as well. From a balance of payments point of view those amounts of NRFC balances which are converted into local currency or utilized for making foreign payments are treated as private transfers.

A number of indicators can be derived to measure the importance of these transfers in Sri Lanka. Some of the major indicators are the ratios of private transfers to exports, total current receipts of the balance of payments, imports, total gross external assets, net petroleum imports, gross domestic product etc.[6]

Private transfers as proportions of important macro-economic variables listed grew rapidly after 1975. They have become a major source of foreign exchange earnings to the country. Export earnings grew at an average rate of 10.7 per cent in SDR terms during 1975–85 whereas private transfers grew by 44.9 per cent annually. The ratio of private transfers to exports increased gradually from 1.5 per cent in 1975 to 28.6 per cent in 1982 and remained over 20 per cent during the following years. The comparable ratios in eight selected Asian countries are shown in Table 2. Sri Lanka has shown a similar growth rate of private transfers as those of Thailand. According to Table 3, the growth rate of private transfers in Sri Lanka and Thailand are 45 per cent and 46 per cent respectively during 1978–84 period. However,

4. The periodic percentage changes are given on a compound basis.
5. However, in rupee terms 1985 figure was higher than in 1984. (See Table 1).
6. A number of other indicators can be derived. Reference have been made only to the indicators that have been used in this paper.

TABLE: 3

INTERNATIONAL COMPARISON OF PRIVATE TRANSFERS

(With selected Asian Countries)

Country		1978	1979	1980	1981	1982	1983	1984	1985
Sri Lanka:	A	31	47	115	195	262	275	294	290
	B	4.6	6.1	14.4	21.6	28.6	27.7	20.6	22.5
Bangladesh:	A	101	129	232	342	358	606	592	–
	B	23.0	25.4	38.9	51.2	51.4	89.5	65.1	–
Burma:	A	2	7	6	5	6	8	7	–
	B	0.9	2.5	1.8	1.1	0.9	2.2	2.0	–
India:	A	934	1,112	2,119	1,945	2,370	–	–	–
	B	17.9	18.9	33.2	27.3	28.3	–	–	–
Nepal:	A	17	21	27	33	33	39	36	–
	B	23.6	24.7	34.6	27.0	41.7	41.1	27.9	–
Pakistan:	A	1,134	1,222	1,705	1,862	2,534	2,915	–	–
		101.5	81.0	86.3	80.9	119.5	108.4	–	–
Philippines:	A	160	181	234	278	294	226	117	–
	B	5.9	5.1	5.3	5.7	6.5	4.8	2.2	–
Thailand:	A	97	172	361	459	644	951	941	–
	B	3.0	4.2	7.3	7.8	10.4	16.1	13.3	–

Source: International Monetary Fund Balance of Payments Statistics – Year Book 1985.

Note: A – Gross Private Transfers in SDR Million

B – Gross Private Transfers as at percentage of exports.

private transfers to GDP ratio is larger in Sri Lanka than in Thailand. The relevant ratios for Bangladesh, India and Pakistan however have been much larger than for Sri Lanka.

The ratio of private transfers to total credit items or receipts on the current account of the balance of payments (CRBP), indicating the contribution of private transfers to total foreign exchange receipts of the country on external current transactions, has risen from about 1 per cent in the early 1970s to 15 per cent in the early 1980s.

Private transfers have been a valuable addition to the country's gross external assets. When these transfers are converted into Sri Lankan rupees, they become a part of the gross external assets in the banking system. The ratio of private transfers to total gross external assets increased from 7.2 per cent in 1975 to 55.2 per cent in 1985. Foreign exchange inflows by way of private transfers contributed to half of the gross external assets of the country during 1981–85 period. Therefore, in the absence of these private transfers, Sri Lanka's gross external assets would have been largely reduced during this period. Foreign exchange accruing to the domestic banking system may be either used to make foreign payments or added to the net external assets. As in the case of any other net inflows of foreign exchange, that portion of private transfers which become an addition to net foreign assets will be reflected in an equivalent net increase in money supply (in the form of cash, demand deposits or savings deposits) and creates inflation to the extent that they do not generate an additional output. However, this is only a short-run phenomenon. As all foreign exchange received will be utilized to make foreign payments, there is no inflationary impact in the long-run.

Private transfers to imports ratio rose from about 1 per cent in early 1970s to about 15 per cent in 1980–85 period. These remittances helped to a significant extent to maintain the country's liberalized policy in respect of imports and other external payments after 1977. This is specially important since the growth of other sources of foreign exchange earnings including exports was slow but total foreign payments (total current payments and repayment of principal on foreign loans) rose rapidly. Total foreign exchange receipts excluding private transfers, increased by 12.6 per cent per annum as against 20.3 per cent annual increase in total foreign payments during 1978–85 period. Total foreign exchange receipts inclusive of private transfers however increased at a slightly higher rate of 13.4 per cent during this period. In the absence of private transfers the external resources gap could thus have been much larger (See Table 4).[7]

7. The exact change in the external resource gap in the absence of private transfers cannot be shown accurately, because data on import leakage of private transfers are not available.

TABLE: 4
EXTERNAL RESOURCE GAP – RS. MILLION

(SDR Million)

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
1. Foreign Earnings	4,538	5,459	7,753	15,759	19,210	24,726	30,658	34,084	39,987	53,734	52,490
	(538)	(561)	(758)	(805)	(954)	(1,154)	(1,350)	(1,485)	(1,588)	(2,053)	(1,903)
2. Foreign Payments	7,599	7,915	8,613	19,807	26,765	42,424	56,611	63,382	72,937	75,694	81,303
	(899)	(813)	(845)	(1,035)	(1,330)	(2,004)	(2,498)	(2,763)	(2,905)	(2,901)	(2,905)
3. External Resource Gap	−3,061	−2,456	−860	−4,048	−7,555	−17,698	−25,953	−29,298	−32,950	−21,960	−28,813
	(−361)	(−252)	(−87)	(−230)	(−376)	(−850)	(−1,148)	(−1,278)	(−1,317)	(−838)	(−1,042)
4. *Less* Private Transfers (Gross)	+60	−109	+190	+610	+935	+2,518	+4,430	+6,024	+6,916	+7,653	+7,991
	(7)	(11)	(17)	(31)	(46)	(115)	(195)	(262)	(275)	(293)	(290)
5. Gap without Private Transfers	−3,121	−2,565	−1,050	−4,658	−8,490	−20,216	−30,383	−35,322	−39,866	−29,693	−36,804
	(−368)	(−263)	(−104)	(−261)	(−459)	(−965)	(−1,393)	(−1,540)	(−1,592)	(−1,131)	(−1,322)

a/ Value of Exports of goods and services plus private transfer receipts.

b/ Value of imports of goods, services and transfer payments plus principle repayment of all foreign loans (long-term loans, medium-term loans, short-term loans, and suppliers credits)

c/ These figures overestimates the external resource gap as some of the foreign payments (Item 2) would not have taken place in the absence of these remittances.

TABLE: 5

PRIVATE TRANSFERS IN RELATION TO IMPORTS

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Value in Mn SDRs											
1. Total Imports	632	557	622	819	1,121	1,576	1,596	1,808	1,794	1,880	1,954
2. Imports of Petroleum Products	103	120	141	123	194	376	439	534	438	410	397
3. Exports of Petroleum Products	42	51	57	48	96	145	149	143	107	126	140
4. Excess of (2) over (3)	61	69	84	75	98	231	290	391	331	286	257
5. Gross Private Transfers	7.1	11.2	17.1	31.3	46.5	115.3	195.1	262.4	275.1	293.5	290.0
6. Ratios:											
(a) (5) as a % of (1)	1.1	2.0	2.7	2.1	4.1	7.3	12.2	14.5	15.3	15.6	14.8
(b) (5) as a % of (2)	6.9	9.3	12.1	25.4	24.0	30.7	44.4	49.1	62.8	71.6	73.0
(c) (5) as a % of (4)	11.6	16.2	20.3	41.7	47.4	49.9	67.3	67.1	83.1	102.6	112.8

Source: Central Bank of Sri Lanka.

TABLE: 6

INVESTMENTS, SAVINGS AND PRIVATE TRANSFERS

(Percentages to GDP at Market Prices)

Items	1978	1979	1980	1981	1982	1983	1984	1985
1. Investment	20.0	25.8	33.8	27.8	30.6	28.8	25.8	25.9
2. Gross Domestic Savings	15.5	13.8	11.2	11.7	11.8	13.8	19.9	13.7
3. Factor Services (Net)	−0.5	−0.4	−0.7	−2.2	−2.0	−2.7	−2.2	−2.2
4. Private Transfers (Net)	0.8	1.4	3.4	4.6	5.5	5.3	4.6	4.6
5. Gross National Savings	15.5	14.8	13.9	14.1	15.3	16.4	22.2	16.1
6. Foreign Savings	4.5	11.1	19.8	13.8	15.2	12.4	3.6	9.8
7. Private Transfers in National Savings (%)	5.2	9.5	24.5	32.6	35.9	32.3	20.7	28.6

Source: Central Bank of Sri Lanka.

The adverse impact of high oil prices on the balance of payments was offset to a large extent by re-export of petroleum products and increased worker remittances. The argument here is that increased worker remittances were an indirect benefit Sri Lanka received from the oil price increases of the 1970s, since it was the high oil prices which permitted the Middle Eastern oil producers to step up employment of foreign workers in their lands. It is therefore meaningful to assess the contribution of private transfers to ease the pressure on the balance of payments by taking these remittances as a percentage of net petroleum imports. As shown in Table 5, this ratio witnessed a rapid increase and exceeded 100 per cent in 1984 and 1985 showing that private transfers were more than sufficient to cover the net cost of petroleum imports in those two years.

While private transfers have increased as a ratio of GDP, they have also made a significant increment to national savings. Private Transfers have amounted to a substantial proportion of National Savings after 1980, thereby helping to finance a larger volume of investment. In the wake of rising debt service payments (leading to a negative balance on factor services) increased private remittances supplemented Gross Domestic Savings (savings by Residents of Sri Lanka) and kept the level of Gross National Savings (Savings by all Sri Lankans) always above the level of Gross domestic savings. The contribution of worker remittances to the national economy was particularly important in the years in which Gross Domestic Savings were lower due to decline in the prices of Sri Lanka's major export products. On average, private transfers which amounted to about 5 per cent of Gross Domestic Products during 1980–85 period, contributed to about 30 per cent of Gross National Savings. (Table 6).

III. DETERMINANTS OF WOKER REMITTANCES

Detailed analysis of the determinants of migrants' remittances in Sri Lanka has not so far been undertaken. The amount of remittances is a function of a number of variables associated with the motivations to remit, ability to remit, and the existing institutional setting in both the home country and the country of employment of migrant workers.

In the case of Sri Lanka (possibly in the case of most other labour exporting countries too), the most obvious motive for remitting incomes is pure altruism. An altruistic model developed by Lucas & Stark showed migrant's utility (Um) as a function of the balance income after remitting (r) from his/her wage (w) and the utility of those left at home which in turn depends on the per capita

consumption (Ch).[8] The per capita consumption is a function of the level of per capita income at household base (y), the amount remitted (r) and the size of the household (n).[9] According to this model the major determinants of the remittances are the migrant's wage, per capita income available at home base and the size of the household.

Statistical data are not available in Sri Lanka to test such models. It is generally accepted that the three explanatory variable of the altruistic model are important determinants of worker remittances in Sri Lanka. Existing statistical evidence from balance of payments data reveal that personal voluntary remittances for the maintenance of dependents account for more than 50 per cent of the total private remittances (Table 7).

TABLE: 7

PRIVATE REMITTANCES BY PURPOSE

Purpose		1981		1984	
		Amount Rs. Mn.	Percent-age	Amount Rs. Mn.	Percent age
1.	Maintenance of Dependents	2,405.5	54.3	3,719.4	48.6
2.	Institutional Remittances	117.1	2.6	491.8	6.4
3.	Transfer of Assets	559.1	12.6	1,194.9	15.6
4.	Legacies and Bequests	3.4	0.1	8.0	0.1
5.	Gifts and donations	276.4	6.2	395.0	5.2
6.	Purchase of vehicles	1.9	–	26.3	0.3
7.	Unclassified	1,066.4	24.1	1,817.3	23.7
	Total	4,429.8	100.0	7,653.0	100.0

Source: Central Bank of Sri Lanka.

8. Lucas R.E.B. and Stark O., "Motivations to remit: Evidence from Botswana", *Journal of Political Economy*, Vol. 93, No. 5, (Oct. 1985) pp. 901–18. Although this paper refers to remittances by internal migrants, the altruistic model shown in the paper is equally applicable to analyse the altruistic remittance behaviour of external migrants as well.

9. *Ibid.*, 903. The migrant maximises his utility

$$U_m = u[C_m(w-r), \sum_{h=1}^{m} a_h U (C_h)] \quad (1)$$

$$\text{S.t.} \quad C_h = C(y, \frac{r}{n}, n) \quad (2)$$

where a_h is weight for altruism.

Chosing a level of r to maximise (1) subject to (2) gives

$$r = r(w,y,n) \text{ and } \frac{\partial r}{\partial w} > 0, \frac{\partial r}{\partial y} < 0, \frac{\partial r}{\partial n} \gtrless 0$$

Since w and y can be taken as given, r tend to vary with family size n.

Private remittances, on the other hand, could be motivated by self interest which is related to a large number of economic and non-economic variables, but represented largely by economic aspirations of those effecting remittances. These aspirations can be guided by desires to inherit property, desires to invest in assets like houses and land, intent to invest in profit making real or financial assets and a number of other socio-political objectives.[10] Again a complete evaluation of the importance of these factors cannot be carried out without at least a sample survey of the remittance behaviour. However, there are indications that a significant amount of migrant remittances in Sri Lanka are directed to investment in different economic activities. It has been found that 33 per cent of the migrant remittances was invested. Out of these investment 72 per cent has been in housing and property, 16 per cent in manufacturing, business and commercial undertakings (including purchase of agricultural equipment) and 11 per cent in transport.[11] As information on financial investments component of these remittances is not available, these data could underestimate the actual investments done by the migrant workers. Information on the investments in financial assets has to be obtained through a sample survey on the disbursement pattern of private remittances and no such studies are so far available.

Relative rate of net return on keeping these funds in Sri Lankan assets (as compared with the net rate of return by keeping funds abroad) is also an important determinant of private remittances. Two major factors influencing the net rate of return on investments locally are the relative real interest rates and the real effective exchange rates. Lower net domestic rates of return and appreciation of the rupee in real effective terms delay or discourage home remittances of funds earned abroad by migrant workers. However, the exact nature of the impact of these two factors cannot be analysed without looking at the existing institutional arrangements and associated incentive/disincentive structure for worker remittances.

Worker remittances from abroad are further influenced by institutional arrangements and foreign exchange regulations in the country of employment. Most of the Middle East oil exporting countries do not have restrictions on outward remittances by expatriate workers.[12]

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10. *Ibid.*, 904.

11. Korale R.B.M., (1985), *Foreign Employment – Sri Lanka Experience*, Ministry of Plan Implementation, Colombo.

12. I.L.O. – ARTEP, (1985), *Impact of Out and Return Migration on Domestic Employment in Sri Lanka: A Preliminary Analysis*, p. 120.

However, some of the African countries such as Nigeria have intensified their restrictions on repatriation of incomes by expatriates.[13]

IV INSTITUTIONAL ARRANGEMENTS

Sri Lanka has introduced several incentive schemes to mobilize remittances by the Sri Lankan Nationals working abroad. The major incentive scheme available is the operation of Non-resident Foreign Currency Accounts (NRFC). According to this scheme, Sri Lankans working abroad are allowed to deposit their earnings in NRFC accounts in any commercial bank in Sri Lanka. The major features of this scheme are as follows:

1. Earnings abroad may be deposited in a current, savings or fixed deposit account in foreign currency.

2. Interest on such savings and fixed deposits are paid in foreign currency.

3. Funds in these accounts may be freely utilized or remitted abroad for any purpose, without obtaining permission from the Exchange Controller.

4. The capital sums deposited and held in NRFC accounts are exempt from wealth tax whilst the account holders are living abroad and up to ten years after their return for permanent residence.

5. Interest earned in these deposits are exempt from income tax as long as the account holder is resident abroad and for ten years after his return.

6. These accounts could be maintained for a ten year period from the date of return of the account holder for permanent residence.

It has been observed that there have been substantial differences between the international interest rate and those paid for NRFC deposits in Sri Lanka (See Table 8). In addition to the inconvenience of investing funds in distant foreign exchange markets, access to developed foreign exchange markets for a large number of migrant workers is

13. For example Nigeria in May 1985 reduced the maximum limit on outward remittances by expatriates employed in the public or private sector from 50 per cent to 25 per cent of net income.
IMF, (1985), *Exchange Arrangements & Exchange Restrictions: Annual Report 1985*, p. 376.

TABLE: 8
INTEREST RATES AND PRIVATE TRANSFERS

Year	NRFC		PTG		Interest Rates					
	SDR Mn.	U.S.$ Mn.	SDR Mn.	U.S.$. Mn.	LIBOR $.	LIBOR £	MM $.	MM £.	SL $.	SL £.
1975	4.6	5.38	7.1	8.62	–	–	5.82	10.56	7.00	7.00
1976	3.7	4.30	11.2	12.93	–	–	5.05	11.62	7.00	7.00
1977	2.5	3.04	17.1	19.96	–	–	5.54	8.06	7.00	7.00
1978	2.4	3.13	31.3	39.19	9.30	11.23	7.93	8.74	7.00	7.00
1979	3.7	4.87	46.5	60.08	11.71	13.55	11.20	13.59	7.00	7.00
1980	2.4	3.06	115.3	150.06	13.44	15.83	13.36	16.10	7.16	10.00
1981	3.6	4.19	195.1	230.06	16.13	14.28	16.78	13.48	11.24	10.00
1982	47.3	52.18	262.4	289.69	13.69	12.60	12.26	12.02	8.75	8.08
1983	68.1	71.30	275.1	294.08	10.18	10.26	9.09	9.90	7.50	7.50
1984	83.9	82.24	293.5	300.84	11.82	10.11	10.23	9.49	8.375	7.50
1985	97.9	107.53	290.0	294.35	9.11	11.99	8.10	11.95	6.75	8.50

Sources: Central Bank of Sri Lanka International Monetary Fund – IFS

Notes:
- NRFC – Non-resident Savings and Time Deposits
- LIBOR $ – London Inter-bank offered rates for 12 months dollar deposits
- LIBOR £ – London Inter-bank offered rate (Paris Market) for six months sterling deposits
- MM$ – Money Market rate in the U.S.A. for U.S. Dollars
- MM£ – Money Market rate in the U.K. for U.K. Pounds
- SL $ – Average NRFC interest rates for Dollar deposits in Sri Lanka
- SL £ – Average NRFC interest rates for Sterling deposits in Sri Lanka

very limited due to various reasons including the lack of knowledge. However, the increase in NRFC deposits, as mentioned earlier, implies that this scheme has been quite effective in mobilizing worker remittances from abroad.

In addition to these facilities, the migrant workers have the option of transferring funds into rupee accounts and earn interest in rupee terms. However, the funds in these rupee accounts cannot be reconverted into foreign currency to make foreign payments after the elapse of six months. The net return on keeping funds in rupee accounts has become lower after the introduction of withholding tax system.

However, an alternative arrangement is available according to which rupee equivalent of inward remittances can be deposited in a "Special Account". The system was introduced in February 1971 to mobilize savings of Sri Lankans working abroad. Under the "Special Accounts" system funds remitted could be deposited in these accounts in favour of the remitter during his/her stay abroad or on return to Sri Lanka. Special Accounts can be held in the form of current, savings or fixed deposits. Unlike in the case of NRFCs, outward remittances could be done only with the approval of the Controller of Exchange. Other than possible exchange rate risks, the Special Accounts system has the following additional incentives for depositors.

(a) Income from investments made with the approval of the Central Bank with monies lying in these accounts could be credited to these accounts.

(b) Income from monies lying in "Special Accounts" and income from investments made from these accounts with the approval of Central Bank are exempt from income tax.

(c) Monies lying in these accounts and investments made therefrom are exempted from wealth tax.

In addition to these specific measures there are other alternative avenues within the existing incentive structure facilitating investment of foreign earned funds in priority areas and gain net real benefits. As mentioned earlier real interest rate and real effective exchange rates are two major macro variables influencing investment decision of remitters.

V. CONCLUDING REMARKS

Worker remittances in Sri Lanka over the first thirteen years, specially after the 1977 policy reforms have played a significant role. From a broad macro-economic point of view, these remittances have

helped substantially to bridge the gap between domestic investments and domestic savings or to reduce the external resource gap.

It is found that the existing institutional arrangements have worked quite satisfactorily. However, further improvements to the existing system without deviating much from the present system could be thought of: an example would be to devise a system combining the features of both NRFCs and "Special Accounts" giving additional incentives to depositors.

Resources available by way of worker remittances have been considered in the formulation of overall macro-economic policies in the past. Although the possibilities of larger increases in worker remittances in the immediate future are bleak inward remittances by Sri Lankans working abroad will continue to be an important factor influencing the overall performance of the economy. Therefore, more research is needed in the areas such as macro-economic impact of worker remittances from abroad, impact of the changes in the global economic environment on worker remittances and methods for effective utilization of such remittances.

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Aims and Objectives of UPANATHI

Being the journal of the professional association of economists in a developing country, the UPANATHI will provide a forum for academic discussion of development issues in the Third World. It accommodates theoretical and empirical studies in development studies defined in a broad manner, although its focus may be a little biased towards papers in development economics and political economy of development. While the emphasis in the choice of empirical studies for publication will be given to those about Sri Lanka, comparative studies as well as studies concerning other individual developing countries also will be accommodated depending on the issues raised and the analytical rigour maintained.

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Upanathi

Vol. 1 No. 2, July 1986.

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Offset by Swadeshi Printers, Colombo 10.