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STAFF STUDIES

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CENTRAL BANK OF CEYLON

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The views presented in these papers are those of the authors and should not be interpreted as necessarily indicating the views of the Central Bank of Ceylon.

CONTENTS

THE FEASIBILITY OF THE VALUE ADDED TAX IN SRI LANKA

ANNE de BRUIN

The role of government expenditure in the context of a welfare economy assumes great significance. Large outlays of public funds, as Sri Lanka's experience demonstrates, are spent on social services – education, the food subsidy, health, housing and transport. In addition, in any underdeveloped economy the government has to play a positive role in the process of capital formation, which is the main key to economic development. Increasing amounts of government revenue therefore become essential in order to finance this progressively increasing governmental expenditure.

Taxation is the primary source of government revenue. Direct taxation is however, limited in an underdeveloped economy. As John Adler points out, "direct taxes in general and personal income taxes in particular are par excellence suitable for countries with a fairly high level of economic advancement"[1]. In developing economies, therefore, increased reliance is placed on indirect taxes[2], and the magnitude of state revenue requirements emphasises the need for a general sales tax. 'General' meaning that the tax applies to all or a wide range of goods and services. Not only is the general sales tax a means of collecting much needed revenue but in addition it is a suitable device for reducing increases in general consumption. It can thus help the government to increase the incremental savings ratio, a task essential for development. There is no disagreement then, that a general sales tax is advisable in underdeveloped economies. The subject of controversy however is, the specific form the general sales tax should take.

Sales taxes are customarily classified into three major groups: the single stage tax at the retail, wholesale or manufacturing level, the general turnover tax, and the value added tax (VAT). A tax

1. John H. Adler "Fiscal Policy in a Developing Country" Reprinted in "Readings in taxation in Developing Countries" Baltimore 1964, Eds. Richard Bird & Oliver Oldman.
2. The ratio of indirect taxes to total tax revenue in Sri Lanka is 76·8, computed on the basis of a 10 year average from 1963/64 to 1973.

imposed only once on a commodity as it passes through the production and distribution channels is termed a "single stage" tax. The general turnover tax is a multiple stage tax, imposed whenever a product undergoes a market transfer. The VAT on the other hand is a tax on the value that is added to goods and services, by enterprises at each stage of the production and distribution process.

The form of sales tax which operates in Sri Lanka today is the turnover tax often referred to as the business turnover tax (BTT) which was imposed by the Finance Act No. 11 of 1963 and came into force on 1st January, 1964. It is payable by every person whose turnover from business, including the business of a manufacture (other than those exempted businesses) carried on by him in Sri Lanka is not less than Rs. 75,000 for the current year of assessment.

The value added method however is being increasingly advocated as a refined technique for collecting taxes on the output of economic enterprises. Studenski claims that value added constitutes not only a "fairer basis" for general business taxation but also "a far more accurate measure of the volume of business enterprises"[1]. Turnover tax has been described as a "primitive method of collection".[2]

The VAT has now been introduced in most European countries.[3] Several developing countries too have adopted the VAT[4] and the introduction of a general VAT is being examined in many other developing countries. It is relevant therefore, to analyse the feasibility of implementing a VAT in Sri Lanka. Feasibility of the VAT for Sri Lanka, in this study, may be defined as the advisability and timeliness of substituting the VAT for a BTT. This will be considered from the stand points of revenue yield, economic effects, equity and administration.

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1. Studenski, "Toward a Theory of Business Taxation" Journal of Political Economy XLVII (Oct. 1940) page 648.
2. Clara C Sullivan, "The Tax on Value Added" Colombia University Press N. Y. & London, 1965.
3. In 1954 the French National Government adopted the tax. In 1962, the Fiscal and Financial Committee of the European Economic Community (EEC) recommended it be employed in order that the sales tax systems of the member states be harmonized. When in 1967 the EEC directed its member countries to replace existing turnover taxes with a VAT, this technique gained widespread acceptance: The last of the Western European countries to introduce VATs were Austria, Italy and the United Kingdom in 1973.
4. Is was implemented in the Ivory Coast in 1960 and in 1962 VAT replaced the general turnover tax in Morocco. Some of the other developing countries where the VAT has been adopted are:- Senegal (1966), Brazil (1967), Uruguay (1968), the Malagasy Republic (1969) and Ecuador (1970).

Revenue Yield

The main objective of the BTT in Sri Lanka is the collection of revenue. Initially it was meant to compensate for the loss in revenue consequent to the decline in import duty collections. Stringent import controls necessitated by the lack of foreign exchange and the policy of import substitution had resulted in a fall in import levies which had been in the past a lucrative source of government revenue. Thus in 1963 was introduced a measure which it was hoped would make up at least to some degree this revenue loss.[1]

This expectation was more than fulfilled when with each successive year the collections from turnover taxes grew. Table 1 below shows the growth of revenue from turnover taxes from its inception to present times. It also indicates the percentage of turnover tax collections to total tax revenue which provides a suitable measure for the study of the growing importance of turnover taxes in the total tax structure. It may also be interesting to note that the rate of increase of turnover taxes was 129·2% while that of total tax revenue was 7·35%. This indicator plainly exhibits the dynamic nature of BTT in the provision of public funds.

Table 1
Revenue from Turnover Taxes

Year	Amount (Rs. Million)	% of BTT to total tax revenue
1962-63	—	—
1963-64	16·0	1·2
1964-65	34·8	2·6
1965-66	39·1	3·1
1966-67	72·2	5·2
1967-68	79·2	5·0
1968-69	111·0	5·9
1969-70	247·4	11·6
1970-71	326·2	15·2
1971-72	394·4	16·5
1973	535·8	17·3
1974 (Revised Estimate) ..	570·0	15·5

Source: Central Bank Annual Report (Various)

1. "In order to recoup from the taxation of domestic manufactures, at least part of the revenue lost through the fall in imports, I propose to levy a Manufactures' Turnover Tax. Each manufacturer who is liable to the tax will pay the tax at a given rate on the total value of his turnover..... In respect of all other businesses, I propose a Business Turnover Tax at one half of one percent of the total turnover. This tax will cover all businesses including those which supply services." – *Budget Speech 63/64*

Widened scope, heightened rates, improved administration and compliance and a high income elasticity[1] all contributed to making BTT an elastic and productive source of revenue for public spending.

Since revenue implications are a major consideration if tax policy in developing countries such as Sri Lanka and the primary motive of BTT is that of revenue, it is relevant to compare the revenue productivity of the VAT with that of BTT.

Table II below therefore compares the revenue positions of turnover tax and VAT at a 10% rate.

TABLE II

Revenue Productivity of General Turnover Tax and VAT at a 10% Rate

	Value of Product Excluding Tax	General Turnover Tax	Value added Excluding Tax	Value Added Tax
1st Stage	100	10·00	100	10·00
2nd Stage	150	16·00	50	5·00
3rd Stage	200	21·60	50	5·00
Final Value of Product ..	200		200	
Tax on Final Value		47·60		20·00

1. Income elasticity was calculated on the basis of the exponential equation $Y = aX^b$ where,
   - Y = Turnover Tax Revenue
   - X = National Income at market prices
   - a = Level of turnover tax yield Y when the independent variable National Income X is zero
   - b = Income elasticity of the turnover taxes i.e. the change in turnover tax yield consequent upon a one percent change in national income. The result obtained was a high income elasticity coefficient of 4.1922. However, since 80% of the revenue from turnover tax is from the manufacturing sector and coefficient was calculated with value of Industrial Production as Y which gave a result of 2·0913 which is also a high elasticity coefficient and possibly more realistic.

From Table II it will be noted that though the two taxes are levied at similar rates the general turnover tax yields a higher revenue than VAT. The revenue obtained from the general turnover tax at a rate of 10% was 47·60 while that of the VAT only 20. This high yielding revenue capacity of the general turnover tax in comparison with the VAT is a notable point in its favour. Since the general turnover tax supplies a larger quantum of revenue at lower tax rates than the VAT, it is particularly suited to the economic environment in Sri Lanka where the tax system is called upon to play the role of the main procurer of governmental funds for welfare and developmental expenditure.

Economic Effects.

From Table II it will also be observed that the reason why the general turnover tax has the greater inherent revenue potential is due to the cumulative effect of the tax. The turnover tax is imposed on an amount increased by the tax at the previous stage. The VAT however, is assessed at each stage only on the increment in value acquired by the product since the last taxable transaction. Thus we may observe from the table that VAT in the 2nd stage is 5.00 i.e. 10% of the value added since the 1st stage which is 50. Under the the general turnover tax however, the tax is computed on the basis of the value added after the 1st stage as well as the value of the tax levied in the previous stage (i.e. 100 + 50 + 16 = 216) giving a tax of 21·60. It is this cascade effect of the turnover tax which gives it its quality of high revenue spinner as against the VAT and it is also this factor, which leads to many adverse economic effects too.

As the VAT is charged on the increment in value following the previous stage of assessment it is neutral with respect to the allocation of resources in the economy. At the final stage, the total amount of VAT paid on a given commodity is only a function of the rate of tax and the final price of the commodity, independent of the number of stages through which the product passes.

One of the factors influencing turnover tax collections however is the number of stages through which the product passes. Thus,

$Y = A(r) + (a + a(r))r + \ldots\ldots\ldots\ldots$

$Y = A(1 + r)^n$

Where Y = total BTT collections
a = value of turnover
r = rate of tax
n = number of stages

It is in this connection that turnover tax subsidizes integration; an objection often raised against this type of general sales tax. In practice different firms within the indusry come to be characterized by different degrees of integration, thus when turnover tax is levied firms within each industry too experience discriminatory tax treatment.

The cumulative nature of the general turnover tax results also in discrimination against products embodying value added at an early stage versus commodities that receive the largest part of their value in the last stages of the production and marketing chain.

Table III below shows that under the general turnover tax, the larger the proportion of value added at earlier stages, the greater will be the burden because of the multiple counting of previous values.

TABLE III

Comparative Tax Burden on Products Having Varying Proportions of Value Added at Different Stages Under a General Turnover Tax and VAT at a 10% Rate

	General Turnover Tax				Value Added Tax			
	Product I		Product II		Product I		Product II	
	Value of Product	Amount of Tax	Value of Product	Amount of Tax	Value Added	Amount of Tax	Value Added	Amount of Tax
1st Stage	25	2·50	75	7·50	25	2·50	75	7·50
2nd Stage	100	10·25	100	10·75	75	7·50	25	2·50
		12·75		18·25		10·00		10·00

Two products according to the table, selling for Rs. 100 without tax, are turned out in 2 stages of economic activity. The value added at the 1st stage of Product I is Rs. 25 and in the case of Product II it is 75. The general turnover tax will discriminate against product II imposing a heavier burden of Rs. 18·75 as against Rs. 12·75 on

product I. As Clara Sullivan[1] points out therefore "there is no doubt that the general turnover tax imposes burdens in an exceedingly erratic manner as compared with the value added procedure."

The VAT on the other hand eliminates any cascade effect and hence avoids discrimination among manufacturers on the different structures of product i.e. integrated vs. non-integrated. This differential tax treatment of various products together with unequal treatment of firms within an industry may be assumed to interfere with the optimum allocation of resources. However, the argument that this gives an artificial impetus to integration really receives added emphasis and importance due to the fear of the growth of giant monopoly concerns through this process. In Sri Lanka however, with a predominance of government monopolies and corporations there is little occasion to fear this. In fact the process of integration may lead to greater efficiency and a better allocation of resources. Consideration may however be given here to the proposal of the Tax Inquiry Commission[2] where if as a result of the cascade the rate of tax on any article in the manufacturing stage exceeds a certain prescribed percentage, the Inland Revenue Department should be empowered to reduce the rate to the prescribed amount on production of satisfactory evidence.

Turnover taxes in Sri Lanka do not serve solely as a source of revenue but are also manipulated to act as an incentive measure. A close examination of BTT rates reveal its use for the encouragement of labour intensive industries and hence the promotion of employment. Dual rates obtain for various products depending on whether they are manufactured by manual labour or not.

Table IV lists articles in the 1% concessionary rate brand specifically only if they are manufactured by manual labour or not by other means.

A further examination of the 1% rate band shows that other employment oriented labour intensive manufactures too come within its scope e.g. handloom textiles, clay bricks, and tiles, cordage and rope. The BTT is therefore used to promote cottage and small industries and so act as an effective tool of dirigistic tax policy.

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1. Clara K. Sullivan Op. cit.
2. Taxation Inquiry Commission Report, Sessional Paper No. X of 1968, pg. 159

TABLE IV

Rate Structure for articles manufactured exclusively by mannual labour and not by other means[1]

	Exclusively by Manual Labour Percentage of turnover	Other Means Percentage of turnover
1. Aluminium brass enamel & iron hollow-ware ..	1	25
2. Biscuits ..	1	15
3. Carpets and rugs ..	1	25
4. China & Earthenware pottery ..	1	Ornamental ware including statuary made from clay and other materials 35%
5. Coir ..	1	—
6. Confectionary ..	1	25
7. Fireworks including crackers ..	1	15
8. Joss sticks ..	1	—
9. Printed textiles not connected with weaving ..	1	Textiles other than handloom textiles 10%.
10. Tooth Powder ..	1	—

The difference in burden of VAT levied at a single stage is shown by Walter Missorten[2] in Table V reproduced below :-

TABLE V

	Capital Intensive Enterprise	Labour Intensive Enterprise
Wages & Salaries .	25	50
Rent & Interest ..	5	5
Profit Margin ..	10	10
Value added ..	40	65
Raw Materials ..	20	20
Capital goods (depreciation) .	40	15
Cost at prior stages ..	60	35
Selling price ..	100	100

1. Vide Government Gazette Extraordinary No. 83/8 of 1973. 11. 01.
2. Walker Missorten "Problems in the Implementation of a Tax on Value Added" National Tax Journal Dec. 1968.

Here though the profit and selling price are the same, the value added under the capital intensive enterprise is 40 and the labour intensive one is 65. It is however pointed out that if the VAT is applied to all stages of the production and distribution process the difference in burden is elimited; nevertheless the direct impact of the VAT on labour intensive enterprises will become much greater than under the turnover tax. J. F. Due[1] too points out that criticism of VAT on this basis is valid only to the extent that some of the tax does not shift forward along the way but remains on the owners of the firm. He however states that VAT is discriminatory against firms which are labour intensive relative to those which are capital intensive if only the direct tax liability is considered. In some cases, therefore, the VAT may be more favourable to capital intensive rather than labour intensive enterprises.

In a labour surplus economy such as Sri Lanka where 17·4% of the labour force is unemployed to the extent that VAT is biased towards capital intensive techniques rather than labour intensive modes of production, BTT will be a better alternative to the VAT, expecially since its rate structure is specially used to promote small industry.

In the preceding paragraphs the internal neutrality of the VAT was dealt with and it was shown that the tax is only a function of taxable price and rate and not of the number of stages through which the product has passed.

It is relevant also to draw attention to the so called external neutrality of the VAT where exports are completely free of tax by refunding the exporter tax paid at earlier stages. In Sri Lanka where the lack of foreign exchange is a major constraint to development, export promotion becomes a key factor in any development programme or plan. It is necessary therefore that exports be free of sales tax so that their position in competitive markets will be as favourable as possible. Moreover, on the basis of the destination principle, according to which sales taxes are levied only by the country of final consumption, a principle which is sanctioned by the General Agreement of Tariff and Trade, the turnover tax should provide for exemption of exports.

1. J. F. Due, "Sales Taxation", London 1957.

Exporters of tea, rubber and coconut products are therefore not liable to BTT in terms of Section 120 (3) (iii) of the Finance Act and articles manufactured in Sri Lanka and exported by the manufacturer are within the list of exempted articles (vide government gazette extraordinary No. 83/8 of November 1, 1973). Also, under the export rebate scheme proposed by the 1973 budget, the exporter is granted a rebate equivalent to the turnover tax directly paid by him on any purchases made by him from any manufacturer provided that such purchases are actually exported. Previously the law exempted persons from the liability of turnover tax only when the manufacturer and exporter were one and the same person.

However, it must be pointed that while the export sales themselves are free from turnover tax, a certain amount of tax levied at earlier stages and varying according to the nature of the industry still remains in the costs. Turnover taxes may thus prove disadvantageous to exports as a result of this fact. Even if refunds of taxes entering at earlier stages in the costs of goods were permitted, this would be limited due to the inability to ascertain completely this tax element. One of the advantages claimed for a VAT on the other hand is that the amount of tax applicable to the goods can be determined with greater precision and no residual indirect taxes remain as frequently happens under the turnover tax. When exempt under the VAT, exports are, in principle zero rated, that is, they are exempt from further tax and full credit is granted for tax paid at earlier stages, or on deductible inputs. This external neutrality however depends on the state of development of the accounting system in the economy and in a country like Sri Lanka where the standard of accounting is by no means equivalent to that of the developed economies, claims for refunds, especially in the non-traditional export sector, may remain unaffected. This nullifies to a great extent then, the argument that exports under the VAT will embody no sales tax element.

Equity

The cascade effect of the turnover tax results in it imposing a heavy burden on the consumer when compared to the other forms of sales taxation, in this case, the VAT. Exemptions and differential rates however can be made use of to take the sting out of the regressivity of the tax and alleviate its burden. Thus in Sri Lanka BTT rate structure is manipulated so that high rates are imposed on luxury goods while lower rates obtain for more essential items.

Table VI

Turnover Tax Rates of Some Selected Articles

	1·1·64	30·7·66	1·10·68	3·8·69	26·10·70	11·11·72	1·11·73
* 1· Air Conditioner ..	3	5	10	20	25	40	35
2· Building Materials (including bricks manufactured not exclusively by use of manual labour but excluding asbestos products) ..	3	3	3	3	3	3	1
* 3· Cosmetics, perfumes hair dressing & toilet requisits (excluding soap & tooth powder) ..	3	5	10	20	25	30	35
4· Electric cookers, hot plates and irons ..	3	5	10	10	10	30	35
5· (a) Textiles other than pure cotton textiles ..	3	5	10	20	20	40	10
(b) Pure cotton textiles ..	3	5	5	5	5	5	10
(c) Handloom textiles ..	3	5	5			1	1
(i) By a Co-op. Society ..				1	1		
(ii) By a person Other than a Co-op. Soc. ..				5	1		
* 6· Petrol – Super & Regular ..	3	5	5	32	37	48	42a
* 7· Floor polish, car polish & furniture polish ..	3	5	5	5	5	30	35
* 8· Radios, radio accessories, components & spare parts ..	3	5	10	20	25	30	35
9· Fishing boats ..	3	5	1	1	1	1	1
*10· Washing Machines ..	3	5	10	10	10	40	35

* These goods may be categorised as items of a luxury nature.

(a) The BTT rate on petrol has now been reduced to 33% with effect from 31st Sept./1st Oct. 1974.

Table VI presents BTT rates of some selected articles. It is plainly evident from this table that the articles that have exhibited a rising trend in turnover tax rates are those of a luxury, non essential nature while items such as building materials which are more essential are subject to lower rates. Items which rank high in the budgets of the lower income groups, especially food, items which are necessary or connected with Sri Lanka's development effort and employment targets, are all subject to low BTT rates. The list of exempted Articles under BTT below reveals that embodiment of the same principle.

Table VII

EXEMPTED ARTICLES UNDER BTT[1]

(a) The following articles in respect of any business:

(i) Articles manufactured in Sri Lanka and exported by the manufacturer

(ii) Books, magazines, periodicals (excluding newspapers)

(iii) Bread (including buns and rusks)

(iv) Eggs

(v) Milk (fresh, condensed, dried, pasteurized and sterilized)

(vi) Paddy sold to the Paddy Marketing Board,

(vii) Safety Matches.

(b) The following articles in respect of the business carried on by a Co-operative Society (registered under the Co-op. Societies Law) or a distributor authorised by the Food Commissioner (under the Food Control Regulations made under Section 6 of the Food Control Act).

(i) Dried Fish

(ii) Rice (uncooked)

(iii) Sugar

(iv) Wheat flour.

1. Vide Government Gazette Extraordinary No. 83/8 of November 1, 1973.

Under the value added method of taxation however, specific product exemption and differentiated tax rates pose serious problems. In fact when exemptions are introduced the chief advantage of the VAT its neutrality is nullified. The form of VAT that had been widely adopted and advocated is the "Tax Credit" method. Under this system the tax due by a business firm is computed by applying the relevant tax rate to total sales during a given period, and deducting from the resulting figure the amount of tax paid by the firm on its purchases of intermediary products and capital equipment. A continuous chain of tax credit, therefore, builds up as the product moves through the production and distribution processes, until the point of final consumption. An introduction of an exemption, especially during the intermediate stages will normally cause a break in the tax-credit chain, result in an element of double taxation to the extent that the exempt product re-enters the taxable sector at the next stage, and lead to a loss of neautrality. In addition to this with the introduction of exemptions and differentiated rates, administrtive complexities become manifold and especially in a less developed country where the administrative machinery is necessarily limited, this will prove detrimental. In principle therefore, for the much praised neutrality of the VAT to operate it must be universal and uniform in its coverage, extending to the retail stage and to virtually all sectors of the economy, including services. Only then, will the full benefit of a truly neutral tax be obtained. Thus in many less developed countries, as in Sri Lanka, where social objectives seem to demand that certain areas of economic activity and products be accorded favourable treatment and hence be either exempted from sales tax or subjected to a lower rate, the advantage of perfect neutrality of VAT becomes increasingly difficult to attain.

There is no doubt that as under the BTT, that with any adoption of VAT in Sri Lanka, the exemption of essential food stuffs is advisable as a means of social equity and to lessen the impact of the tax reform on the cost of living. Developing countries that have implemented the VAT have all granted some tax relief on food. This is done either by not taxing direct sales by farmers of unprocessed agricultural products in general, by exempting specific foodstuffs, processed or unprocessed, regardless of the seller or by providing for a reduced rate on foodstuffs not otherwise exempt.

Table VIII

Degrees of Exemption of Food and Agricultural Products in Selected Developing Countries

Brazil (States)	*Ecuador*	*Ivory Coast*	*Malagasy Republic*	*Morocco*	*Senegal*	*Uruguay*
Exemption of farm sales in some states plus limited list of unprocessed foodstuffs in all states	Farm sales exempt	Exemption for un-processed agricultural products, bread, flour, cereals, milk and dairy products & palm oil	Exemption for unprocessed agricultural products, foods, household necessities and school supplies	Exemption for basic foodstuffs (flour, bread, milk, sugar fish) and presumably for unprocessed agricultural products	Exemption for unprocessed agricultural products and foodstuffs in general	Exemption for short list of foodstuffs and other basic necessities. Others at reduced rate

Source:-

George E. Lent, Milka Casanegra, Michele Guerard "The Value Added Tax in Developing Countries". Table I. IMF Staff Papers Vol. XX No. 2, July 1973.

Thus it is seen that exemption or differential treatment of foodstuffs and other basic necessities is a sine-quo-non in developing countries but it results in diminishing the neutrality of VAT. Of course it should be stated that even under the BTT, though selective rates and exemptions achieves a mitigation of regressivity and injects a degree of progressivity, relative competitiveness of various products also is seriously affected.

Administration

The choice of a sales tax system depends to a large degree on the extent to which effective assessment, enforcement and collection is possible. It is stated that the VAT has an important advantage since the process of calculating the tax, strengthens enforcement as it permits cross checking of tax credits claimed by the purchaser against the amount of tax claimed to be paid by the seller. One of the chief elements in this process however is the invoice[1]. The difference between VAT and the turnover tax lies in the fact that it is in the interest of the buyer to "insist" on obtaining an invoice from the seller as he will then be able to cerdit the tax stated in that document.

In Sri Lanka, as in many less developed countries, however there exists a myriad of consumer distribution outlets, mainly retail selling points. Experience has shown that in Sri Lanka, small businesses and retailers in particular, dislike issuing invoices not only for its administrative complexity but also to avoid registering total sales. Moreover the blackmarket which is a common feature in Sri Lanka is fed by goods bought and sold without invoices, and other incriminating documents, through collusion on the part of both buyer and seller. Rather than insisting on obtaining invoices, buyers may prefer to obtain a price reduction on their purchases so that they also can sell a part of their output without invoices. In such circumstances, cross-checking will not detect evasion. Thus this supposed advantage of VAT is not very valid in the Sri Lanka context.

The VAT system requires elaborate book-keeping procedures. This would mean that far-reaching demands on business accounting would have to be made since the tax payer's records must show clearly not only total sales and sales tax payable but also his purchases and tax paid. The differential rates and exemptions which may

1. See Lent, Casanegra & Guerard. "The VAT in Developing Countries" op. cit. pg. 347.

necessarily have to be introduced will further complicate the accounting problems. Adequacy of records is an indispensable condition for the VAT. The new requirements of accounting and record-keeping if turnover taxes are to be replaced by VAT would mean higher costs which many of the smaller firms and manufacturing concerns will find difficult to bear. Moreover the general standard of book-keeping in Sri Lanka is not advanced. Retailers in particular possess an inferior book-keeping skill. It was only this year, by the gazette order of 29th March, 1974[1]. That the Inland Revenue Department has made it obligatory for businesses and certain categories of tax payers to maintain proper books of accounts, according to a prescribed form. It was also obligatory for these businesses, to have their accounts audited by "approved accountants".

In Sri Lanka the subsistence sector which accounts for a major portion of output in the economy also poses a serious administrative problem in the implementation of the VAT. Under the value added method of sales tax collection because farmers normally would be subject to tax on their inputs of machinery, feed, seed, fertilizers, pesticides etc. it would be necessary for them to maintain adequate records to claim a credit for tax paid on their sales. However, in Sri Lanka where the small farmer is frequently little educated this system is virtually impossible. A solution to this problem would be to exempt farmer inputs from the tax. However, this exemption poses a problem for manufacturers of agricultural producer goods of obtaining refunds for taxes paid on their inputs.

The other method of avoiding the problem posed by small farmers is the "global credit offset" technique employed by EEC countries. According to this the farmers do not have to pay the VAT but simply issue a receipt for goods that enables purchasers to claim a tax credit. In this way the farmers do not have to keep records themselves, which is a prerequisite for administering the VAT.

A similar problem arises when we consider the numerous number of small enterprises, traders and retail sellers in Sri Lanka. Their book-keeping is often inadequate and their inclusion in the VAT

1. See Inland Revenue Amendment Law No. 17 of 1972 (Sect. 19) of the National State Assembly, which inserts a new section 82A in the principal enactment regarding provisions relating to statements of accounts and audit certificates; and government gazette No. 104/3 of 1974-03-29 which specifies the detailed form of accounts, certificates and audit report by an approved accountant etc.

considerably increases the work of the tax administration. In particular there will be a substantial increase in the amount of checking to be done. Under the turnover tax in Sri Lanka this problem is avoided by imposing the tax on any business with a taxable turnover of over Rs. 75,000. Of course this exemption limit has been criticised on the grounds that it excludes a large proportion of consumption expenditure from the tax net. It has also been argued by the TIC[1] that it was illogical to assume that because a business had a turnover of less than the exemption limit, (then Rs. 100,000), consumers who make purchases from such businesses belong to the poorer classes of the community and the inclusion of such businesses would act as a kind of "screening ground".

If the VAT is substituted for the BTT in Sri Lanka, solutions to problems of administering the tax to these small tax payers would have to be found. One solution would be to adopt the prevailing method of exemption i. e. apply the VAT to all stages of production and distribution including retailing, but limit it to those firms that have a yearly turnover above a specified level. Another solution advocated is to establish a limit generally based on yearly turnover, below which taxpayers may choose either to be incorporated within the VAT system or to pay a low rate of turnover tax on their total sales with no deduction for taxes paid on their purchases. This method is however extremely unsatisfactory as it relies heavily on the accuracy of sales reported by small tax payers which is virtually an impossibility since the number of small tax payers is so great.

The forfait type of assessment is also a system widely used for small businesses, especially by France and the French allied states. Under this system on the basis of certain data, the tax due is assessed by the authorities administering the tax. It is in some degree a separate levy, especially to the extent that it does not provide credit for taxes already paid and since normally it cannot be stated on invoices even if sales are made to taxable taxpayers. This forfait mechanism, however, being based on arbitrary decisions on the part of the administration is necessarily crude. The possibility of collusion between taxpayers and tax inspectors too should not be excluded especially when bribery is common in Sri Lanka. Other variations of the forfait technique could also be adopted in dealing with the problem of small enterprises.

1. The Taxation Inquiry Commission Report op. cit.

Still other techniques to overcome the problem arising out of the large number of small businesses and retailers may be adopted. In Belgium for example, small enterprises are given the option of coming within the scope of the VAT or of being subjected to an "equalization" levy that is chargeable at various rates.

Connected with this problem is the difficulty common not only to VAT but to any type of sales tax, that of deciding which taxpayers should be considered as "small". When a limit on total yearly turnover is the criterion tax payers may try to adjust their total sales to fall within or outside the scope of the VAT according to which benefits them most.

Decision problems to be faced if VAT is to be implemented in Sri Lanka are manifold. Among the many questions to be answered would be concerning the nature and forms of value added, the method to be used in calculating the VAT[1] exemptions and differential rates applicable to specific products, etc. Attendant administrative problems too would be great. Moreover, as a substantially higher VAT will be necessary to replace turnover tax revenues, when the turnover tax is already high, much higher VAT rates might be resisted and administrative problems would be intensified.

Several other transitional problems too exist. The costs of doing business tend to increase with the introduction of a VAT, especially during the initial period, because of the need to adapt to new accounting procedures. The training of technical personnel who will administer the VAT with respect to the new procedures and requirements necessary for controlling it, and the education of tax payers and the general public about the characteristics of the new tax and the requirements they have to comply with, are all essential. Even auditors, who will have to check a variety of matters such as connection between purchases and sales, and credits and refunds claimed by the taxpayers, will also have to learn their job.

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1. There are two basic methods of calculating VAT.
   (a) Additive method
   (b) Subtractive method which can follow either :
      (i) The net turnover tax with prior tax deduction approach i.e. the indirect subtracting method or the "tax credit" method;
      (ii) The net turnover tax with prior turnover deduction approach, i. e. the direct subtracting method or sales method.

Summary and Conclusion

Generally the complicated accounting requirements, the inferior book-keeping skill possessed by many of the tax payers, the initial costs to businesses in order to shift over to the value added form, which many of the small firms will find difficult to bear, a large subsistence sector and the myriad of small traders and enterprises, the decision problems and transition difficulties, all make the substitution of VAT for the BTT in Sri Lanka fraught with administrative problems. Moreover, the widescale prevalence of a "black-market" and dislike for the invoice results in a breakdown of the so called built-in-control system of the VAT. The much praised advantage of VAT that though a system of cross-checking, evasion and fraud is reduced, in comparison with the BTT, is thus of little consequence in Sri Lanka.

The cascade effect of the turnover tax gives it a greater inherent revenue potential than the VAT. However, it is this cumulative effect that increases the burden of turnover taxes, gives incentive to integration and results in various distortions. In Sri Lanka's case the predominance of government corporations and monopolies, however, eliminates the fear of the growth of giant monopolies concerns. Also as the rate of unemployment is very high in Sri Lanka, any tax which may be biased toward capital intensive techniques rather than labuor intensive modes of production is necessarily inferior to a similar alternative especially in the short run. If the VAT favours capital intensive methods, therefore, when a predominant plan objective in Sri Lanka is the promotion of employment it would be unadvisable to contemplate its substitution for the BTT, whose rate structure too is manipulated to give an impetus to labour oriented industries.

Another advantage claimed for the VAT and which should be given consideration when examining the practicability of implementing this form in Sri Lanka, is the fact that since the amount of tax applicable to the goods can be determined with greater precision no residual indirect taxes will remain, as frequently happens under turnover taxes, if exports are zero rated. Low standards of book-keeping, in Sri Lanka, however, may result in claims for refunds not actually being made, thus nullifying the external neutrality of the VAT. Moreover, the social and possibly political need for exemptions and/or differential rates of tax often results in a break in the tax credit chain and lessens the internal neutrality of VAT.

Thus the advantages that the VAT seems to have over the BTT, in Sri Lanka's context, when examined in detail really amounts to little consequence. In fact, the urgent need for large quantums of revenue both for welfare and development expendiuture highlights the intrinsic feature of the turnover tax, that of high revenue procurer. The BTT which has now been in operation for nearly 10 years, has proved to be a distinct and dependable source of governmental revenue and its high income elasticity holds out a bright future in its role of provider of public funds. To secure an equal quantity of revenue would mean that the VAT would have to be levied at much higher rates than BTT and this would not be welcomed. Since, therefore, turnover taxes yield a higher revenue at a lower rate, it is more suited to the economy where development finance is a catalyst of economic progress.

In conclusion it may be said that the basic issues that would have to be solved if VAT is to be implemented as a substitute for turnover taxes would prove at present too complicated for Sri Lanka. In fact, although the VAT has been proposed in many developing countries in recent years, the actual move to a general consumption tax of the value added type has been made in relatively few of them. In Sri Lanka, in spite of any shortcomings of BTT, its potential for attaining specific policy objectives and administering the tax properly appears far better than the alternative of a VAT. With South Vietnam's experience of replacement of its manufacturers sales tax by a VAT in the spring of 1973 and its failure after 6 weeks, as it proved too sophisticated and complicated to enforce in a country where tax evasion is widespread, still fresh in our memories, it would seem distinctly inadvisable to advocate the transformation of the BTT into a value added levy in Sri Lanka today. Any thought, therefore, of replacing turnover taxes with the VAT in Sri Lanka would be essentially premature at least for many more years to come.

POPULATION GROWTH AND ECONOMIC DEVELOPMENT IN SRI LANKA*

DAYAPALA WIJEWARDANA

I. Introduction

At the census of 1871 Sri Lanka's population was estimated at 2·4 million. It took thirty more years to add another million. The second million was added in twenty years while the third took only a decade. At present a million is added every four years. In fact by the time that you complete reading this paper over 40 babies have been born while 12 presons have died. At this rate, it is estimated that the country's present population of 13·4 million would double itself in 30 years time. Though yet relatively high, this rate of increase has been reached as a result of a significant decline in Sri Lanka's population growth rate in recent years. Compared with the growth rate of over two per cent per year that prevailed up to 1970 the increase recorded for the period 1971–73 average to 1·74 per cent. In the field of demography this could be regarded as a remarkable decline in view of the short period in which it has taken place.

This fall in the growth rate has been interpreted by some writers as a definite indication of a self-sustained process that would soon bring into balance the mortality and fertility rates in Sri Lanka. In the second place, the role of population growth in the economic development of a less developed country remains one of the highly controversial issues in the theory of economic growth. Moreover, the rationale of measures to control population growth in these countries has been questioned recently on the principal grounds that the low living standards in these countries are related to the inability to achieve higher rates of economic growth than to sharply rising population. Not only in Sri Lanka, but at the recent UN sponsored population conference in Bucharest this line of argument was supported by several countries.

Among other things, this paper examines the validity of these arguments in relation to Sri Lanka and other selected developing countries. The main conclusions of the study are that (a) the available evidence support the conclusion that there has been a fertility

* The views expressed in this paper are the writer's own.

decline but the more important reason for the recent sharp fall in population growth rate in Sri Lanka is emigration; (b) developing countries stand to gain considerably by checking population growth rates; (c) the present strategy in family planning will not provide significant relief to the country for many more years, and (d) the effort needed to bring about meaningful results cannot be mobilised by entrusting the responsibility to one or two government departments or voluntary organisations. Instead there should be a concerted effort which should assume the same degree of importance as the production war, for food and population are but two sides of the same coin.

II. Recent trends

The rate of natural increase of population is determined by mortality and fertility rates. Together with migration they determine the actual increase in a country's population. Since the registration of deaths was made compulsory in 1867 the records maintained by the Registrar General have provided a very reliable source of data on mortality. It is evident from Table II–1 that sharp declines in death rates have occurred in Sri Lanka within the last three decades following the progressive expansion of public health services. The real break through came around 1947, when death rates declined by 30 per cent from 20·3 in 1946 to 14·3 per thousand – largely as a result of the eradication of malaria. This is considered an event unparalled in the annals of world demography.

Table II – 1

Sri Lanka's crude birth rate, death rate and natural increase

(per thousand)

Year	Crude Birth Rate	Crude Death Rate	Natural Increase
1901	38·0	28·7	9·3
1911	38·2	30·8	7·4
1921	39·5	26·2	13·7
1931	36·3	23·0	13·4
1941	35·6	18·3	17·3
1946	37·4	19·8	17·6
1947	38·6	14·0	24·6
1951	39·8	12·7	27·1
1961	35·8	8·0	27·8
1971	30·1	7·7	22·4
1972	29·7	8·0	21·7
1973	27·8	7·7	20·1

Source: Dept. of Census & Statistics.

Having declined progressively through the years it has reached 7·7 per cent in 1973 which is one of the lowest in the world.

Fertility rates have shown a similar trend in recent years as indicated in table II – 1. As expected in a country experiencing high mortality rates fertility remained at a relatively high level of over 38 per thousand upto about 1950. Since 1960, however, a perceptible decline has taken place and in 1973 the birth rate was estimated at 27·8 per thousand. The crude birth rate, though one of the two determinants of natural increase is a poor index of fertility in a country. A close examination of fertility trends should take into consideration the age specific fertility rates. The declining trend is confirmed in this with the 25–29 age group which has the highest rate too showing a progressive decline. The downward trend is clearly marked since 1965 for women of all age groups[1]. Although many attempts have been made to formulate a theory of fertility movement it has not been successful since many non-quantifiable economic and sociological factors influence its pattern[2]. In the case of the decline evident in Sri Lanka, the most significant cause appears to be the

Table II – 2

Rate of natural increase – selected countries

Year	Sri Lanka	India	Indonesia	Philippines	Singapore	Japan	U. S. A.	Sweden	U. K.	U. S. S. R.
1962 ..	27·0	—	—	21·1	—	9·6	14·0	4·1	5·9	14·9
1963 ..	25 6	—	—	18·9	—	10·3	12·1	4·7	6·2	14 0
1964 ..	24·4	—	—	18·6	—	10·8	11·6	6·0	7·5	12·7
1965 ..	24·9	—	—	17·3	—	11·5	10·0	5·8	6·9	11·1
1966 ..	24·0			17·5	24·3	7 0	8·9	5·8	6·1	10 9
1967 ..	24·1			17·3	21·7	12·6	8·4	5·3	6 2	9·8
1968 ..	24·1	26·1	28·9	18·1	19·2	11·7	7·8	3·9	5 2	9·5
1969 ..	22·1			19·7	18·0	11·6	8 2	3·1	4·7	8·9
1970 ..	21·4			—	18·0	11·9	8·8	3·8	4·5	9·2
1971 ..	22·5	—	—	—	—	—	8·0	3·9	4 6	9·6

Source: Dept. of Census & Statistics, *Bulletin on vital statistics*, 1974 and U. N. *Demographic Year Book*, 1970.

1. For a detailed analysis of fertility and morality trends in Sri Lanka see Nimal Sanderatne's paper in this issue of *Staff Studies*.

2. Glen C. Cain, 'Issues in the economics of a population policy for the United States: *American Economic Review* (Papers & Proceedings) May 1971. pp. 408–17.

postponement of the average age of marriage and change in marital structure over the period 1963 – 71. The average age of marriage has increased from 27·8 to 28·0 years for males and 22·1 to 23·5 years for females. The progressive expansion in the use of birth control techniques too would have had an important effect[1].

The decline in the rate of natural increase stemming from the movement of mortality and fertility compared with a number of other countries is shown in table II – 2. From this, it could be observed that Sri Lanka's rate of natural increase is below that of several countries in the region such as India and Indonesia. However, we have to go a long way before we reach the levels achieved by countries such as Singapore not to mention those of the developed countries.

Migration has played an important role in determining the growth of Sri Lanka's population during the last century and early part of the present one. These years marked the massive import of Indian labour to work in the tea plantations. Similarly, during the years of the second world war there has been a significant efflux. Since then both immigration and emigration had declined to insignificant levels until relatively large outflows re-emerged in the seventies.

Table II – 3

Percentage shares of natural increase and migration in the population growth of Sri Lanka

Period	Natural Increase	Migration Increase
1871 – 1881	33·3	66·7
1881 – 1891	58·2	41·8
1891 – 1901	40·4	59·6
1901 – 1911	65·9	34·1
1911 – 1921	81·4	18·6
1921 – 1931	81·3	18·7
1931 – 1946	94·8	5·2
1946 – 1953	94·6	5·4
1963 – 1971	100·9	-0 9
1969	102·8	-2·8
1970	104·4	-4·4
1971	117·5	-17·5
1972 .. .	116·4	-16·4
1973	123·2	-23·2

Sources: Second Asian Papulation Conference 1972. National Statement for Sri Lanka; Dept. of Census & Statistics.

1. Dallas - F. S. Fernando, 'Recent Fertility decline in Ceylon: *Population Studies*, Vol. 26, No. 3 (November 1972) pp. 445 53.

At present nearly a quarter of the natural increase is offset by emigration. If migration continues to play such an important role Sri Lanka would soon achieve growth rates similar to that of Singapore. But how permanent is this phenomenon likely to be? The present scale of emigration is almost entirely attributable to the repatriation under the Indo-Ceylon Agreement of 1964.

Table II - 4

Emigration 1969 - 73

(Number of persons)

	1969	1970	1971	1972	1973	1974[1]
1. Under Indo-Ceylon Agreement (including natural increase) ..	5617	9527	25384	32877	40153	44949
2. Other[2] ..	1466	1499	1896	2618	2905	n.a.
3. Total ..	7083	11026	27280	35495	43058	44949

Source: Dept. of Immigration & Emigration.

1. Provisional.
2. For whom clearance has been granted with emigrant status by the following foreign missions: Australia, Canada, U. K. and U. S. A.

Under this pact 600,000 persons of Indian origin, along with their natural increase, are to be repatriated from Sri Lanka. By the end of 1974, 139,000 had already left the country. The department of Immigration and Emigration plans to repatriate over 45,000 each year from 1975 along with their natural increase so that the entire agreed number would be leaving the country within the next eight years. In other words, although there has been a perceptible decline in fertility in recent years a major factor that has contributed to the slower growth of population was migration. Unless effective fertility reduction measures are implemented soon, we may find a resurgence of high population growth rates of a scale slightly lower than the present rate of natural increase by about 1983 when the repatriation of Indians ends.

A rapidly growing population could impose severe burdens on an economy that suffers from a low growth rate. Partly, the lagging growth stems from having to devote more resources to maintain this population. In Sri Lanka, the economic planners had long realised the need to break this vicious circle if the country is to emerge from

stagnation. For instance the Ten year Plan (1959-68) noted that among other disadvantages a high rate of population growth would tend to depress standards of living along with unfavourable effects on investment. Not only the consumption needs, the plan recognised, but growing requirement of social services, education, health and housing make increasing claims on investment resources[1]. Although the plan did not set any targets for reduction of fertility it underscored the need for a programme of action in this direction.

In more recent years the Five Year Plan (1972-76) too observed that the strain on resources imposed by the present rate of population growth would be almost intolerable and stated that the plan would give very high priority to the diffusion of family planning facilities amongst the mass of adult population[2].

The economic growth targets of these plans did not materialize owing, among other things, to unforeseen developments in the economic scene. The objectives with regard to population control too

Table II - 5

Growth in GNP per capita 1959 - 73

Year	GNP at constant 1959 prices (Rs. Mn.)	Per Cent Change	Per Capita Income (Rs.)	Per cent Change
1959 ..	5,893		612	
1960 ..	6,289	6·7	635	3·8
1961 ..	6,425	2·2	631	-0·1
1962 ..	6,710	4·4	642	1·7
1963 ..	6,900	2·8	648	0·9
1964 ..	7,363	6·7	675	4·1
1965 ..	7,551	2·6	676	0·1
1966 ..	7,818	3·5	683	1·0
1967 ..	8,210	5·0	702	2·8
1968 ..	8,901	8·4	742	5·7
1969 ..	9,301	4·5	759	2·3
1970 ..	9,686	4·1	774	2·0
1971 ..	9,779	1·0	766	-1·1
1972 ..	10,030	2·6	770	0·5
1973 ..	10,383	3·5	784	1·8
Average annual growth rate 1959-73		4·1		1·8

Source: Central Bank of Ceylon, Annual Reports, various years.

1. National Planning Council, *The Ten Year Plan*, Colombo 1959. pp. 7-18.
2. Ministry of Planning & Employment, *The Five Year Plan*, 1972-76, Colombo 1971. p. 21.

could not be realised with a degree of success that relieved pressure on resources. As shown in table II–5, over the period 1959–73 the GNP increased on average 4·1 per cent a year. Per capita income, on the other hand increased at an average rate of only 1·8 per cent. In other words, even the modest rate of growth achieved during this period could not be translated into any significant improvement in the living standards since this growth was frittered away by the increased population.

III. Population growth and economic development

The role of population growth in economic development remains a controversial issue in the growth theory. During the inter–war years the idea on an optimum population was widely accepted. This concept developed from the notion that a country could be over–populated or under populated. The logical extension of this was that there has to be an optimum population. The optimum was defined as that level of population which, with a given supply of resources, would give rise to the maximum per capita output. The main flaw in this theory was the passive role assigned to technological change and capital formation. These two factors alone could displace the point of supposed optimum even when the actual population may be moving towards it.

In several more recent analyses based on economic growth models it has been found that a reduction in fertility could make significant contributions to the development of less developed economies. Coale and Hoover in their pioneering study relating to the demographic situation in India found that in the declining fertility model, projected on the base year of 1956, per capita income would increase considerably after 30 years. The magnitude of the increase could vary between 76 to 133 per cent depending on the movement of the other variables whereas under constant fertility the estimated increase would be in the region of 30–57 per cent[1]. Several other growth models designed to explore the effects of different demographic conditions on various developing countries have reached similar

1· A. J. Coale and E. M. Hoover. *Population Growth and Economic Development in Low income countries*, Oxford University Press, 1959. pp. 280–81.

conclusions[1]. In general, these studies indicate that the advantages of a fertility reduction could amount to 3–5 per cent in 10 years, 15–25 per cent in 20 years and 25–50 per cent in 30 years in terms of per capita income.

But these conclusions have been disputed by many critics. Hirschman argues that population pressure, may, under certain circumstances, provide the stimulus needed to improve techniques of production. Once they discover the ability to raise living standards by their own efforts people will continue to increase such effort and sustained growth would take place[2]. Boserup too considers that population pressure, by favourably affecting individual skills would lead to rapid changes in production techniques[3]. A further hypothesis that comes as Verdoon's Law is that there exists a positive correlation between the growth of population, output and employment and growth of per capita production. It has also been argued often that a larger population provides a bigger market which enables realisation of economies of scale and helps specialisation. Dupreel argued for a large population which he claimed would improve performance in administrative, political and cultural processes.[4]

Some of these are idealistic arguments not subject to empirical testing. Many others are sweeping generalisations based on the experience of developed countries. But the demographic situation that is now facing the developing countries cannot be paralleled to the situation in the Western world or the new world of the 19th century except on a very superficial level as would be shown below. Some other arguments, particularly that advanced by Hirschman is based on the assumption of an economy where "labour, capital and entrepreneurship are potentially available". But most of the developing countries that are saddled with rapidly growing populations lack

1. See for instance E. M. Hoover and M. Perlman "Measuring the effects of population control on economic development: Pakistan as a case study", *Pakistan Development Review, Vol. 6, No. 4 (Winter, 1966)*, pp. 545–566; P. Newman and R. H. Allen, *Population growth and economic development in Nicaragua*, Robert R. Nathan Associates Inc. Washington D. C. 1967 T. K. Ruprecht. Population and Economic Development in Philippines (Unpublished); For a discussion of these see T. K. Ruprecht and C. Wahren, *Population programmes and social and economic development*, OECD, Paris, 1970.
2. Albert O. Hirschman, *The Strategy of Economic Development*, Yale University Press, New Haven, 1967.
3. E Boserup, The conditions of agricultural growth, Allen & Unwin, 1965.
4. E. Dupreel, quoted in A. O. Hirschman. op. cit.

both capital and entrepreneurship. Even the labour found are of largely unskilled nature; their usefulness would depend on the degree of training which too calls for additional investment. He also suggests that a population explosion would provide the shock that would jolt a country into the path of rapid economic development. This too was the case with the Western world of the 19th century where the entire industrial revolution could be explained as nothing else but a vast secular boom largely induced by unparalleled rise in population[1]. But in the developing countries where the conditions within which the population explosion takes place are quite different, which has made all the difference in reaping these apparent advantages. The argument that a larger population provides a bigger market is naive in that it ignores the basic fact that market size is more a function of aggregate purchasing power than population per se.

Hirschman's thesis was advanced to 'take the alarmist attitude off the population problem facing the developing countries'. In a similar tone Everett Hagen, once again drawing from the experience of thirteen developed countries in Europe and the New World, presented his 'Common Sense of Population'[2]. According to this, in societies where technological advance becomes habitual and where significant improvements in standard of living above the subsistence level takes place the resulting 'standard of living effect' brings about a reduction in fertility rates. Many countries which did not fit into this calculation, Hagen considered to be limiting cases. It is not possible, in the first instance, to explain fertility decline in such simple terms although a higher standard of living would exert some effect on reducing fertility[3]. Moreover, demographic transition involves population growth passing through three main stages. These are (a) high fertility/high mortality; (b) high fertility/low mortality; and (c) low fertility/low mortality. The first and the last phases result in a lower rate of population growth while the interim one high fertility/low mortality cause sharp increases. Thus the period that a country takes to effect this transformation makes a significant difference to the population issue.[4]

1. J. R. Hicks *value and capital* (Oxford 1939) p. 302.
2. Everett Hagen, 'The Common Sense of Population (CENIS Document C/58-14) p. 20. (also quoted in Benjamin Higgins, *Economic Development*, London, 1959. pp. 318-1).
3. See for instance Harvy Libenstein, 'Socio-economic fertility theories and their relevance to population policy', *International Labour Review*, Vol. 109. Nos. 5-6 (May-June 1974) pp. 443-458.
4. For a detailed discussion see Nimal Sanderatne, op. cit.

In Europe, population growth rates increased during the late 18th century owing to the decrease in mortality rates which accompanied the agricultural and industrial revolutions. But for it to decline from about 28-30 to about 10 per thousand today, it took over a century. On the other hand, sharpest declines in fertility took place during the sixty year period between 1870 to 1930. Among most of the less developed countries, in contrast declines in mortality have been much more rapid often taking place during one or two decades. In Sri Lanka mortality rates declined from 20·3 to 14·3 per thousand in a single year 1947 and remains at 7·7 per thousand at present which is one of the lowest in the world. Consequently, life expectancy at birth increased from 44·7 in 1947 to 66·9 by 1967 for females and 46·8 to 64·8 for males. The result of these twin developments has been population growth rates that were never experienced by the developed countries at any time in history.

The differences in the background within which the demographic transformation took place in the west and the situation that prevails in the developing countries do not end there. For instance, most European countries today have fertility rates of about 14·20 whereas Sri Lanka's rate in 1973 was 27·8. Moreover, when the advanced countries experienced most rapid increases in their population it was well after the take off to economic growth so that sustaining large numbers along with improving living standards was possible. Even then, the rate of increase was modest – generally about one per cent whereas in the less developed countries of today it averages about 2·5 per cent. It is interesting to note that at one per cent it takes 70 years for a population to double whereas at 2·5 it taken a mere 35 years. Besides, when there was pressure on resources, the now-developed countries were able to turn to the frontiers of the New World; but today's LDCs have no such outlets for growing numbers. Furthermore, when the mortality decline took place in the developing countries it was alongside their traditional economic practices and social attitudes which favour mortality declines but measures to control fertility are often resented. These are among the several differences in the demographic picture of the early years of advanced economies and the developing countries of today. Thus we cannot find a comforting resemblance between the two situations.

The arguments that suggest the absence of any adverse link between rapid population growth and economic development, it would be evident, can find little justification within the circumstances in which most developing countries are placed today. It is however, not argued here that the claims of neo-Malthusian writers that the population increase in these countries means imminent disaster are based on soild foundations either. The world in general has been able to achieve growth rates at least marginally higher than population increase. Nor is it suggested that it would be impossible for a country to achieve growing per capita incomes simultaneously with increasing population. The relevant question is how fast can the developing countries achieve acceptable levels of improvement in the living standards of their peoples with populations increasing at current rates.

In the first place high fertility rates in these countries mean high dependency ratios[1]. There exists a clear correlation between the two factors. It has been found that the group of countries with low birth rates have low dependency ratios while those with high rates have high ratios[2]. A high dependency rate means among other things, the producers have to share their output with many non-producers and vice versa.

IV. Growth rates in Sri Lanka

Some data can be drawn from Sri Lanka at present. She has a dependency rate of 76·7 per cent. With current levels of unemployment estimated at 13·7 per cent of the labour force the effective dependency ratio is even higher since many continue to be dependants after entering the labour force[3].

Secondly, a high dependent population also means a further relative increase in the reproductive age groups substantially larger than the number of persons growing out of fertility. This carries with it the potential of a further cumulative increase in population.

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1. Calculated as: $\frac{\text{The number of persons under 15 years and over 65 years of age}}{\text{Number of persons in the age group 15–65 years}}$

2. Ian Bower, Finance and Development, December 1973.

3. If housewives are excluded from the labour force the unemployment rate is 18·3 per cent. Central bank, Determinants of Labour Force Participation rates in Sri Lanka, Colombo 1974 (mimeographed) p. 114.

IV.A. Employment

The third corollary of a high dependency ratio is the additional number of persons seeking employment every year. Providing employment to everyone who needs work is perhaps the foremost economic and social problem facing Sri Lanka today. There are two important aspects; to the unemployment problem. The first is the staggering growth in numbers over the last few years as shown in the following table.

Table IV - 1

Estimates of unemployment in Sri Lanka

Source	Total Unemployment	Percent of Labour Force
1. I. L. O. Survey 1959–60 ..	Low estimate 340,000	10·5
	High estimate 450,000	12·8
2. Population Census– 1963 ..	Low estimate 265,000	8·0
	High estimate 390,000	10·8
3. Consumer Finance Survey 1963	457,000	13·8
4. Rural Employment Survey 1964	450,000	12·5
5. Labour Force Survey 1968 ..	450,000	11·0
6. Central bank Labour Force Participation Rates Survey 1973 ..	793,000	13·7
7. Consumer Finance Survey 1973	—	24·0

The main reason for the difference in estimates between some of the surveys carried out about the same time is the difference in definitions. These are not discussed here. The important fact revealed by these is the magnitude of the growth of unemployment in recent years. In addition, each year an estimated 170,000 join the labour force. The second and perhaps more pressing problem is the growth in educated unemployment. The Consumer Finance Survey of 1973 found that 45·9 per cent of those who had passed G.C.E. (OL) or above, and 16·2 per cent of graduates remained unemployed at that time.

On the other hand unemployment rates within the age group 15–24 was found to be as high as 36·8 per cent for males and 41·9 per cent for females[1]. It was a combination of these two factors that contributed largely to the insurgency of 1971.

1. Central Bank, *Labour Force Participation Rates Survey - 1973*

What are the prospect of reducing the level of unemployment in the future? Assuming a 2 per cent retiring rate and a 5 per cent growth rate, on average, 70,000 jobs are created each year to be shared by some 220,000 school leavers entering the labour force outside the estate sector[1]. The magnitude of the problem is likely to get worse each year on both fronts-greater number of job seekers and fewer opportunities. Even on the present scale, the number unemployed would be swollen by 150,000 each year. This would be in addition to a pool of 793,000 unemployed as estimated in 1973.

On a crude estimate the creation of a new job requires a capital investment of Rs. 15,000[2]. If unemployement is to be eliminated by 1981, it would require an annual gross domestic capital formation of Rs. 4271 million each year. The average annual figure over the five years 1969–73 was Rs. 2361 million. In other words, it is only if gross domestic investment is nearly doubled from 1975 onwards that unemployment could be eased by 1981. For this to take place, Gross Domestic Product as well as savings of the economy will have to increase in similar proportions. This indicates the virtual impossibility of bringing about full employment for many more years. The major obstacle for such an expansion in investment is the low growth stemming from the many economic problems facing the country. Among these is the rapid population growth which in many ways reduce the quantum of investment resources.

IV.B. Housing

Sri Lanka today suffers from an acute shortage of housing both in terms of the number of units as well as amenities. Several surveys in the past have shown that average household size was 5·3 persons. The Consumer Finance Survey of 1973 showed an increase in the average household size to 5·6 persons, indicating the growing shortage of housing. Table IV. B. 1 shows the growth in population and occupied housing units between the period 1963 and 1971. It could be seen that for the country as a whole while population has increased by 20·1 per cent housing units have increased by only 12·5 per cent. The census also showed that applying either of the criteria for over – crowding – three persons per room or 50 sq. ft. per person – 40 per

1. I.L.O. *Matching Employment opportunities and expectations – a programme of action for Ceylon.* Geneva, 1971. p. 33
2. On the basis of marginal increment of gross domestic capital formation and employment.

cent of the houses were over-crowded in 1971[1]. As far as amenities are concerned, the Consumer Finance Survey of 1973 revealed that the number of houses with pipe borne water has declined over the years 1963-73 while the number without latrine facilities has increased.

TABLE IV.B.1

Increase in population and occupied housing units between 1963 and 1971

(In Thousands)

Population		*Whole Island*	*Urban*	*Rural & Estate*
	1963	10,582	2,116	8,466
	1971	12,711	2,842	9,869
Per cent increase		20·1	34·3	16·6
Occupied Housing Units				
	1963	1,972	318	1,654
	1971	2,217	421	1,796
Per cent increase		12·5	32·4	8·6

Source: Department of Census & Statistics.

In determining the housing requirements of the future, using the 1973 average size of 5·6 persons per household is not justified since this increase reflects largely the shortage of houses. Assuming a rate of 5 persons per housing unit, in 1971 there was already a backlog of 325,000 houses. If one per cent replacement rate is assumed the number of replacements recorded in 1972 was 22,170 units which would increase progressively over the following years. Under the medium term trend Sri Lanka's population would increase by 3·115 million between 1971 and 1981. The average annual construction of houses necessary from 1975 onwards in order to satisfy the needs by 1981 is shown by the IV.B.2 table.

1. *Over-crowding*

Floor Area	*No. of Occupants*
100 sq. ft.	2
100–250 sq. ft.	4
250–500 sq. ft.	6
500–1000 sq. ft.	8

Source: Housing Census – 1971.

TABLE IV.B.2

Housing needs by 1981

(Numbers)

Backlog in 1971	325,000
Replacement requirement	221,700
Required by increased population	623,000
Total	869,700
Annual average required between 1975–81	124,240

While the requirement of housing units during the next seven years to ease the housing problem amounts to over 124,000 a year construction between 1963 and 1971 has been 30,600 a year on average. Even if a considerably lower proportion of population growth is assumed, the capital requirement would be of such proportions that it is clearly impossible to relieve congestion within the next few years. From a long term point of view, the two principal ways in which the problem can be dealt with is to have an accelerated rate of housing construction and reduce the demand through limiting the rate of population growth.

IV. C. Balance of Payments

The growth of population has exerted considerable pressure on Sri Lanka's balance of payments which has already been suffering under the stress of low export earnings. The country still depends on imports for a major share of essential items including food and clothing, the requirements of which are directly related to the growth of population. But the import capacity has not expanded at the same rate as inport requirement as shown in Table 4·C·1. In fact import capacity has progressively declined ever since 1964. As far as the staple commodity–rice is concerned, the country continues to depend on imports for nearly a quarter of her requirements (See Table 4·C·2.)

Table IV.C.1.

Sri Lanka: Per Capita Import Requirements and Import Capacity, 1964–73

(Rupees)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
1. Per Capita Import requirements[1]	215	235	237	249	290	310	327	328	344	404
2. Per Capita Import Capacity[2]	180	183	157	159	183	188	186	188	166	224
3. 2 as % of 1	84	78	66	64	63	61	57	57	48	55

Source: Central Bank of Ceylon Annual Reports – various years.

1. Calculated as 35 per cent of GDP divided by the mid-year population for each year. (Average for the period 1958 – 60 was 38·9 per cent)
2. (Export earnings + net services + net long – term capital) ÷ mid-year population.

TABLE IV.C.2.

Rice Production and Imports 1966 – 1973

(Thousand Tons)

	1966	1967	1968	1969	1970	1971	1972	1973
1. Production	638	769	902	920	1106	956	894	899
2. Imports	485	375	344	260	526	334	262	337
3. Total supply	1123	1144	1246	1180	1632	1290	1161	1236
4 Production as % of supply	56	67	72	78	68	74	77	77

Source: Central Bank of Ceylon

The recent escalation in the world market prices of essential commodities and petroleum has added a new dimension to the population problem. On average, the prices of these commodities have quadrupled over the last four years, as shown in Table IV. C. 3. Thus in volume terms her import capacity has deteriorated with a corresponding growth in needs further than what is revealed by Table IV.C.1. Within this context, any increase in population only serves to exacerbate the already acute foreign exchange problem.

The balance of payments constraint affects the living standards of the people in many more ways than directly reducing the availability of imports. In an open economy such as Sri Lanka where the dependency on external trade is high, growth in incomes and employment opportunities are closely linked to the foreign exchange availability. Thus when rapid population growth takes place along side an aggravating foreign exchange crisis sharp declines in living standards are inevitable. The following section examines this problem in relation to the growth of the economy of Sri Lanka over the last two decades.

TABLE IV.C.3.

C.I.F. Price of Rice, Flour and Sugar.

(Rupees per ton)

Commodity	1970		1971		1972		1973		1974
	Jan./ June.	July./ Dec.	Jan./ June.	July./ Dec.	Jan./ June.	July./ Dec.	Jan./ June.	July./ Dec.	Jan./ June.
Rice	707·43	635·31	585·79	539·06	511·44	590·12	838·43	812·85	2551·88
Flour	554·81	670·44	589·41	653·16	624·36	733·07	1094·74	1447·48	2052·30
Sugar	562·61	689·41	877·13	826·59	1101·58	1247·44	1554·04	1865·62	2311·30
Crude oil (per barrel)	8·61		10·67		11·58		26·47		80·26

Source: Based on Sri Lanka Customs data.

V. The Distribution of Gains from Economic Growth

The impact of population growth on an economy can be gauged in relation to the share of real growth devoted towards maintaining the population.

The Gross Domestic Product measures the growth achieved by an economy over a given period. This growth is ultimately spent on consumption and investment. Thus the increment of GDP, by definition, adds up to the expenditure on these two elements. But this would not reveal the entire picture, since a part of the growth is absorbed by increases of population. For instance, if the GDP has

increased by two per cent a year while population too has increased by the same percentage, then income per head remains unaltered over the year. Thus in the calculation of the distribution of growth in this section a third variable is introduced as that part of the increase in GDP spent in order to provide the base year GDP per capita during the subsequent years. Consequently, the other two elements are similarly defined – e.g. private consumption to mean the increase in GDP that is devoted for increasing private consumption per capita over the base period and the final period, etc. Thus, expenditure on the three components, Consumption, Investment and Population should together equal to the increase in GDP and their respective shares must add upto 100 per cent[1].

TABLE V.1.

Sri Lanka: Distribution of Gains from Economic Growth 1959–73

Period	Increase in GDP Rs. Mn.	Per cent of GDP on					
		Population	Private Consumption	Public Consumption	Private Investment	Public Investment	Total Investment
1959 – 1963	771·0	91·1	17·7	2·7	– 15·9	4·6	– 11·3
1964 – 1968	2049·5	38·1	42·5	3·6	10·0	5·5	15·5
1969 – 1973	784·6	110·9	26·0	2·6	– 38·2	– 1·2	– 39·4
1959 – 1973	4897·6	51·0	39·9	3·7	5·4	0·9	6·3

Source: Central Bank of Ceylon, *Annual Report*, various years.

The results of the calculation are shown in Table V.1. The two important features of the Sri Lanka economy brought out in the table are the sluggish performance of the economy and the sharp increase

1. The relationship could be expressed by the following formula:

$$Y_1 - Y_o = Y_o \left(\frac{P_1}{P_o} - 1 \right) + C_1 - C_o \left(\frac{P_1}{P_o} \right) + I_1 - I_o \left(\frac{P_1}{P_o} \right)$$

Where Y = Gross Domestic Product
P = Population
C = Consumption
I = Investment

See also Felix Paukert, The distribution of gains from economic development, *International Labour Review*, Vol. 91, No. 5 (May 1965) pp 367–392.

in population during the period 1959–1973. As a consequence, if the living standards were maintained, 91 per cent of growth would have been necessary to support the population of Sri Lanka during the period 1959-63; during the period 1964–68 the share needed was 38 per cent while in the final phase 1969–73 the entire increase of GDP was insufficient to maintain the living standards of the growing population. For the 15 year period 1959–73, 51 per cent of fhe gains from growth have been spent on sustaining the living standards of the increased population. Once this was met only a meagre 6·3 per cent was left for investment purposes. In short, the table reveals that rapid population growth had imposed a crushing burden on the Sri Lanka economy which had necessitated the diversion of resources away from investment. There are several other developing countries such as Pakistan, Philippines, Brazil and Columbia placed in the same position. The extent of the burden could be gauged when compared with some of the developed countries. This information is available in Table V. 2. It could be seen that these countries in general spend less than a quarter of GDP growth on the population component.

VI. Population Projections 1971–2001

As shown in previous sections rapid population growth affects economic development in several ways in addition to directly depressing per capita incomes. The rate of return on investment in preventing a birth is higher than in any other form of investment at any rate of discount[1]. Being a country poorly endowed with natural resources, measures to control reproduction rates should have received for long the scale of emphasis now placed on food production.

Despite its importance, Sri Lanka does not appear to have attempted to deal with the problem in an effective way. In recent years, we have been spending 3 US cents per capita, on family planning whereas countries such as India and Pakistan spend 12 cents each. To be effective, a minimum per capita expenditure of 5 US cents is essential[2].

Among a number of reasons, the major cause for this attitude towards fertility control, may be the lack of political appeal in a family plannning programme. Benefits of family planning

1. G. Chlin, *Population Control and Economic Development*, OECD, Paris, 1967.
2. G. W. Jones and S. Selvaratnam, *Population Growth and Economic Development in Ceylon*, Colombo - 1972. p. 214

TABLE V.2.

Economic Growth and Its Allocation in Selected Developed Countries, 1960/61 to 1968/69

Country	Period	Currency Units		Per Cent												
		Unit of Currency	Increase in GDP	Population Component	Private Consumption	Public Consumption	Investment	Increase over the 2 Periods				Annual Compound Growth Rates				
								GDP	Private Consumption	Public Consumption	Investment	GDP	Private Consumption	Public Consumption	Investment	Population
Australia	1960/61—1968/69	Aus. $ (Mn)	9,210	36·4	28·0	10·2	25·4	54·1	43·4	70·7	74·0	5·5	4·6	6·9	7·2	2·3
Austria	1960/61—1968/69	A. Sch(Bn)	81·2	9·7	51·7	7·6	30·9	42·0	41·1	27·8	51·0	4·5	4·4	3·1	5·3	0·5
Canada	1960/61—1968/69	Can. $ (Mn)	20,122	29·3	40·1	9·5	21·1	51·3	47·6	47·5	64·4	5·3	5·0	5·0	6·4	1·8
France	1960/61—1968/69	F. Franc (Bn)	206·8	15·4	49·8	5·3	29·5	59·3	57·2	31·3	80·0	6·0	5·8	3·8	7·6	1·1
Germany Federal Republic	1960/61—1968/69	DM (Bn)	139·5	21·1	47·0	9·7	22·2	41·0	42·5	36·3	41·2	4·4	4·5	4·0	4·4	1·0
Italy	1960/61—1968/69	Lire (Bn)	12,751	13·4	65·5	8·9	12·2	47·7	56·0	37·8	30·9	5·0	5·7	4·1	3·4	0·8
Japan	1960/61—1968/69	Yen (Bn)	25,979	7·4	42·3	4·8	45·6	121·8	98·6	66·3	180·1	10·5	9·0	6·5	13·7	0·2
Netherlands	1960/61—1968/69	Guilder (Mn)	26,045	21·8	45·6	3·5	29·2	55·6	55·8	24·9	72·4	5·6	5·7	2·8	4·6	1·4
United Kingdom	1960/61—1968/69	£. (Mn)	6,746	25·5	41·9	10·1	22·6	23·6	21·2	19·9	35·8	2·7	2·4	2·3	3·9	0·8
United State of America	1960/61—1968/69	Us. $ (Bn)	245·3	26·1	43·4	16·6	13·9	46·1	43·1	53·7	49·3	4·8	4·6	5·5	5·2	1·5
Mean				20·6	45·5	8·6	25·3									
Median				21·4	44·5	9·2	24 0									

Sources: *UN Yearbook of National Accounts 1970*, New York 1971.
UN Demographic Yearbook, 1970, New York 1971,

are necessarily long term and often become significant only after 10–15 years. In the short run, it may not show results in a politically significant way as for instance an industrial project which has a physical output, employment opportunities, etc. But when remedies are not introduced in time, the problems associated with a large population are carried into the long term, in a cumulative way. A unique difficulty that differentiates a population problem from any other issue is that once a new life is created there is no option but to look after it.

Population projections up to the year 2001 could provide valuable insights in this regard. In the following computations, three different assumptions with regard to fertility and a single assumption regarding the future course of mortality have been used. As noted in Section II there has been a marked decline in age-specific fertility during the period 1963–71. In the high projection it is assumed that there would be a slight decline in these rates over that prevailed in 1971. This could be regarded as the upper limit to the future population.

The low projection is based on the assumption of a very rapid decline in fertility to 50 per cent of the 1971 levels within a period of 15 years. On the basis of recent trends and the present scale of operation of family planning measures this is an optimistic projection and could be considered as the lower limit of the future population. If however, a vigorous drive for fertility control is implemented this is not a target that is impossible to be reached.

The likely future population is the medium projection where a gradual decline of fertility to 60 per cent of the 1971 levels by 2001, is assumed.

In all three projections mortality is assumed to decline gradually with the expectation of life at birth increasing to 68·5 years for males and 72·2 years for females by the year 2001.

It could be observed that even under the unlikely event of the low estimate being realised population would increase to 16.2 million by 1986 and to 19·3 million by 2001. The most likely outcome would be 17·4 million by 1986 and 21·8 million by 2001. Similarly, dependency ratios will continue to be high despite modest declines resulting from the aging of the present predominantly young population. A similar rise is shown for the population of working age.

TABLE VI.1

Population Projections, 1976–2001

('000)

	1976	1981	1986	1991	1996	2001
1. *Population*						
High	14,283	15,960	17,885	20,000	22,281	24,730
Medium	14,283	15,826	17,357	18,868	20,318	21,786
Low	14,208	15,339	16,244	17,245	18,313	19,315
2. *Population of school going age*						
High	4,613	4,860	5,189	5,756	6,443	8,158
Medium		4,860	5,085	5,316	5,439	5,515
Low		4,802	3,985	4,337	4,021	4,037
3. *Population of working age*						
High	8,375	9,578	10,753	11,983	13,330	14,923
Medium				11,983	13,200	14,410
Low				11,907	12,729	13,317
4. *Dependent Population*						
High	5,905	6,373	7,129	8,028	8,961	9,806
Medium	5,905	6,239	6,604	6,888	7,141	7,368
Low	5,827	5,756	5,489	5,338	5,586	5,999
5. *Dependency ratios*						
High	70·5	66·5	66·3	67·0	67·3	65·7
Medium	70·5	65·1	61·4	57·5	54·2	51·2
Low	69·5	60 1	51·0	44·8	43·9	45·1

Source: Department of Census & Statistics.

VII. Conclusion

All available data lead to the single conclusion that unless sharp reductions in population growth are achieved, social, economic and political problems would soon be insurmountable.

Although reducing fertility is no alternative to economic growth many of the adverse effect of lagging growth could be averted by controlling birth rates. An all out war on fertility control should be embarked upon immediately with the aim of reaching a zero population growth rate at least by 1990.

The adverse impact of such a rapid fall in birth rates would, if any, be felt in the from of a reduction in the labour force. But this would come only after another 15 years for those who make up the labour force till such time are already here. With current levels of unemployment it is doubtful whether Sri Lanka would face a manpower shortage even after the 15 year period. Hence we have much to gain from a rapid decline in fertility.

Not many years ago, it was considered a lack of economic sophistication to talk of an optimum population. But now many countries are in fact pursuing this goal. Among those who have either initiated or completed official studies into both optimum size of population and optimum growth rate are France, United Kindom and the U. S. A. The U. S. Commission on population Growth and the American Future (1969) is probably the first official body to recommend zero population growth. The commission has found no convincing argument for continuing the growth of national population; the balance of advantages, it claimed, favour slowing and eventually stopping growth altogether[1].

This situation is confirmed by recent data. From Table VII. 1 it could be noticed that all the ten developed countries have shown rates of natural increase well below one per cent a year. In fact except for the U. S. A. other countries have rates of less than one third of one per cent with GDR, Federal Republic of Germany and Luxemburg rapidly reducing their population levels. Sri Lanka should immediately set about a course towards a goal of zero growth to be reached in 10–15 years. It would not be beyond our reach with sufficient determination, for Singapore - a country whose demographic conditions have formerly been similar to ours – has reduced fertility from 131 to 87 per thousand, and natural increase from 2·3 per cent to 1·6 per cent over a short period of seven years to 1973. Seventy eight per cent of all married women between the ages 15–44 are now using family planning clinical services and thus contributed to the decline in the gross reproduction rate to 1·478 which is one of the lowest in the world.

1. Ian Bower. op.cit.

TABLE VII. 1

Countries Achieving or Approaching Population Stability[1]

Country	Crude Birth rate	Crude Death rate	Natural Increase (per cent)
Austria ..	13·4	12·6	+0·08
Belgium ..	13 6	12·5	+0·11
Federal Republic of Germany	10·6	11·9	−0 13
Finland ..	12·4	9·6	+0·28
German Democratic Republic	11·7	13·9	−0·22
Hungary ..	14·7	11·5	+0·32
Luxemburg ..	11·4	12·4	−0 10
Sweden ..	13·4	10·3	+0·31
United Kingdom ..	14·7	11·9	+0·28
United States ..	15·0	9·4	+0·56
Sri Lanka ..	27·8	7·7	+2·01

Source: Economic Impact No. 6, p. 42.

1. Preliminary estimates based on United Nations Data.

Such an objective cannot be realised by leaving total responsibility for population policies to the Ministry of Health assisted by the Family Planning Association. All branches of government, at all levels, along with educators, trade unions, rural development bodies must apply themselves to eliminating this problem. In other words it should be on the same footing as the production war for one cannot be solved without solving the other. Every rupee spent on family planning would bring a rate of return higher than in any other form of investment. A final word of caution: any delay in initiating action will be costly for each day over one thousand babies are born.

THE COMPETITIVE RUBBER MARKET AND PROSPECTS FOR SRI LANKA'S RUBBER INDUSTRY

CHRISHANTHI ABEYNAYAKE

Introduction

Rubber is Sri Lanka's second largest export earner accounting for 23 per cent of total exports. Rubber also contributes 4 per cent to the G. N. P. and 4 per cent to government revenue.

Sri Lanka's terms of trade have fallen continuously for about a decade. Consequently, there has been a reduction in the import capacity of export earnings. A fall in import capacity acts as a constraint to economic growth particularly in an export economy like Sri Lanka.

Table I

Export Earnings, Import Capacity and the Terms of Trade

Year	Export Earnings (Rs. Million)	Import Capacity Index	Terms of Trade
1967 ..	1690	100	100
1968 ..	2035	96	93
1969 ..	1916	85	88
1970 ..	2033	86	84
1971 ..	1947	77	78
1972 ..	2009	75	75
1973 ..	2617	74	65

Source: Central Bank Annual Reports various issues.

Solutions to the problem of raising (or saving) foreign exchange earnings are connected with export expansion and import substitution. The unfavourable consequences which follow policies designed to encourage import substitution as a result of pessimism about prospects for foreign exchange earnings from traditional exports have been described in various studies. Ann Krueger and Bhagwati in an article 'Exchange Control, Liberalization and Economic Development' point

out the economic cost of incentives distorted towards import substitution. Their study concludes that the growth performance of countries oriented towards export promotion appears to have been more satisfactory than that of import substitution oriented countries. The lesson to be drawn from this conclusion "is that policy should err on the side of allowing a higher marginal cost for earning than for saving foreign exchange".[1] Furthermore, an analysis of trade data for the period 1959 to 1965 suggests that the successful performances among less developed countries were differentiated from the less successful primarily by increases in their shares in world markets for their traditional exports[2].

Hence the need to intensify efforts in Sri Lanka to step up production of traditional exports which are saddled with high costs on the one hand and taxes and duties on the other. Moreover, the 'energy crisis' has altered the position of natural rubber vis-a-vis synthetic somewhat. Although the synthetic rubber industry exerted a downward influence on natural rubber prices in the past, the high price of petroleum has raised costs in the synthetic rubber industry thereby making it uneconomic for low price levels to be maintained. Current estimates predict a rise in the share of natural rubber in total elastomer consumption as well as an increase in natural rubber prices.

Furthermore, the alternatives to rubber in areas at present under rubber cultivation are limited particularly as rubber is an already established industry, the infrastructure and marketing arrangements for which already exist. Investment requirements of alternative crops could be high. Small-holders familiar with rubber production and processing would not take easily to unfamiliar products.

This study attempts to deal with (1) some aspects of the competitive position of natural rubber vis-a-vis synthetic rubber, (2) the effects of the energy crisis on the present and future position of natural and synthetic rubber and (3) to review Sri Lanka's rubber industry in the context of new developments.

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1. Anne O. Krueger and Bhagwati 'Exchange Centrol Liberalization and Economic Development' *American Economic Review* December, 1973.
2. T. B. Kravis 'Trade as a Handmaiden of Growth'-*Economic Journal*, December, 1970 p. 867.

A. The Competitive Rubber Market

General

Synthetic rubber dominates the maket for elastomers. 70 per cent of the overall consumption of elastomers in 1973 was in the form of synthetic rubber while the share of natural rubber was 30 per cent. Prospects for natural rubber are dependent upon the growth of demand for all rubber and the specific share of natural rubber in the market for elastomers.

The demand for rubber is concentrated mainly in the automobile industry, particularly in tyre and tyre products. These products (i. e. tyre and tyre products) accounted for 60 per cent of the total consumption of rubber (1972) in the U. S. A., U. K., France, Canada the Federal Repulic of Germany, Japan, Italy and Brazil[1]. As the demand for automobiles generally follows changes in economic activity in the industrial countries, the consumption of rubber is linked to the general economic situation of these countries. Rubber is also used in the manufacture of a range of items including footwear, surgical goods, belting and cables. In some countries, the use of rubber in non-tyre products is high. For instance, around 50 per cent of rubber consumed in the U. K., and France in 1972 was for non-tyre products and in Japan the share was around 47 per cent[2].

Overall elastomer consumption expanded rapidly in post war years accompanying economic growth in industrial countries. Production of natural rubber, however, grew slowly-at around 3 per cent per annum between the years 1949 and 1960. Synthetic rubber was produced in increasing quantity averaging 14 per cent per annum during the same period. This trend (though less pronounced) continued in the 1960's and early 1970's-see table II below - and the share of natural rubber in the total consumption of rubber dropped continuously from the high level of 64 percent in 1955 to its present level of 30 per cent.

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1. Note - the individual shares of each country differ from the aggregate figure.
2. International Rubber Study Group, (IRSG) *Rubber Statistical Bulletin*, May 1974.

Table II

Growth Rates* of Natural and Synthetic Rubber Production

(Percentage)

	Natural Rubber	Synthetic Rubber
1949 – 1954	4	10
55 – 60	1	11
61 – 66	3	12
67 – 72	4	12
1949 – 1960	3	14
61 – 72	8	22

Source: IRSG Rubber Statistical Bulletin Various issues.

* Compound growth rates.

There are many different types of synthetic rubbers. Styrene Butadiene Rubber (S. B. R.), a general purpose rubber, is the cheapest and quantitatively the most important of the synthetic rubbers. It is widely used although lacking the resilience of natural rubber[1]. S–type rubbers account for about 60 per cent[2] of all synthetic rubbers produced in the U. S. A. and probably in other countries producing synthetic rubber. Speciality rubbers consisting of butyl, neoprene and nutrile have been developed for specific end uses. Furthermore, the stereo – regular rubbers, polybutudiene and polyisoprene which came into commercial production in the 1960's compete with natural rubber and S. B. R. in the bulk uses of elastomets.

Polyisoprene is an almost direct chemical duplication of natural rubber. Around 130,000 tons of polyisoprene are produced annually in the U. S. A. Centrally planned countries place emphasis on polyisoprene production in their continued efforts to achieve self sufficiency. Natural rubber, therefore, has to be supplied at a price lower than that of polyisoprene. The price of natural rubber also has to be low enough to discourage investments in plants for polyisoprene production as polyisoprene could replace natural rubber if it could be produced more cheaply.

1. Lack of resilience has made them unsuitable for use in heavy duty tyres.
2. IRSG, *Rubber Statistical Bulletin*, September 1974.

Competition between natural and synthetic rubber has now extended to practically all the end uses of natural rubber. Not only has a synthetic rubber almost identical to natural rubber been developed, but speciality synthetic rubbers which are specific to certain end uses have also been developed; the performance of synthetic rubber in these uses is claimed to be superior to natural rubber.

Present estimates place the market division between natural and synthetic rubber at 45 per cent, 20 per cent and 35 per cent for natural rubber, synthetic rubber and combined natural/synthetic rubber respectively in a Western industrialized country[1]. Under existing technology, the specific share of natural rubber on technical grounds appears to be around 20 per cent according to these estimates. Consumption of natural rubber in the U. S.[2] presently accounts for around 22 per cent of total rubber consumption. Other countries consuming a low proportion of natural rubber are Canada 25%. Brazil 25% and Netherlands 28%.[3] The Annual Report of the Synthetic Rubber Industry presented to the International Institute of Synthetic Rubber Producers in May, 1970 predicted that the rapid penetration by synthetic rubber of natural rubber markets will tend to level off at the 70 to 75 per cent level in industrialized countries.[4] Present world consumption (i. e. for the year 1973) of synthetic rubber is estimated to be in the region of 68 per cent.[5]

Cost and Price Considerations

Rapid growth in the production of synthetic rubber and declining costs in the synthetic rubber industry have exerted a downward pressure on natural rubber prices. Moreover, the price of polyisoprene places an upper limit on the price of natural rubber and as mentioned earlier, in order to retain at least its present share of the market, the price of natural rubber has to be low enough to discourage new investments in plants for the production of polyisoprene.[6] Furthermore, the supply of natural rubber is likely to be in excess of the

1. Economist Intellegence Unit, *Rubber Trends*, December 1971.
2. The ratio of passenger cars to commercial vehicles is high in the U. S. A. resulting in a larger share being taken by synthetic rubber.
3. IRSG *Rubber Statistical Bulletin.*
4. EIU *Rubber Trends* December, 1971.
5. IRSG, *Rubber Statistical Bulletin.*
6. World capacity of polyisoprene was of the order of 310,000 tons in 1970/71 with expansion plans in the pipeline for one and a half times that figure by 1973. F. A. O., *Commodity Review and Outlook 1970/71.*

market share specific to natural rubber alone on technical grounds[1] as a result of new plantings and replanting with high yielding clones. Hence, it is generally felt that the price of natural rubber will have to be maintained at levels competitive even with S. B. R. in the long run.

Table III

Prices of Natural & Synthetic Rubber 1950–1972

Year	Quoted Price of S. B. R. (US cts./lb.)	Unit Value of US Exports of S. B. R. (US cts./lb.)	New York RSS (US cts./lb.)
1950 ..		25·8	41·4
1951 ..		27·4	60·7
1952 ..		25·8	38·8
1953 ..	23	26·8	24·2
1954 ..	23	25·6	23·6
1955 ..	23	24·2	39·2
1956 ..	23	24·7	34·2
1957 ..	23	22·5	32·2
1958 ..	23	21·9	28·1
1959 ..	23	21·7	36·6
1960 ..	23	22·0	38·1
1961 ..	23	21·1	29·5
1962 ..	23	19·7	28·6
1963 ..	23	18·8	26·2
1964 ..	23b	18·2	25·3
1965 ..	23b	18·6	25·7
1966 ..	23b	18·0	23·6
1967 ..	23b	17·6	19·9
1968 ..	23b	18·1	19·9
1969 ..	23b	18·2	19·9
1970 ..	23b	17·7a	26·3
1971 ..	23b	17·5a	21·5
1972 ..	n·a·	17·5a	18·1

Sources: Unpublished M/s. IBRD Economic Staff Working Paper No. 133
U. S. Statistical Abstract 1973 table 576
IBRD Commodity Price Trends various issues, FAO 'Synthetics and their effects on agricultural trade'–Commodity Bulletin Series 38, Rome 1964
E. I. U. Rubber Trends December 1971.

a. Synthetic S-type rubber including latex liquid.

b. Price assumed as it was stated in EIU Rubber Trends Dec. 1971 that SBR Prices in New York remained constant between 1961 and 1971 and in EIU Rubber Trends Dec. 1972 it is mentioned again that synthetic rubber prices were constant since 1954.

1. Present production is almost 30 per cent of the total market for rubber.

According to Table III the price of natural rubber shows no noticeable decline between the years 1952 and 1960 while the unit value of exports of S. B. R. has fallen by about 15% in this period and the quoted price of S. B. R. has remained stable throughout. Between 1961 and 1972, however, the price of natural rubber has fallen by 39 per cent whereas the unit value of exports of S. B. R. has fallen by only 17 per cent and the quoted price of S. B. R. has remained stable at the same level since 1953. This decline in natural rubber prices has probably resulted from several causes, the most important of which has been the continuous decline in synthetic rubber prices over a long period. Other causal factors would probably include the greater availability of natural rubber during this period (the rate of growth of natural rubber being higher during this period than in the previous period 1949–60) and the inroads into the markets for natural rubber by such synthetic rubbers as polybutadiene and polyisoprene. Monopolistic buying of natural rubber by a consortium of consumers from the unorganized producers of natural rubber may have also contributed to the decline in natural rubber prices.[1]

It is generally agreed that the demand for rubber is fairly price inelastic at least in the short run. The supply of natural rubber is also inelastic in the short run.[2] However, the supply of synthetic rubber is elastic as its manufacture can be adjusted to suit market conditions, especially because of excess capacity in the synthetic rubber industry. This adjustability of synthetic rubber supplies has stabilized the market and influenced price trends and more or less determined the price received by natural rubber. It is apparent that the price of synthetic rubber is the most important influence on the price of natural rubber in the long run as the price of natural rubber fell while consumption of natural rubber rose and production of natural rubber was lower than consumption levels[3] whereas production of synthetic rubber was in excess of consumption.

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1. F. A. O. *Synthetics and Their Effects on Agricultural Trade* op cit
2. E. I. U. *Rubber Trends* December, 1972.
3. In the case of an increase in price, a limited increase in production is possible with the use of chemical stimulants and slaughter tapping. Significant increases, however, are possible only in the long run. A rubber tree takes 7 years to come into bearing and reaches maturity in 35 years. In the case of a price reduction, supplies cannot be easily reduced because of the large share of natural rubber produced by small-holders.

Costs in the natural and synthetic rubber industries are influenced by different factors. Fixed costs are heavy in the synthetic rubber industry and considerable cost reductions can be effected by increasing output. As variable costs are high in the natural rubber industry, cost reductions associated with increased output tend to be relatively lower than in the synthetic rubber industry. Costs in the synthetic rubber industry are influenced mainly by the level of production and the cost of raw materials. Labour charges and productivity in the industry are the main influence on costs in the natural rubber industry.

Data on costs in the two industries are not readily available. Cost/price comparisons between the two industries are of limited significance because of the integrated structure of the synthetic rubber industry and the wider socio-political and strategic considerations involved in the setting up of synthetic capacity. For instance, ownership of a sizeable portion[1] of the synthetic rubber industry by rubber manufacturing industries has meant the ability to pass on losses in producing synthetic rubber to consumers of manufactured rubber products. Also, in India, the price of indigenous S. B. R. (Grade 1500) was Rs. 4·60 per kg (f. o. r. destination) as against a landed cost for the imported product of Rs. 2·75 per kilo including a duty of 22 per cent ad valorem in 1963[2]. Hence, strict cost/price considerations may not have a significant impact on decissions to set up synthetic rubber capacity.

Production and Consumption Prospects

(a) Synthetic Rubber

There is a strong possibility that overcapacity exists in the synthetic rubber industries of developed countries. Estimates of present capacity are not available, but as far back as 1967 total production of synthetic rubber was around 67 per cent of capacity.[3] In 1972, synthetic rubber production was at 82 per cent of capacity in the U. S. A..[4] Synthetic rubber capacity has been created in Latin America, Asia and Eastern Europe which were formerly consumers of

1. 44 per cent of the total synthetic rubber capacity is reported to have been owned by the rubber manufacturing industry.
2. F. A. O. *Synthetic and Their Effects on Agricultural Trade* op cit p. 24.
3. Based on UN *Maritime Transportation of Natural Rubber* (TB/B/C.4/C0/Rev 1) and table 21 IRSG *Rubber Statistical bulletin*, July 1974.
4. EIU *Rubber Trends.*

substantial quantities of natural rubber. Mexico for instance, began producing synthetic rubber only in 1966 but by 1973 she was producing 45,000 metric tons of synthetic rubber surpassing the production levels of Australia, India, China. It is reported that in Eestern European countries, plans are for the production of polyisoprene to replace natural rubber. The trend so far has been for countries other than natural rubber producers to create capacity in synthetic rubber and to impose duties in order to keep out imports despite substantial overcapacity in synthetic rubber as well as plans to increase natural rubber production. Furthermore, joint ventures between developed countries and Middle Eastern and other oil producing countries for the creation of large petrochemical complexes will result in increasing production of synthetic rubber in these areas. Many countries which previously consumed more synthetic rubber than they produced have now reached self sufficiency. Production of synthetic rubber in the EEC, Eastern Europe (including China) and Japan for instance, exceeded consumption by 1973, whereas in 1963 production in these countries was below consumption.[1]

It is not easy to envisage the creation of new capacity in synthetic rubber in the near future except in surplus oil producing countries. Since it is unlikely that the price of petroleum will fall to levels prevailing before the energy crisis even after 1980, a slowing down in the rate of growth of synthetic rubber production can be expected. It is hoped that the share of natural rubber in total elastomer consumption will rise with increasing efforts to conserve oil and rising production of radial tyres (utilising a high proportion of natural rubber) even if further cost reducing technology is developed offsetting to some extent the rising costs in the synthetic rubber industry.

Present estimates, however, put total world consumption of synthetic rubber at around 11 million tons, accounting for 63 per cent of total consumption by 1980[1]. These estimates imply a reduction in the rate of growth of consumption from 9 per cent per annum (1967–73) to around 6 per cent per annum between 1973 and 1980. A fall in the share of synthetic rubber in total elastomer consumption from the present level of 68 per cent to 63 per cent has also been envisaged. Even these estimates appear somewhat optimistic in the light of the present situation.

1. On the basis of statistics in IRSG *Rubber Statistical Bulletins.*

Table IV

Share of Natural Rubber and Synthetic Rubber (Percentages)

	U. S. A.			CANADA			E. E. C.			EASTERN EUROPE & CHINA			JAPAN			BRAZIL			INDIA			REST OF THE WORLD	
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2
1963-64	20·5	51·7	74·59	1·7	5·8	69·62	25·4	17·4	50·15	23·8	19·8	54·37	8·6	3·4	41·76	1·5	0·9	52·17	2·6	0·3	17·57	15·9	0·7
1965-66	21·5	48·1	75·14	1·8	5·1	69·47	24·3	19·2	55·21	23·0	25·0	58·39	8·4	4·9	48·62	1·2	1·2	60·64	2·6	0·4	24·38	17·2	1·1
1967-68	20·5	44·4	76·72	1·7	4·3	70·27	23·4	20·1	58·15	23·3	19·8	59·64	9·4	7·2	55·31	1·3	1·2	64·43	3·0	0·5	24·18	17·4	2·5
1969-70	20·1	39·8	77·31	1·7	3·6	72·51	24·0	22·5	61·76	22·0	18·6	62·01	9·4	10·8	63·53	1·2	1·2	68·44	3·0	0·5	26·54	18·6	3·0
1971-72	19·9	37·5	78·31	1·8	3·1	74·69	22·8	21·7	64·27	20·7	19·7	65·27	9·8	12·7	64·68	1·4	1·4	71·06	3·1	0·5	27·55	20·5	3·4
1973	20·5	36·0	77·79	1·8	3·1	75·49	21·1	23·6	65·82	20·6	18·4	65·00	9·8	13·3	67·94	1·5	1·1	74 53	3·6	0·3	15·94	21·1	3·6

Source: I. R. S. G. Rubber statistical Bulletin various issues

1. Consumption of Natural Rubber as a Percentage of total world consumption
2. Production of Synthetic Rubber as a percenntage of world Synthetic Rubber production
3. Percentage consumption of Synthetic Rubber i. e. Synthetic Rubber consumption as percentage of total Synthetic Rubber and Natural Rubber consumption in each country.

(b) Natural Rubber

By the early 1960's, the EEC, Eastern Europe and China, U. S. A. and Japan in that order of importance had emerged as major consumers of natural rubber. Until 1972, consumption of natural rubber in each area/country as a proportion of world natural rubber consumption registered a continuous decline with the exception of Japan. This decline in the share of natural rubber consumption has been accompanied by a reduction in the share of natural rubber consumption vis-a-vis synthetic rubber consumption in each of these areas, despite the fact that the decline in natural rubber prices was steeper than in synthetic rubber (nearly 30% in natural rubber against 6 per cent in synthetic rubber between 1963/64 and 1971/72). Consumption by the category 'rest of the world' has become progressively more important and in 1973 the EEC and the 'rest of the world' category were the most important consumers of natural rubber. Many of the countries comprising the 'rest of the world' may have to postpone plans for the creation of synthetic rubber capacity. Other major synthetic rubber producers too would probably postpone plans for the creation of new capacity in synthetic rubber production in the face of the high cost of petroleum. Consequently the share of natural rubber consumption which declined continu usly in major areas consuming natural rubber and synthetic rubber can be expected to rise.

The demand for natural rubber, was also reported to be on the increase because of the natural rubber requirements of longer-lived radial tyres. This may have been reflected in the share of natural rubber in the production of tyres and tyre products of the USA – the share of natural rubber which fell from 27·4% in 1966 to 23·6% in 1971 rose slowly to 25·5% in 1973.

Table V below presents estimates of natural rubber production in 1975 and 1980 projected in the late 1960's. As mentioned earlier, natural rubber production is not too badly affected in the event of shortage or high prices of vital inputs such as fuel and fertilizer. The latest estimate of natural rubber production in 1980 places it at 6·2 mn. tons, an increase of 9 per annum between 1973 and 1980.[1] The increase envisaged for the period 1973-80 is higher than earlier rates of growth of 2% between 1963 and 1967 and 4% between 1968

1. Assuming a recovery from the present recession.

and 1973. It is expected to be achieved in view of the gloomy prospects for synthetic rubber and as a result of the measures taken on the one hand to raise productivity of natural rubber and on the other hand to strengthen consumer acceptance of natural rubber.

Table V

Projections of Exports of Natural Rubber

('000 metric tons)

	1973 (Actual)	1975	1980	Rates of growth (%)
NATIONAL SERIES				
Indonesia ..		702	715	0·4
W. Malaysia ..		1,476	1,829a	4·4
Sri Lanka ..		172	205	4·4
Thailand ..		339	439	4·8
Rep. of Viet-Nam ..		27	21	-5·2
IRSG SERIES				
World ..	3,493	2,938	3,340	2·7
Burma ..	n·a·	5	4	-4·7
Khmer Rep. ..	17	43	47	1·7
Indonesia ..	886	718	731	0·4
Malaysia ..	1,566	1,454	1,801a	4·2
Sri Lanka .	155	170	201	3·4
Thailand ..	382	352	452	5·1
Rep. of Viet-Nam .	21	23	17	-6·2
Africa ..	220	242	298	4·2
FAO SERIES				
World ..		4,005	4,662a	2·9
Burma ..		5	4	-4·7
Khmer-Rep ..		60	70	3·1
Indonesia ..		701	715	0·4
Malaysia ..		2,474	3,122a	5·2
Sri Lanka ..		168	198	3·4
Thailand ..		346	441	5·0
Rep. of Viet-Nam ..		25	18	-6·1
Africa ..		232	284	4·1
Natural Rubber Producers Association ..			6,200b	9·0b

Source: EIU *Rubber Trends* Dec. 1972
Natural Rubber News, The Malaysian Rubber Bureau.
IRSG *Rubber Statistical Bulletin.*

Note: a. Higher than production projection because basic data include re-exports.

b. Consumption of natural rubber.

(B) Impact of the Energy Crisis

With the onset of the energy crisis and the subsequent doubling and trebling of the price of crude oil, costs in the synthetic rubber industry have risen sharply since oil and oil-based products are the feedstock of the synthetic rubber industry. Moreover, high energy inputs are used in the manufacture of synthetic rubber. Synthetic rubber costs were estimated by the industry to have risen by 95 per cent between September 1973 and March 1974.[1] Cost increases in the natural rubber industry were put at 26 per cent[2] during this same period.[3]

Table VI below gives an indication of the immediate effect of the energy crisis on prices in the two industries.

Table VI

U. K. – List Prices of Synthetic Rubber and Official Prices of Natural Rubber

	Synthetic Rubber List price		Natural Rubbar Official Price	
	Intol SBR 1712	Intol SBR 1500	RSS I	RSS II
October 1972 ..	142·5	174·5	186·0	181·0
January 1973 ..	153·0	187·5	211·0	202·0
September 1973 ..	168·5	206·0	344·0	335·0
November 1973 ..	185·0	226·0	390·0	312·5
January 1974 ..	259·0	300·0	535·0	500·0
March 1974 ..	259·0	300·0	450·0	440·0
April 1974 ..	305·0	350·0	390·0	377·5

Source: E. I. U. Rubber Trends, June 1974.

1. Reuters Monthly Commodity Market Report.
2. Ibid.
3. This estimate probably does not take into account the rise in transport costs especially for natural rubber which has to be shipped long distances.

Natural rubber prices, having reached peak levels in the last quarter of 1973 and the beginning of 1974, fell continuously from these levels thereafter. It is reported that the structure of synthetic rubber prices is currently in the vicinity of 197 cts. per kilo while the present price of natural rubber is 170 cts. per kilo compared with the peak price of 270 cts. per kilo last year.[1]

Adverse repercussions of the escalation in oil prices on the world economy such as virulent inflation and deceleration of economic growth have had a depressing effect on demand for (among other things) products manufactured from rubber, especially the demand for automobiles. Except in a few isolated markets, sales of cars throughout Europe, North America, and Asia are estimated to have declined 10 to 30 per cent.[2] In the Federal Republic of Germany, car imports fell by 13·5 per cent in the first 8 months of 1974 compared with last year and output declined by 18·6 per cent in the first 7 months of 1974. In the U. S. A. sales of new cars have fallen by about 25 per cent and imports of new cars have also fallen by the same percentage in 1974.[3]

This decline in demand has been accompanied by a shift to small cars. Sales of large cars have slumped by half or more throughe out the world while sales of economy models and diesel cars havd shown some increase.[4] In the U. S. small cars have captured aroundd half the market[5]. Present preference for smaller cars leads to reducee usage of rubber for smaller tyres as well as for other automobil parts. High prices of petrol lead to reduced use of cars and thereby to a reduction in replacement tyres. Speed limits have a similar effect in reducing replacement tyre requirements. Furthermore, the increased use of public transport accompanying a lower level of car use means economies in the use of rubber. Hence, the high price of oil has led to a considerable reduction in the consumption of rubber.

Despite the fall in consumption, the price of rubber was expected to continue high as the high price of crude oil led to a sharp acceleration of synthetic rubber costs and list prices. Currently

1. Natural Rubber News op cit
2. James Ensor – The Motor Industry, *Financial Times*, Oct. 15, 1974 p. 15.
3. Bank for International Settlements Press Review, September 1974.
4. *Financial Times*, Oct. 15, 1974 p. 15.
5. Ibid p. 20.

available data on production, consumption and stocks of natural rubber and synthetic rubber as well as prices of natural rubber are as follows:

Table VII

Natural and Synthetic Rubber – Production, Consumption and Stocks 1974

(Thousand Metric Tons)

Month	Natural Rubber				Synthetic Rubber		
	Production	Consumption	Stocks	Prices-New York (Dealers' Spot Prices) (U.S. Cent per pound)	Production	Consumption	Stocks
January ..	350·0	290·0	1,845·0	54·46	625·0	617·5	1,600·0
February ..	240·0	290·0	1,802·5	51·47	615·0	600·0	1,610·0
March ..	275·0	302·5	1,782·5	47·30	665·0	635·0	1,627·5
April ..	250·0	290·0	1,747·5	42·90	655·0	612·5	1,632·5
May ..	260·0	292·5	1,722·5	44·12	650·0	607·5	1,665·0
June ..	277·5	290 0	1,717·5	40·16	587·5	597·5	1,660·0

Source: IRSG *Rubber Statistical Bulletin* Vol 28, No 12 September 1974.

Estimated production of natural rubber in the first half of 1974 has been lower than consumption and stocks have fallen. In the past too, natural rubber prices have fallen continuously (from 1960) despite production being lower than consumption levels. But costs/prices of synthetic rubber also fell in the period 1960 to 1972 and exerted a downward influence on natural rubber prices. It is therefore possible that although list prices of synthetic rubber are high in 1974 they have been actually sold at substantial discounts. Moreover, since a substantial proportion of synthetic rubber plants are owned by manufacturers of rubber goods there would probably have been a tendency to utilize synthetic rubber despite its high cost.

Malaysian rubber exporters and owners of large estates have agreed to cut back their rubber sales by 10 per cent (below the level prevailing on 30th June, 1974) until the price of natural rubber compares favourably with that of synthetic rubber. If sales reductions failed to boost prices, it was reported that the Malaysian Government might intervene.[1] Prices of natural rubber fell further despite the cut-back in Malaysian exports. Since a cut-back of 10 per cent in Malaysian exports would have led to a reduction of about 5 per cent of world supplies of natural rubber, its impact on prices would have been limited. Government intervention at a time when trade is expected to be less bouyant may not necessarily have a significant impact on prices in the short run as it is apparent that the slow down in industry and supplies of natural rubber relative to synthetic rubber (i.e. production of natural rubber rose faster than synthetic rubber) have brought the price of natural rubber down. Earlier attempts by the Malaysian government (for instance in 1971) to build stock-piles and reduce supplies in order to raise prices were largely ineffective.[2] The level of stockpiling necessary to raise prices would be very costly in order to be effective. The Malaysian government has recently begun purchasing rubber from producers, but this has not been of very significant quantities.[3]

In the long run, however, the situation could be somewhat different.[4] Of course, any assessment of the long run situation can only be tentative. Opinion remains divided about the permanence of many effects of the energy crisis. Substantial supplies of oil from new sources are expected to be available only around 1980, with the exception of North Sea oil. The long run outlook will depend principally upon the cost of oil. It is expected that petroleum will not be available at such cheap prices as those prevailing in the past even after 1980. This would adversely affect synthetic rubber industries in countries other than oil producers. High costs of oil could even lead to substitution of natural rubber for plastics.

General purpose synthetic rubbers are not expected to be available in the 16 to 20 U S. cent range any more; they are expected to increase to around 30 to 35 US cents per pound. Natural rubber prices are expected to rise to about 40 US cents per pound.[5]

1. Reuters Commercial News Service – monthly survey, July, 1974.
2. E U *Rubber Trends*, December 1972.
3. *Financial Times*, September 19, 1974.
4. Present inflati onary and recessionary conditions may be controlled.
5. *Natural Rubber News*, April 1974.

Natural rubber appears to be more favourably placed than synthetic rubber particularly with respect to costs of production. The use of petroleum based products in natural rubber production is marginal – fertilizer being required only in the immature period of the rubber tree and inputs of fuel in the production process being much lower than in synthetic rubber. Furthermore, the two largest producers of natural rubber, Indonesia and Malayasia which account for about 60 per cent of total natural rubber are oil producers. Synthetic rubber production had, in any case, prior to the energy crisis entered into a period of rising costs on account of rising costs of labour, raw material and expenditure on meetings anti-pollution standards, despite technological progress.[1] Increases in the capital costs of installation of new capacity were an additional disadvantage.

Even though cost/price comparisons are generally held to be of limited significance in the competition between natural and synthetic rubber, there will be a cut-off point at which cost considerations will assume significance in the consumption of synthetic rubber in preference to natural rubber. As the price of petroleum is not expected to fall substantially even after 1980, an alteration may occur in the natural rubber/synthetic rubber mix in the long run when plants producing rubber goods can be geared to suit altered ratios of natural and synthetic rubber.

A switch to public transport is likely to last for some time as petroleum exporting countries have established the principle that crude oil prices will rise as rapidly as the industrial goods they purchase by linking the price of oil to theindex of prices of industrial goods. This would raise the share of natural rubber consumed as it is the preferred material for heavy duty tyres. It is also reported that truck, airplane, off-the-road and similar large tyres are currently taking up the slack in the original equipment and replacement passenger tyre market in

1. With increasing emphasis on ecological problems, natural rubber which is not harmful in its impact on the environment should be the preferred p oduct. Moreover, the consumption of a non-renewable resource, petroleum, when a when renewable natural resource, natural rubber, is available could be considered a wasteful use of scarce resources.

which uses natural rubber is the dominant polymer.[1] Current estimates put the maximum share of natural rubber in the elastomer market at 50 per cent and the minimum level between 40 and 42 per cent.[2]

(C) Prospects for Sri Lanka's Rubber Industry

Production and Replanting

Rubber is produced almost exclusively for export. The domestic consumption of rubber in manufacture is marginal, and only 4 per cent of rubber produced was used domestically as late as 1973. Rubber production fluctuated in the 1950's and did not exhibit a definite trend – see table VIII. In the 1960's, however, production rose continuously to reach a peak level of 351 million pounds in 1970. Production fell in 1971 and 1972 in response to extremely low prices, but rose in 1973 under the impetus of peak prices consequent on the energy crisis.

Although the production of rubber in Sri Lanka rose in absolute terms in the 1960's, the rate of growth of production fell below that of other countries. In the period 1961 – 1972, the rate of growth of world natural rubber production was double the level of Sri Lanka ; 6 per cent (world) as against 3 per cent in Sri Lanka. This is disturbing since Sri Lanka produces only around 4 to 5 per cent of total natural rubber and can dispose of all that is produced at world market prices.

Increases in the level of production are associated with increased output from high yields in replanted areas[3]. A rubber replanting subsidy scheme was launched in 1953 and the response to the scheme in the years 1953 to 1963 was exteremely encouraging averaging around 20,000 acres per year. Production rose in the 1960's with increased out put from high yields in areas replanted in the 1950's[4]. Despite successive increases in the replanting subsidy, the rate of replanting

1. *Natural Rubber News*, June 1974.
2. Estimated by the Director of Rubber Research Institute of Malaysia. *Natural Rubber News*, August 1974.
3. Since the totol area under rubber cultivation has fallen over the years.
4. Yield per bearing acre (selected years) lbs.

1953	363	1963	440
1957	399	1967	647
1960	418	1970	707

Sources: Snodgrass *Ceylon - An Export Economy in Transition*
A publication of the Economic Growth Center,
Yale University 1969
Richard D. Irwin, Inc. Illinois.
Central Bank Annual Reports
Rubber Control Dept.

has followed a downward trend since 1964. The acreage replanted in 1973 at 4,964 acres has fallen far short of the target of 15,000 acres per annum envisaged in the Five Year Plan – the annual rate of replanting estimated to be necessary to maintain a replanting cycle of 33 years on the basis of a future rubber area of 500,000 acres.[1]

Subsidies to the value of Rs 2,000 per acre payable in 7 instalments are granted to estates and small holdings. The total cost of replanting at present has been estimated by the Rubber Research Institute at Rs. 3,137 per acre. The Rubber Controller states that if the rubber industry is to remain viable in the future, it is essential that the rate of replanting be accelerated to at least 15,000 acres a year by increased incentives to encourage replanting of the balance worn-out areas.[2] Previous increases in the level of the subsidy have failed to stimulate replanting and it is doubtful whether the present level will encourage the necessary level of replanting. The difference between the present level of subsidy and the actual cost of replanting is in the region of Rs. 1,137 per acre, whereas the difference between the previous level of replanting (since June, 1973) and the cost of replanting was between Rs. 964 and Rs. 1,064.[3]

Nearly 55 per cent of Sri Lanka's rubber acreage of 565,000 acres was replanted by 1973. It is imperative that the remaining acreage be replanted with high yielding and quick maturing trees as prospects for the natural rubber industry appear to be favourable. Demand for natural rubber is expected to expand rapidly and its share in the world rubber market to rise by about 9 per cent. The industry in Sri Lanka should gear itself to meeting part of this increased demand. Malaysia is reportedly launching a massive modernization drive aimed primarily at small holders in order to give a boost to production. The annual average yield per bearing acre in Sri Lanka is presently in the region of 700 pounds[4] whereas in Malaysia present average yields are in the region of 1,100 pounds[5].

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1. Administration Report of the Rubber Controller for the year 1971
2. Ibid
3. Subsidies ranged between Rs. 1,400 & Rs. 1,500 per acre depending on the size of estate or small holding
4. Rubber Control Dept.
5. *The Times* (London) August 31, 1973
   One reason for the higher yields in Malaysia is that the number of tapping days per annum is higher. Weather conditions in Sri Lanka do not permit more then 250 tapping days per year on average.

A new development – the use of yield stimulants has resulted in high yields. Present high costs and restricted supplies of 'Ethrel' as well as the high prices of the additional fertilizer required in conjunction with the use of 'Ethrel' limit its application on a large scale. Furthermore, experiments conducted by the Rubber Research Institute indicate that 'Ethrel' may not be an economic substitute for the present practice of progressively intensifying tapping before replanting[1].

Table VIII

Rubber Production, Exports & Prices

Year	Production (Mn lbs)	Volume (Mn lbs)	Value of Exports (US $ Mn)	F. O. B. price per lb (US $)
1953 – 1955	218 1	212·3	68·3	0·31
56 – 58	219·3	200·0	58·4	0·29
59 – 61	212·8	211·5	65·0	0·31
62 – 64	235·4	228·1	58·3	0·26
65 – 67	288·4	284·9	64·6	0·23
68 – 70	337 2	332·4	67·2	0·20
71 – 73	320·4	308·4	62·1	0·20

Source: Central Bank

Exports :

F. O. B. prices of rubber exported from Sri Lanka exhibit an adverse long term trend ever since the synthetic rubber industry came to exert a significant influence on rubber prices. The average value of exports has remained fairly stable between the two periods 1953 – 61 and 1962 – 70 registering only a marginal improvement from US $ 64 million in the former period to US $ 67 million in the latter, despite a substantial increase (by 48 per cent) in the volume of export between these two periods.

Profitability :

Profit margins accruing to rubber producers have been adversely affected by falling prices. Table IX presents data with respect to prices in the Colombo market and estimated costs of production during a period of eight years.

1. John Keell Thompson – Annual Survey Rubber 1973

Table IX

Rubber – Prices and Cost of Production

(Rs. per lb)

Year	(1) Colombo Market Price		(2) Average Cost of Productionc	(3) Difference between (1) & (2)e
	Sheet I	Latex Crepe IX		
1967	0·79	0 88	0·71	0·08
1968	0·88	1·11	0·72	0·16
1969	1·04	1·16	0·71	0·33
1970	0·91	1·12	0·69	0·22
1971	0·79	1·13	0·74	0·05
1972	0·81	0·89	0·75	0·06
1973	1·18	1·81	0·85	0·33
1974	1·32a	2·24b	0·91d	0·41

Sources: Dept. of Census & Statistics
John Keell's Rubber Market Report

(a) January – September

(b) January – September

(c) Costs are estimated on the basis of a survey of more tnan 100 estates.

(d) Latest available estimate of the cost of production of sheet.

(e) Note: this difference is not the general profit margin as different types and grades of rubber fetch dIfferent prices. Furthermore, the cost of production of sheet rubber is lower than the cost of production of pale crepe by about 5 to 6 cts per pound. Average costs of production presented here do not include transport costs. Hence statistics in colum (2) are a rough approximation of the margin between cost of production and prices received by estates.

It is clear from Table II that profits from the production of sheet rubber in the period 1967 – 73 have been extremely low in some years (1967, 1971 and 1972) since the bulk (about 70 per cent) of sheet rubber produced is in the form of lower grade sheet which fetch lower prices than RSS I. Latex crepe and sole crepe on the other hand would probably have remained profitable throughout this period.

Disadvantages arising from low profit margins and declining export prices are generally associated with production and sales of sheet rubber, particularly low grade sheet. There is considerable scope for improving low grade sheet as well as for switching over to premium grade rubbers such as latex crepe and sole crepe. Furthermore, a shift from the production of sheet to block rubber could also assist in raising the price received for 'scrap' rubber. The State Rubber Manufacturing Corporation was set up in 1973 to carry out a comprehensive

rubber processing development programme consisting of the establishment of block rubber factories, the establishment of pale crepe factories and the taking over and implementation of the scheme to set up group processing centres which process small holder's latex into high grade sheet[1].

Quality Considerations

The present division between the production of sheet and crepe rubber in Sri Lanka is of the order of 60: 40. The proportion of crepe in the total, particularly of pale crepe and sole crepe could be raised. Around 30 per cent of the sheet rubber produced is in the form of RSS I. Sri Lanka has barely begun to move into the new type technically specified block rubbers being produced in Malaysia, Indonesia etc. Considerable scope, therefore, exists for upgrading lower grade sheet rubber and for increasing the quantity of premium grade crepes produced. Eventual replacement of sheet production by technically specified block rubber will probably be essential if Sri Lanka is to be able to meet future world market requirements.

Sheet – RSS I quality rubber has continued to fetch a premium above technically specified rubber. Improvement in the quality of small holder and small estate rubber or conversion to block rubber would be possible if latex from small holders is brought to collecting centres where it could be processed under controlled conditions. The establishment of a network of 100 group collecting and processing centres throughout the Island was envisaged during the Five Year Plan period. Around 30 such centres have been established in 1973.

Latex Crepe – Efforts are also being made to raise production of special purpose natural rubbers such as pale crepe and sole crepe. A subsidy scheme for rubber factory development was announced recently. This scheme has been designed to increase the manufacturing capacity of factories producing premium grade rubber and new forms of block rubber.[2] One third the cost of approved items of machinery would be subsidized under this scheme. It is not certain whether this scheme alone will result in a significant increase in latex crepe production especially as the recent removal of the development rebate and allowance for lump sum depreciation have offset the advantages accruing from the subsidy to some extent. Nadarajah and Mutukuda

1. John Keell's Annual Survey-Rubber 1973 p.16
2. Central Bank Bulletin August, 1974

have argued that factories producing latex crepe or wishing to do so should be given loans of about Rs. 175,000 at low interest or free of interest in order to raise production of latex crepe/switch to production of latex crepe.[1] A credit guarantee scheme could perhaps be formulated in order to assist estates faced with investment problems in obtaining loans for setting up or expanding crepe factories.

Sri Lanka is the largest producer of high quality pale crepe. 44,000 tons were produced in 1973 and accounted for more than 60 per cent[2] of world production. Latex crepe production has risen slowly and exports of latex crepe have fallen since 1969.[3] The demand for latex crepe is reported to be rising rapidly and it is commanding premium prices. In December 1973, for instance, the price of latex crepe I was Rs. 2.70 whereas the price of RSS I was Rs. 1.44 per pound. The average premium fetched by latex crepe in 1973 over RSS I was 60 cts per pound.

As a result of the pressure of demand, both synthetic and natural rubber substitutes for pale crepe have been developed and found acceptance. The main competitor to pale crepe is SMR5L. SMREQ which is even superior to SMR5L has not yet been produced on a large scale.[4] The output of 5L grade rubber produced in Malaysia and Indonesia has risen from almost nothing to 50,000 tons per year during the last 6 years.[5] Sri Lanka should, therefore, step up latex crepe production in order to maintain her position in the market.

Most of the small holdings are replanted mainly with clones PB86 or RRIC 45, the latex of both being suitable for pale crepe manufacture.[6] Production of pale crepe from the latex of small holdings and medium holdings could be promoted through group collecting and processing centres and/or by increasing production capacities of estates which produce latex crepe. According to Nadarajah and Muthukuda such centres could collect latex from smallholders and medium estates in their neighbourhood and

1. Nadarajah and Muthukuda–'Stepping up latex crepe production in Existing Factories' paper presented at a seminar.
2. Varathungarajan – Strategy for Sri Lanka's Latex Crepes paper presented at seminar
3. From 42,397 tons in 1969 to 39,708 tons in 1973
4. Varathungarajan op cit
5. Ibid
6. Nadarajah and Muthukuda op cit

double production by working 2 shifts per day instead of 1 shift per day as they now work. The cost of additional equipment to increase production by 2,500 pound per day has been estimated at approximately Rs 175,000.[1]

Market intelligence and technical services towards meeting consumer requirements play an important role in improving the competitive position of these products. These services together with the lack of direct communication between manufacturer and consumer have been repeatedly pointed out as requiring remedial action.[2]

Technically Specified Rubber–As a result of favourable prices and an assured market for sheet rubber under the Sri Lanka/China Rubber Rice Agreement, there has been little incentive to switch over to technically specified block rubber. Even more important, there has been no evidence of buyers paying a premium for technically specified rubber. Producers have sold their product at a discount to push sales but it is expected that technical specification will eventually provide a premium for these new type block rubbers. Table X below shows that the average export price of technically specified rubber made from scrap and cup lump was higher than the average price of all grades of sheet in 1973.

Table X

Price of Rubber (f. o. b.)

(Rs/Pound)

Year	Sheet	Crepe	Block	All
1970	1·23	1·26	—	1·24
1971	0·98	1·19	—	1·08
1972	0·90	0·97	0·82	0·93
1973	1·51	1·95	1·78	1·67

Source: Customs, Sri Lanka.

The new type block rubbers are superior to conventional rubber as they are graded by technical standards (which replace visual grading). Furthermore, this process leads to quick manufacture. Latex delivered to the factory in the morning is completely pressed

1. Ibid
2. For instance, Rubber Research Institute Publications 1972

into block form and specified within the same day[1]. As opposed to this, the older process involved 8 to 14 days[2]. The new process also enables scrap rubber to be made into block form fetching a premium price.

Block rubber technically specified is a more capital intensive product, than other conventional forms of natural rubber. Capital intensive techniques of production generally permit a lowering of costs as long as economies of scale can be exploited. The minimum daily economic capacity of SCR5 and SCR54 have been esimated at 20 tons as against 5,000 lbs for pale crepe and 600 lbs for RSSI. The capital cost per ton of technically specified block is, however, lower than that of pale crepe–Rs 200,000 per ton in the case of pale crepe[3]. Sri Lanka's existing factories appear to be operating below this minimum level and costs are likely to be excessive whereas in Malaysia the cost of Heveacrumb is reported to be lower than sheet. Moreover, overseas buyers are generally not interested in the purchase of 5 to 10 ton lots and prefer 15 tons at a time[4].

Markets for block rubber are expanding as production increases. Major importers of block rubber from Malaysia are the U.S., UK., West Germany, People's Republic of China, Canada and France. It is interesting to note that China's purchases of technically specified rubber from Malaysia are substantial. In 1973, China became the fourth largest purchaser of block rubber from Malaysia[5]. China's purchases rose from 1,700 tons in 1972 to 40,500 tons in 1973[6].

Expansion of block rubber production will depend on the establisment of central processing factories especiallv in the context of land reform and increasing fragmetation in small holdings. In view of the heavy initial capital investment required i.e. capital costs of around Rs. 4,000,000 to produce 20 tons per day,[7] the grant of a subsidy of one third the cost of machinery may not be sufficient

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1. John Keell's Rubber 1970
2. RRI September 1968
3. RRI 1972 Nadarajah computed by dividing total capital cost by minimum daily economic capacity.
4. RRI September 1968 P. F. Poulier – The Heveacrumb Process
5. China is the majo- buyer of sheet rubber from Sri Lanka. She purchased around 43 per cent of the total quantity of rubber exported from Sri Lanka in 1973.
6. John Keell's Rubber 1973.
7. Reuters Monthly Survey February 1974

incentive for private owners/large estates to establish and run their own central processing factories. In this connection the State Rubber Manufacturing Corporation will have to take the initiative in setting up block rubber factories.

Block rubber is easily handled and palletized. Palletization is a move favoured by shippers and consumers due among other reasons to ease of handling and avoidance of damage. Sri Lanka has begun palletizing crepe rubber as well as the new type block rubber. The practice at present is to grant FEECs for :

(1) the full value of the cost of pallet crates used in the export of crepe rubber at Rs 110 per pallet crate and block rubber at Rs. 90 per pallet crate and

(2) the cost of pallets used in the export of sole crepe at Rs. 21·50 per pallet

in order to encourage the shift to a more rationalized form of transport. Japanese rubber importers emphasise that palletized and containerized transportation methods would be indispensable in accelerating loading and unloading operations at ports. They have requested Singaporean shippers to increase containerized shipping now employed in the export of rubber from Singapore to Japan. Containerization is a more effective method of preventing damage during transit than palletization. However, difficulties connected with containerization from Sri Lanka make the prospects of containerization somewhat remote.

Rubber Manufacturing Industry

Table XI

Rubber: Local Consumption & Manufacture

Year	Consumption (tons)	Value of Manufacture (Rs. Mn.)
1965	1846	19·1
1967	2648	20·7
1969	3496	52·8
1971	5005	82·1
1973	6019	64·4

Sources: Rubber Control Dept.
Central Bank Annual Reports

Rubber-based industries in Sri Lanka use only 4 per cent of total production. There is considerable scope for expanding industries based on rubber production and further domestic processing before export.

Favourable factors for the establishment of rubber industries in producing countries are the difference (as high as 25 per cent) in the cost of raw rubber between a producing country and a non-producer[1] and the value added which could range between 10 and 25 fold[2]. On the other hand, there are many disadvantages such as the need to import machinery and materials and lack of technical know-how which work against these advantages[3]. Despite these disadvantages some rubber producing countries have set up viable and efficient manufacturing industries.

Tyres and tyre products account for the bulk of rubber consumed in local manufacture at present. The Ceylon Tyre Corporation consumed around 43·6 per cent of total rubber utillized locally in 1971 while 24.1 per cent was used for rebuilding tyres[4]. 10.7 per cent was used in the production of rubber soles and heels.[5] Miscellaneous rubber goods ranging from erasers to rubber mats and hoses account for the balance rubber consumed.

A recent study[6] of the Tyre Corporation found that the cost of production of locally manufactured tyres was higher than the price of imports on account of factors such as excessive costs mostly in foreign exchange incurred on plant and buildings, low degree of capacity utilisation, scale of production and technology used. In contrast, it is reported that other South East Asian countries have been able to set up efficient and export oriented tyre factories.[7]

In view of difficulties experienced by Sri Lanka and in order to be in a position to take advantage of economies of scale, Sri Lanka should examine the possibility of joint ventures with industrial countries in order to obtain a continuous flow of technical know-how,

1. ECAFE *Industrial Development of Asia and the Far East* Vol IV p. 327
2. *The Times* (London) 31st August 1974
3. ECAFF op cit
4. Administration Report of the Rubber Controller 1971
5. Ibid
6. R. C. Wanigatunga 'Some Aspects of the Tyre Industry in Sri Lanka, *Central Bank Staff Studies* Vol 4 No: 2 Septmber 1974
7. Ibid

specialized processes and methods. Furthermore, as mentioned earlier, the vested interest rubber manufacturing companies have in synthetic rubber production influences the use of synthetic rubber significantly. Association of major rubber manufacturers with natural rubber producing countries could have the added advantage of tying users of rubber to natural rubber.[1] The government of Malaysia is snegotiating with four major international rubber companies – Good Year, Firestone, Uniroyal and Toho – to set up processing factories in the country in joint ventures with the Malaysian Rubber Development Corporation. A factory has also been set up to manufacture rubber threads and elastic yarn for the clothing industry. It is estimated that this factory will supply at least 25 per cent of the world's demand for rubber bands in four year's time.[2]

Conclusion

Some of the considerations that emerge from this study are as follows:

Rapid growth in the synthetic rubber industry accompanied by continuous improvements in the product and reductions in the cost of producing synthetic rubber have exerted a downward pressure on the price of natural rubber. This situation altered as a result of the energy crisis and the continuing high price of petroleum which is the basic feedstock of the synthetic rubber industry. Natural rubber appears to be more favourrbly placed to meet the demand for elastomers in the foreseeable future.

Sri Lanka's rubber industry could benefit from the expected increase in demand for natural rubber provided that it is viable and efficient. It has been recognised that the viability of natural rubbber depends ultimately on lowering cost of production (mainly through higher productivity) as well as improving product quality and presentation to meet consumer requirements. Policy measures have been aimed at making the rubber industry efficient and competitive.

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1. ECAFE op cit
2. *Natural Rubber News* August 1974

Under the rubber replanting subsidy scheme, subsidies of Rs. 2000 per acre are granted. However, since the difference between the actual cost of replanting and the level of the subsidy has risen and the rate of replanting has fallen, increased incentives to encourage replanting appear to be necessary.

Although there is a subsidy scheme for rubber factory development designed to increase the manufacturing capacity of factories producing premium grade rubber, the recent removal of the allowance for lump sum depreciation and the development rebate offset to some extent the advantages accruing from this subsidy. Hence it may be worth considering the exclusion of the rubber industry from the withdrawal of these allowances and rebates.

As a significant part of rubber production is in small holdings, expansion in the production of technically specified rubber, premium grade rubber such as pale crepe and improvement in the quality of sheet rubber is dependent on the establishment of central collecting and processing factories, a number of which have already been established. Moreover, co-ordinating efforts in the fields of research, extension, credit, processing and marketing and towards ensuring that the benefits reach the small holder as are the aims of the Rubber Industry Small holders Development Authority in Malaysia could in large part offset disadvantages associated with small holdings.

EXTERNAL RESOURCE REQUIREMENTS FOR ECONOMIC GROWTH IN SRI LANKA: AN EMPIRICAL ANALYSIS*

P. A. S. DAHANAYAKE

Capital formation is an essential resource requirement for economic development. Another such essential resource requirement for economic development is the availability of a substantial amount of imports – a notion that stems from the two-gap theory of economic development. The rationale behind the notion that imports are a key resource input for economic growth, is that in some developing countries domestic savings are not a perfect substitute for imports. To elaborate, the classical view considered that capital needs for economic growth are met through increased savings. But even if a substantial level of savings is achieved, these countries are unable to produce, on their own, capital and intermediate goods required for development.

The ability of the developing countries to produce these goods is limited by the lack of such factors as technical know-how, technology, capital equipment and in some cases certain other materials like minerals. In these circumstances the availability of foreign exchange, by virtue of its command over imports, appears as a limiting factor to growth.

In Sri Lanka, from about the late fifties, the inadequacy of foreign exchange became an increasing problem. This was caused largely by the decline in export earnings of the country. In this paper we attempt to examine to what extent economic development has been hindered by the shortage of foreign exchange, to estimate the external resource needs to sustain a given rate of growth. Section I outlines the methodology used. The model used and its results are given in Section II. An analysis of the results are given in Section III and Section IV deals with some policy implications.

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I

Methodology

For estimating the external resource requirements for growth, we make use of the two-gap approach expounded by Chenery and his associates.[1] The two-gap approach can be used to estimate, *ex ante*, the two-gaps, imports-exports gap and the investment-savings gap, separately so that the more binding constraint to growth could be identified. The procedure usually gives two different estimates of external resources required to fill the two gaps. The larger and the more dominant of the two gaps would indicate the more binding constraint in the economy. On the basis of the findings as to the magnitude of the binding constraint, external resource requirements to sustain a given rate of economic growth could be estimated, and on the basis of the structural relationships of the explanatory variables during the sample period, projectios of future requirements of external resources could be made; and suitable policy instruments also could be identified to fulfil these requirements.

In recent years empirical investigations into the existence of a foreign exchange constraint had been undertaken with respect to a number of developing countries.[2] In some cases the two-gap approach has been used to justify external resource transfers in the form of aid to developing countries. Some critics have frowned upon this pointing out that it diverts one's attention away from the need for policy adjustments required for expansion of exports of developing countries.[3] Mindful of the importance of expanding one's own foreign exchange resources, our attempt in this paper is not so much to justify increased foreign aid but rather to make a case for a more dynamic policy approach conducive to expansion of industrial and other non-traditional exports of Sri Lanka.

Simple Model

A national income model is used to estimate the external resource needs for Sri Lanka. In this section we demonstrate, with the help of a simple model, the use of a macro-economic model for the two-gap approach.

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1. See Bibliography.
2. e. g. Israel (H. B. Chenery and M. Bruno); Greece (I. Adleman and H. B; Chenery); Pakistan (H. B. Chenery and A. M. Strout); Columbia (J. Vanek); South Korea (S. Kim).
3. Richard Nelson, "The Effective Exchange Rate: Employment and Growth in a Foreign Exchange Constrained Economy", *Journal of Political Economy*, Vol. 78, 1970, pp. 546-564.

Using the basic notations of the national income identity, we may express gross national product (V) as the sum of consumption (C), investment (I) and the difference between exports (X) and imports (M):

$$V = C + I + X - M \quad (1)$$

The net capital inflow/outflow (F) that would be required to balance the trade gap can be expressed as,

$$Fm = M - X \quad (2)$$

Using equation (1), the gross domestic savings can be defined as the difference between gross national product and consumption:

$$S = V - C \quad (3)$$

From the savings and investment equilibrium condition implied in the national accounting identity, it follows that the net inflow/outflow of foreign capital must also equal the difference between investment and domestic savings:

$$Fs = I - S \quad (4)$$

and from equation (3) and (4) it also follows that,

$$Fs = C + I - V \quad (4)a$$

The two gaps referred to in the two-gap theory are hoset given in equation (3) and (4) which must be equal in *ex post* statistics.

As for the functional relations in the model let us adopt the following assumptions:[4]

that consumption (C) is a function of disposable income (Y):

$$C = cY \quad (5)$$

$$\text{where } Y = V - T \text{ (Taxes)}; \quad (6)$$

that investment (I) is a function of the change in current year's G.N.P. over that of the previous year ($V - V_{-1}$) and of the country's capital stock (K),

$$I = i(V - V_{-1}) + kK; \quad (7)$$

4. In each fuctional relation the simple letter that precedes each explanatory variable represents the respective confficient; the intercepts and the disturbance terms are assured away for simplicity.

that imports are a function of G.N.P. and the import price index (Pm):

$$M = mV + p\,Pm \tag{8}$$

and that exports are a function of the price index of exports (Px):

$$X = x\,Px \tag{9}$$

In this simple model we have five pre-determined variables, namely Pm, Px, K, T, and V_{-1} By substituting the relevant equations into equations (2), and (4)a, until these two equations are expressed as functions of V and the pre-determined variables in the substituted equations, we can derive two different equations for Fm and Fs.

By substituting equations (8) and (9) into equation (2) we have:

$$Fm = mV + pPm - xPx \tag{10}$$

and by successfully substituting equation (5), (7) and (6) into equation (4)a, we obtain:

$$Fs = (c + i - 1)\,V - cT - iV_{-1} + kK \tag{11}$$

The two equations (10) and (11) would give, *ex ante*, two different estimates of additional external resourcess[5] that would be required to sustain a given level of G.N.P. In other words by setting V in both equations (10) and (11) at a required rate of growth, and using, for the pre-determined variables, the actual values (if estimates are required for the historical period) or assumed values (if estimates are required for future projections), estimates of Fm and Fx can be obtained.

II

Econometric model

The simple model presented in the last Section will now be developed into a more elaborate econometric model for the economy of Sri Lanka.

5. External resources in addition to the country's earnings from exports of goods and services, but net of external debt service payments.

Notations

Endogenous variables

V = gross domestic product at current market prices
Y = gross disposable income
C = private consumption expenditure
Cf = private consumption expenditure on food and other consumer goods.
Ch = private consumption expenditure on housing
Cs = private consumption expenditure on transport and services
I = gross capital formation (investment)
S = savings
G = government consumption expenditure
F = net foreign capital inflow/outflow
T = total taxes
Td = direct axes
Ti = indirect taxes
X = exports of goods and non-factor services
M = value of imports and non-factor services
Mr = value of imports of rice
Mc = value of consumer goods imports, except rice
Mt = value of intermediate goods imports
Mv = value of investment goods imports
Ms = value of imports of non-factor services.

Exogenous Variables

Px/Pd = all export relative price index (i.e. export price index/ G.D.P. price deflator, Pd)
Pm/Pd = all import relative price index
Pmc/Pd = relative price index of consumer goods imports
Pmt/Pd = relative price index of intermediate goods imports
Pmv/Pd = relative price index of investment goods imports
Er = index of exchange rates
Fr = net external resources available during the year (i.e. total resources *less* the total external debt service) expressed in U.S. dollars.
K = total capital stock
Mu = unclassified imports
D = dummy variable (i.e. 1 for 1960, 1968 and 1969 and zero for all other years)

Lagged Variables

V_{-1} = gross domestic product, lagged one year
Cs_{-1} = private consumption expenditure on transport and services, lagged one year.
Rp_{-1} = index of domestic rice production, lagged one year.

The model consists of a total of twenty equations: seven identities and thirteen stochastic equations, together with a total of 33 variables–twenty endogenous and thirteen pre-determined.

Consumption Function

Apart from disposable income, the other factors that are likely to influence the levels of consumption are population, price level and the liquid assets. However, for the purpose of estimating the consumption function statistically for Sri Lanka, private consumption expenditure was disaggregated into consumption expenditure on food and other consumer goods, on housing, and on transport and services. Statistically the best results were obtained for the following equations:

$$Cf = f(Y)$$
$$Ch = f(Y)$$
$$Cs = f(Y, Cs_{-1})$$

Investment Function

The capacity for investment in a country like Sri Lanka, is likely to be limited by the availability of resources. The growth of income, the size of the capital stock and the availability of net external resources are, therefore, likely to be the facotrs determining investment. Statistically, however, the best relationship was found to be,

$$I = f(\Delta V, K)$$

where ΔV is the change in G.D.P. over the previous year.

Import Function

In a developing country the total net foreign exchange resources available (i.e. the total earnings from exports of goods and services *plus* total inflow of foreign capital *less* the external debt-servicing payments) is likely to be an important factor determining imports. The G.D.P. and the import price index are the other likely determinants. Hence the function may take the form,

$$M = f(V, Fr, Pm/Pd)$$

For the purpose of our study, the imports were disaggregated into six groups: rice, consumer goods other than rice, intermediate goods, investment goods, non-factor services, and unclassified imports. We shall fit demand equations for the first five of these six categories of imports. The sixth category, namely the unclassified imports, is treated as an exogenous variable.

Import policies were more liberal until 1960 and again in 1968 and 1969. In these years imports increased considerably. To take account of the impact of these liberal policies on imports, a dummy variable was used. However, in view of severe quantitative restrictions on imports that prevailed during most of the period under consideration, the results of demand equations cannot be expected to be very significant.

Rice being the staple food of the Sri Lankans, its imports usually fluctuate inversely with the amount of rice produced locally. Since the import of rice is a monopoly of the government, the amount imported in a particular year is decided upon usually after taking into account the amount of rice produced in the previous year. Also, statistically it was found that both imports of rice and other consumer goods are better related to consumer expenditure than to national income, Hence, the functions for these two categories of imports were fitted as follows:

$$Mr = f(C, Rp_{-1} Pm/Pd, Fr, D)$$

$$Mc = f(C, Pmc/Pd, Fr, D)$$

As for the other three categories of imports the best results were obtained for the following functions:

$$Mt = f(V, Pmt/Pd, Fr, D)$$

$$Mv = f(V, Pmv/Pd, Fr, D)$$

$$Ms = f(V, Pm/Pd, Fr, D)$$

Export Function

Exports were assumed to be a function of the relative price of exports and the rate of exchange:

$$X = f(Px/Pd, Er)$$

Other Functional Relations

The other endogenous variables we fitted into functional relations are government consumption expenditure, direct taxes, and indirect taxes. In all these three cases we adopted the customary practice of relating them to income,

$$G = f(V)$$
$$Td = f(V)$$
$$Ti = f(V)$$

Data and the Method of Estimation

In a study of this nature the accuracy and the usefulness of the results would depend on the reliability of the data used. Most of the data used to estimate the model are those published by the Central Bank of Ceylon in its annual reports from 1959 to 1973. The national accounts statistics published by the Central Bank have been revised and improved since 1959, and therefore are comparable and fairly reliable.

All the data, except those relating to foreign exchange resources, index of rice production and the index of exchange rates, were deflated by suitable price deflators. The values of foreign exchange resources were expressed in U. S. dollars; the index of rice production is a quantity index; hence these did not require to be deflated. All estimates and forecasts appearing in the study, therefore, would be in real terms.

The model was estimated for a sample period of 13 years from 1960 to 1972, and the forecasts were made for a period of 10 years from 1973 to 1982. All functional equations were found to be over-identified and therefore, excepting the one for exports, were estimated using the two-stage least squares (2 SLS) method. To estimate the exports function the ordinary least squares (OLS) method was used, since its explanatory variables have no direct relation to the rest of the equations in the model.

The Results

The results given below are the 2SLS estimates except for the export function where OLS results are given. These results are used for analysis and forecasting. However, for the purpose of comparison the OLS results of the model are given in Appendix 1. The reduced form co-efficients matrix of the model is given in Appendix 2.

Identities

$$V = C + I + G + X - M \quad (1)$$
$$F = M - X \quad (2)$$
$$Y = V - Td - Ti \quad (3)$$
$$S = V - C - G = I - F \quad (4)$$
$$C = Cf + Ch + Cs \quad (5)$$
$$M = Mr + Mc + Mt + Mv + Ms + Mu \quad (6)$$
$$T = Td + Ti \quad (7)$$

Stochastic Equations

$$Cf = -65.44 + \underset{(0.0353)}{0.72460}Y \quad (8)$$
$$Ch = 42.42 + \underset{(0.0093)}{0.03466}Y \quad (9)$$
$$Cs = 131.33 + \underset{(0.0519)}{0.00586}Y + \underset{(0.3392)}{0.85602}\,C_{-1} \quad (10)$$
$$I = -1526.28 + \underset{(0.3108)}{0.47356}\,(V-V_{-1}) + \underset{(0.0241)}{0.13937}K \quad (11)$$
$$Td = 82.59 + \underset{(0.0041)}{0.02548}V \quad (12)$$
$$Ti = -461.58 + \underset{(0.0104)}{0.20793}V \quad (13)$$
$$G = 66.33 + \underset{(0.0092)}{0.12885}V \quad (14)$$
$$X = 617.27 + \underset{(3.6428)}{12.51076}\,Px/Pd + \underset{(2.4972)}{2.01212}\,Er \quad (15)$$
$$Mr = -626.46 + \underset{(0.0514)}{0.00965}C - \underset{(0.8832)}{1.09505}\,Rp_{-1} + \underset{(2.7519)}{0.42345}\,Pm/Pd + \underset{(1.0003)}{1.98636}\,Fr - \underset{(45.1)}{30.21}\,D \quad (16)$$
$$Mc = 717.16 - \underset{(0.0589)}{0.03185}C - \underset{(3.4785)}{0.50876}Pmc/Pd + \underset{(1.6468)}{0.44199}Fr + \underset{(70.38)}{146.54}D \quad (17)$$
$$Mt = -350.76 + \underset{(0.0122)}{0.02940}V - \underset{(2.5769)}{6.21850}\,Pmr/Pd + \underset{(0.8526)}{2.52688}Fr - \underset{(40.53)}{26.42}D \quad (18)$$
$$Mv = 174.91 + \underset{(0.0133)}{0.05205}V - \underset{(0.4042)}{2.68502}\,Pmv/Pd + \underset{(0.6530)}{0.08282}Fr + \underset{(30.89)}{96.29}D \quad (19)$$

$$Ms = 597.88 + 0.01574V - 2.15517\ Pm/Pd$$
$$(0.0102) \quad (0.7717)$$
$$- 0.76090\ Fr + 67.39D$$
$$(0.2873) \quad (14.51) \qquad (20)$$

III

Past Effects of Foreign Assistance

Compared with some of the other developing countries, the inflow of foreign capital to Sri Lanka had been very little. For instance, in Greece the cummulative net inflow of foreign capital during 1950-61 amounted to 54 per cent of that country's total gross capital formation during that period[6], and in the Korean economy, from 1957 to 1966, the same amounted to 82 per cent of her total gross domestic investment during that period.[7] In Sri Lanka, from 1960 to 1972, the total net inflow of foreign capital constituted only 14 per cent of the total gross capital formation during the same period.

Table 1

G. N. P. Growth Rates and the Net Inflow of Foreign Capital as a per cent of G. D. P., Imports and Gross Investment, 1960–1972.

	$\frac{F}{V}$ %	$\frac{F}{M}$ %	$\frac{F}{I}$ %	G. N. P. Growth Rate + %
1960	2·9	9·0	20·2	6·7
1961	0·9	3·3	5·9	2·2
1962	1·4	4·8	9·1	4·4
1963	1·7	6·3	11·1	2·8
1964	2·1	7·8	14·8	6·7
1965	0·0	0·0	0·0	2·5
1966	3·5	13·4	24·3	3·5
1967	2·8	12·2	18·7	5·0
1968	2·9	12·5	18·6	8·4
1969	6·2	25·3	32·3	4·5
1970	2·4	12·2	12·7	4·1
1971	1·1	6·1	6·4	0·9
1972	1·3	7·3	9·1	2·5

+ At 1959 constant factor cost prices.

Source : Central Bank of Ceylon, *Annual Reports*, 1959–1972.

6. I. Adleman and H. B. Chenery, "Foreign Aid and Economic Development: The Case of Greece", *Review of Economics and Statistics* Vol 48, Feb., 1966, pp 1–19.
7. S. Kim. *The effects of Foreign Resource Transfers on the Growth of the Korean Economy*, Unpublished Ph. D. disseration, University of Sydney, 1969, p. 187.

This low level of foreign capital inflow together with the non-growth of export earnings would have been a major cause for the slow growth of the economy. In Table 1, the net inflow of foreign capital as a per cent of G. D. P., imports and of gross capital formation are given together with the G. N. P. growth rates. It seems that higher levels of capital inflow are associated with higher G. N. P. growth rates, which suggest that inflow of foreign capital contributes to the growth of the economy. Therefore, we now proceed to use the results of our econometric model to analyse the effect of foreign resource transfers on the growth of the economy during the sample period. It is also proposed to examine hypothetically what would have been the effect on the growth of the economy had the external resource availability been greater.

Additional external capital made avilable to a developing country can play two roles at the same time. It can supplement domestic savings for investment and also it can supplement export earnings to finance import requirements of the economy. The external resource requirements for these two functions of foreign capital can be estimated separately by using the relevant behavioural equations from our model. In computing these estimates, let us designate for convenience the external resource needs for the imports-exports gap and investment-savings gap by Fm and Fs respectively.

When growth is limited by insufficient imports, the additional net external resources required to fill the imports-exports gap and sustain a given level of G. D. P. can be obtained by transforming equation (2) through the import and export functions of the model. The equation that would give these estimates is derived by successfully substituting import and export functions into equation (2) until F is represented as a function of V and the pre-determined variables appearing in these equations. Thus by substituting equations (16) to (20) into equation (6) we have,

$$M = 512{\cdot}74 + 0{\cdot}09719V - 0{\cdot}02220C - 1{\cdot}73172\ Pm/Pd - 0{\cdot}50876\ Pmc/Pd - 6{\cdot}21850\ Pmt/Pd - 2{\cdot}68502\ Pmv/Pd - 1{\cdot}09505\ Rp_{-1} + 4{\cdot}27715\ Fr + 254{\cdot}09D + Mu \quad (21)$$

Substituting equations (8) to (10) through equations (3), (12) and (13) into equation (5) we obtain,

$$C = 398{\cdot}28 + 0{\cdot}58653V + 0{\cdot}85602\ Cs_{-1} \quad (22)$$

and substituting equation (22) into equation (21),

$$M = 503{\cdot}90 + 0{\cdot}08417V - 0{\cdot}01900Cs_{-1} - 1{\cdot}73172\ Pm/Pd - 0{\cdot}50876\ Pmc/Pd - 6{\cdot}21850\ Pmt/Pd - 2{\cdot}68502\ Pmv/Pd - 1{\cdot}09505\ Rp_{-1} + 4{\cdot}27715\ Fr + 254{\cdot}09D + Mu \quad (23)$$

Since the import capacity is limited by the sum of exports and the net inflow of foreign capital, equations (15) and (23) are substituted into equation (2) to obtain the equation for Fm.

$$Fm = 113{\cdot}3 + 0{\cdot}08417V - 0{\cdot}01900Cs_{-1} - 1{\cdot}73172\ Pm/Pd - 0{\cdot}50876\ Pmc/Pd - 6{\cdot}21850\ Pmt/Pd - 2{\cdot}68502\ Pmv/Pd - 1{\cdot}09506\ Rp_{-1} + 4{\cdot}27715\ Fr - 12{\cdot}51076\ Px/Pd \quad (24)$$

Solving equation for V:

$$V = 11{\cdot}88072\ Fm + 0{\cdot}22573\ Cs_{-1} + 20{\cdot}57407\ Pm/Pd + 6{\cdot}04443\ Pmc/Pd + 73{\cdot}88024\ Pmt/Pd + 31{\cdot}89996\ Pmv/Pd + 13{\cdot}00998\ Rp_{-1} - 50{\cdot}8156\ Fr + 148{\cdot}63681\ Px/Pd + 23{\cdot}90543\ Er - 3018{\cdot}84\ D - 11{\cdot}88072\ Mu + 1346 \quad (25)$$

This equation gives the marginal productivity of foreign capital when growth is limited by the imports constraint:

$$\frac{\Delta V}{\Delta Fm} = 11{\cdot}88072 \quad (26)$$

Equation (24) can be used to estimate the additional requirements of external capital for any given level of G. D. P., when growth is limited by inadequate imports. In other words these estimates will give the imports–exports gap, given the level of G. D. P.

Similarly, the foreign capital requirements to sustain a given level of G. D. P., when growth is limited by insufficient savings to finance investment can be obtained by a transformation of equation (4). The necessary equation is derived by successfully substituting the relevant equations into equation (4) and solving for F (i. e. Fs) so that F is expressed as a function of V and the pre-determined variables appearing in these equations.

Equation (4) states that inflow of foreign capital fills the gap between investment and savings. Therefore, to derive the productivity of foreign capital when performing this function, the relevant behavioural equations will have to be substitued into equation (4). For this purpose equation (4) is solved into:

$$V = C + G + I - F \tag{27}$$

The solution for aggregate consumption function is already given in equation (22). By substituting equations (11), (14) and (22) into equation (27), the following equation is obtained:

$$V = 5{\cdot}29269\ Fs - 4{\cdot}53064Cs_{-1} + 2{\cdot}50640V_{-1} - 0{\cdot}73764K + 5618 \tag{28}$$

which gives the marginal productivity of foreign capital when growth is limited by the savings constraint:

$$\frac{\Delta V}{\Delta Fs} = 5{\cdot}29269 \tag{29}$$

By solving equation (28) for Fs the required equation for estimating the investment-savings gap can be obtained:

$$Fs = 0{\cdot}18894\ V + 0{\cdot}85602\ Cs_{-1} - 0{\cdot}47356V_{-1} + 0{\cdot}13937K - 1061 \tag{30}$$

CHART I

EXTERNAL RESOURCE REQUIREMENTS UNDER THE TWO GAPS, 1960 -7

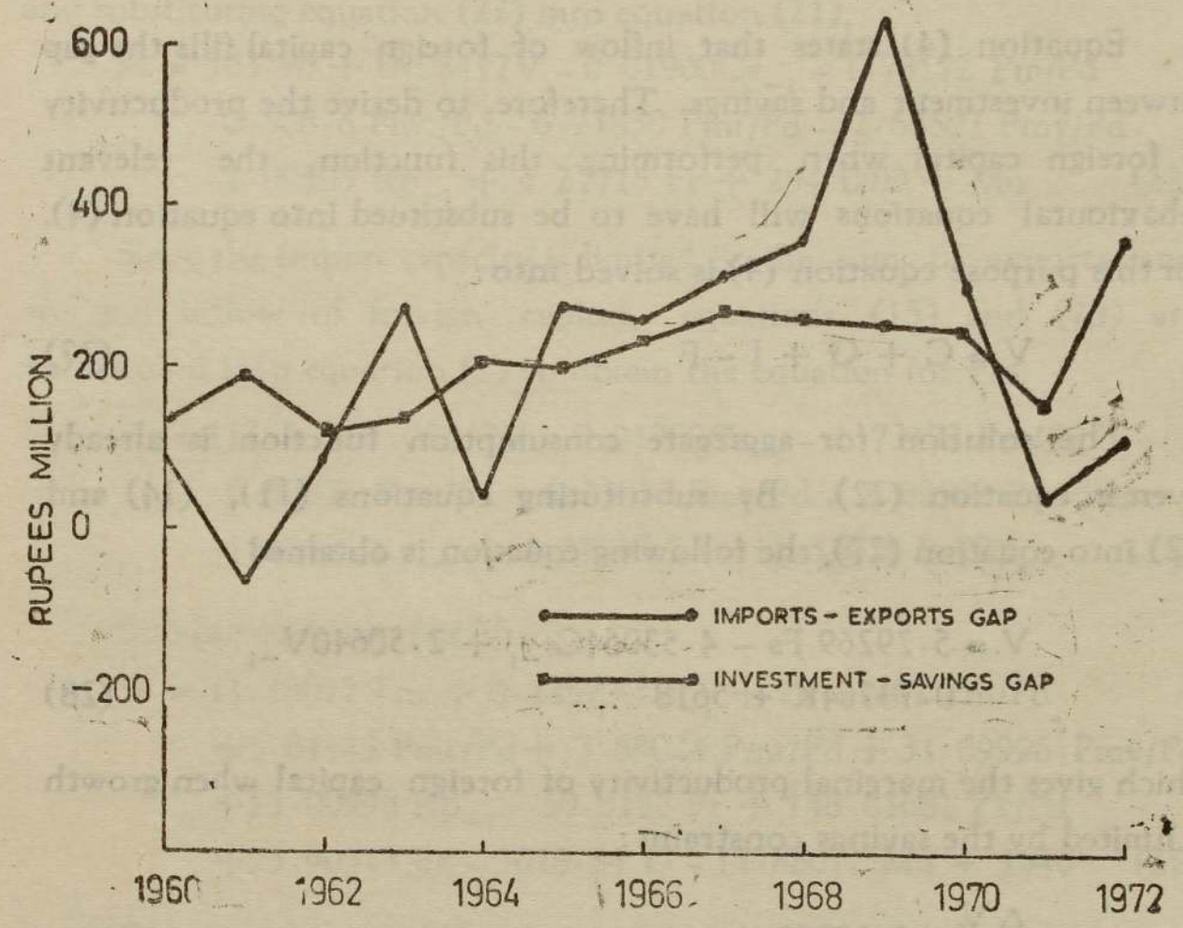


CHART 2

IMPORTS - EXPORTS GAP, 1960 - 72

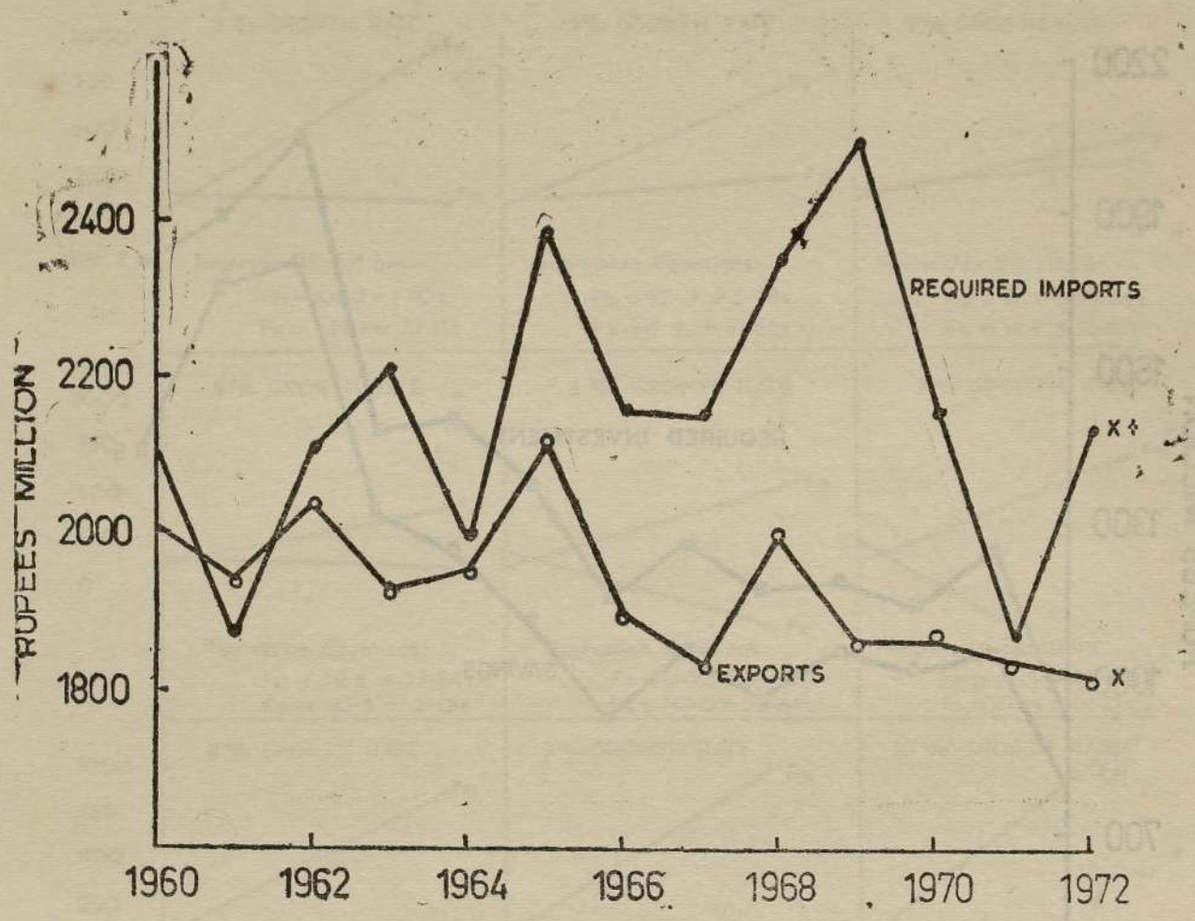


CHART 3

INVESTMENT-SAVINGS GAP, 1960-72

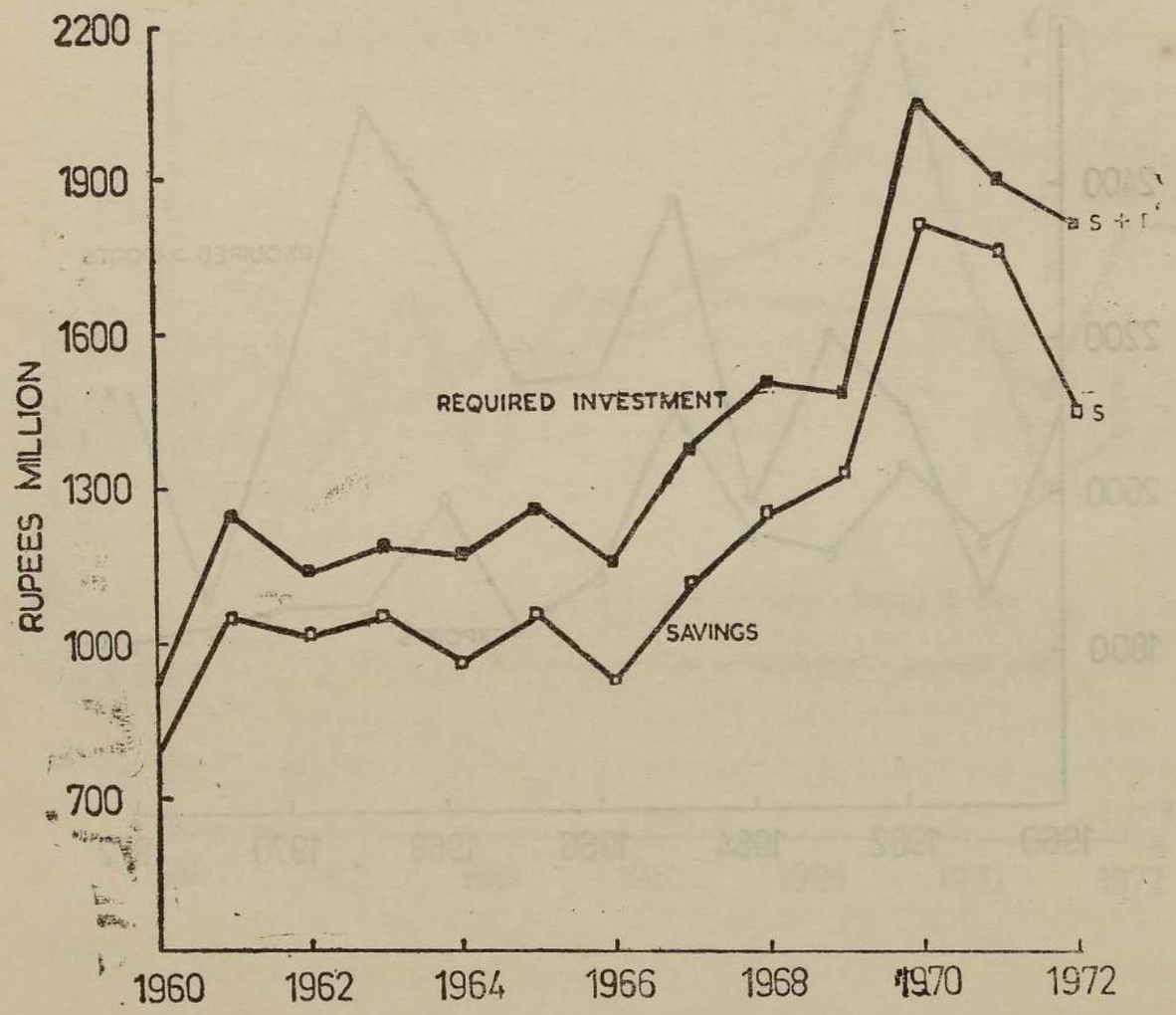
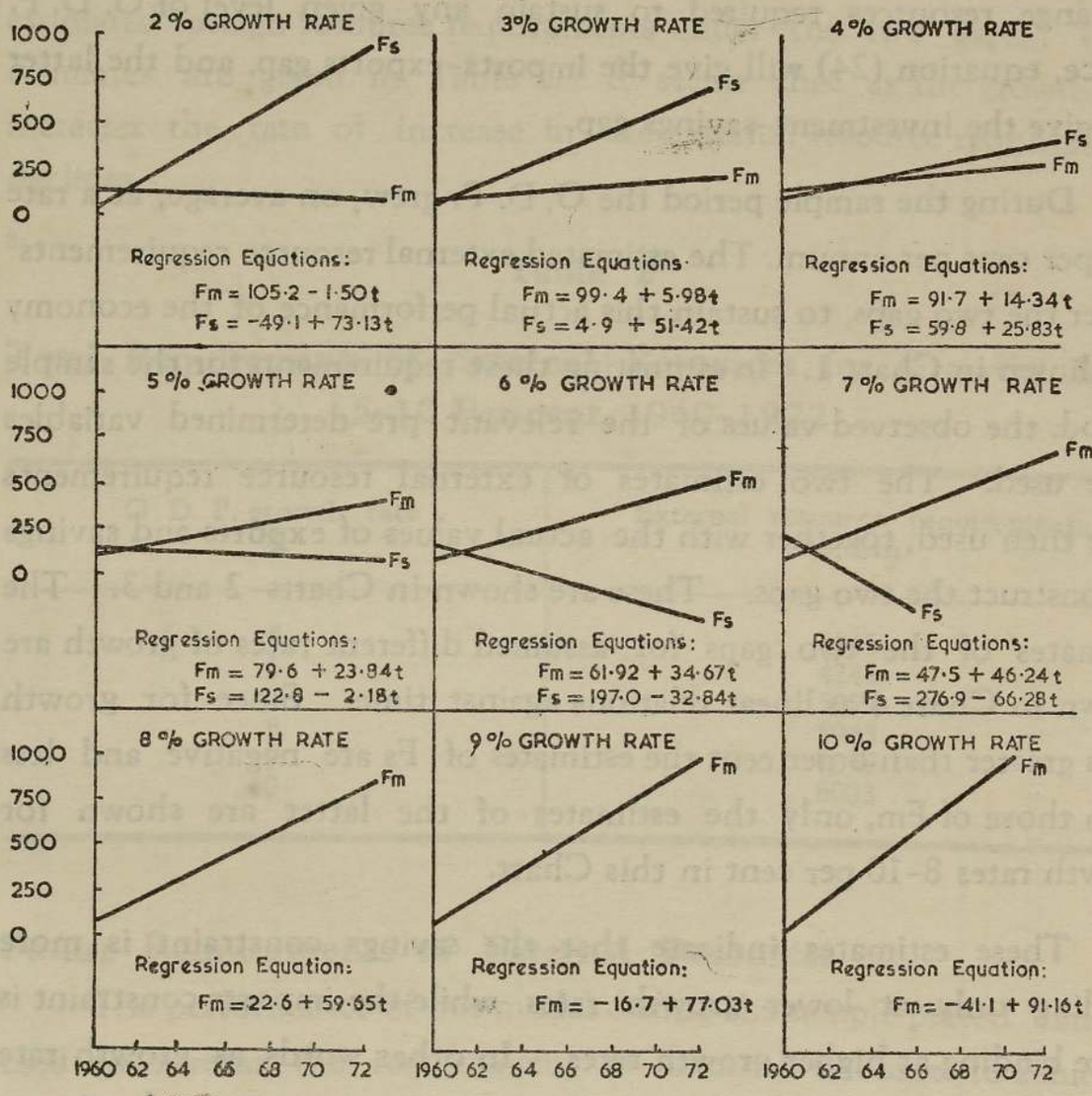


CHART 4

ESTIMATED TWO GAPS FOR GROWTH RATES 2 TO 10 PER CENT 1960–72



Note: t = 1 for 1960, 2 for 1961 and so on.

This equation can be used to estimate the requirements of external resource transfers for any given level of G. D. P. when growth is limited by insufficient savings.

The requirements of foreign capital, under the two limitations to growth, can now be estimated using equations (24) and (30). These two equations yield two different estimates of additional foreign exchange resources required to sustain any given level of G. D. P. Hence, equation (24) will give the imports-exports gap, and the latter will give the investment-savings gap.

During the sample period the G. D. P. grew, on average, at a rate of 4 per cent per annum. The estimated external resource requirements[8] under the two gaps, to sustain this actual performance of the economy are shown in Chart 1. In estimating these requirements for the sample period, the observed values of the relevant pre-determined variables were used. The two estimates of external resource requirements were then used, together with the actual values of exports and savings to construct the two gaps. These are shown in Charts 2 and 3. The estimates of the two gaps for assumed different rates of growth are shown in Chart 4 as linear relations against time. Since for growth rates greater than 8 per cent the estimates of Fs are negative and less than those of Fm, only the estimates of the latter are shown for growth rates 8-10 per cent in this Chart.

These estimates indicate that the savings constraint is more binding only at lower growth rates while the imports constraint is more binding at higher growth rates. In other words as growth rate rises above 4 per cent the imports constraint becomes more dominant.

8. It should be noted that all estimates of external resource requirements in this paper are net of foreign exchange required to meet the amortisation and interest payments due on external public debt. The actual amount of foreign resources that would be raquired both to fill the dominant resource gap and also to service the cumulative debt burden, would be much greater than those given in our estimates.

It seems that the low rate of growth of the economy during the sample period was largely due to inadequate external resources. During this period the average rate of growth was approximately 4 per cent and the total receipts of net foreign capital during the entire period amounted to Rs. 2630 million, in real terms. The total amounts of additional foreign capital that would have been required to achieve growth rates higher than 4 per cent during the sample period were estimated by summing the maximum of each year's estimated foreign resource requirements under the two gaps. These estimates are given in Table 2. It seems that as the growth rate increases the rate of increase in the external resource requirements declines.

Table 2

Total Requirements of External Resources for Growths Rates 5–10 Per cent, 1960–1972

G. D. P. growth rate %	External resource requirements Rs. Mn.
5	3545
6	4242
7	5099
8	5983
9	7039
10	8003

Future Requirements of External Resources

The performance of our model during the sample period can be used to forecast the requirements of external resources to achieve a given rate of economic growth, in the future. As we did for the sample period, the additional external resource needs can be estimated, in terms of the two gaps, using equations (24) and (30). The forecasts were made for a period of 10 years from 1973 to 1982. In making the forecastes the following assumptions were adopted.

Table 3

Projected Estimates of External Resource Requirements for G. D. P. Growth Rates 2–10 Per Cent, 1973–82

	2% Growth Rate			3% Growth Rate			4% Growth Rate			5% Growth Rate			6% Growth Rate			7% Growth Rate			8% Growth Rate			9% Growth Rate			10% Growth Rate		
	Fm	Fs	Binding Constraint	Fm	Fs	Binding Constraint	Fm	Fs	Binding Constraint	Fm	Fs	Binding Constraint	Fm	Fs	Binding Constraint	Fm	Fs	Binding Constraint	Fm	Fs	Binding Constraint	Fm	Fs	Binding Constraint	Fm	Fs	Binding Constraint
1973	333	457	Fs	341	457	Fs	350	456	Fs	359	454	Fs	368	453	Fs	376	452	Fs	385	451	Fs	394	450	Fs	403	448	Fs
1974	351	422	Fs	368	418	Fs	386	415	Fs	405	411	Fs	422	407	Fm	442	402	Fm	461	398	Fm	480	394	Fm	499	389	Fm
1975	369	384	Fs	396	377	Fm	424	370	Fm	453	363	Fm	482	355	Fm	512	345	Fm	543	335	Fm	574	326	Fm	605	315	Fm
1976	387	345	Fm	425	331	Fm	464	323	Fm	504	310	Fm	545	296	Fm	568	280	Fm	631	263	Fm	676	245	Fm	722	224	Fm
1977	407	306	Fm	458	291	Fm	505	273	Fm	557	253	Fm	611	232	Fm	668	206	Fm	727	179	Fm	788	149	Fm	851	116	Fm
1978	425	266	Fm	485	245	Fm	548	220	Fm	613	192	Fm	681	160	Fm	754	123	Fm	830	83	Fm	909	37	Fm	992	– 13	Fm
1979	445	225	Fm	517	197	Fm	592	164	Fm	672	126	Fm	756	81	Fm	847	30	Fm	942	27	Fm	1042	– 92	Fm	1128	–164	Fm
1980	465	183	Fm	549	147	Fm	638	104	Fm	734	54	Fm	836	5	Fm	945	– 74	Fm	1062	–152	Fm	1186	–241	Fm	1319	–341	Fm
1981	486	140	Fm	582	96	Fm	686	41	Fm	799	– 24	Fm	920	–100	Fm	1051	–190	Fm	1192	–293	Fm	1344	–411	Fm	1507	–546	Fm
1982	507	97	Fm	617	42	Fm	736	–25	Fm	867	–107	Fm	1010	–204	Fm	1164	–318	Fm	1332	–452	Fm	1515	–606	Fm	1714	–783	Fm

For equation (24)

The relative price indices of imports were assumed to remain constant at a level equal to their average during the last three years of the sample period. The same assumption was made with regard to the values of Rp_{-1}, Fr, Mu, Px/Pd and Er. However, some of these assumptions were varied in examining the impact of certain policy measures.

The dummy variable used to represent the periods of import liberalisation was assumed to remain constant throughout the forecasting period. This means that a certain degree of import liberalisation was assumed to prevail during this period.

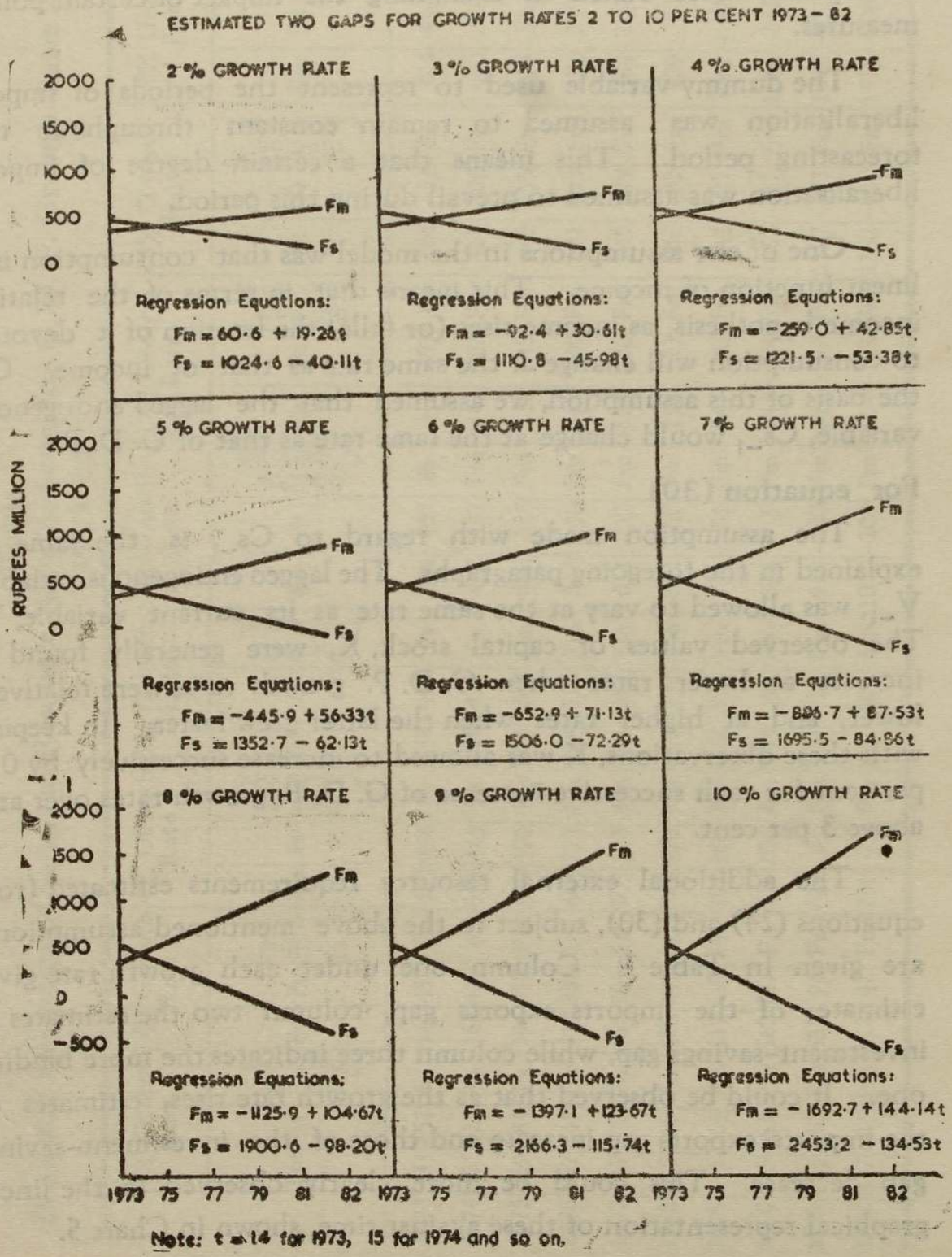
One of our assumptions in the model was that consumption is a linear function of income. This means that, in terms of the relative income hypothesis, as income rises (or falls) the fraction of it devoted to consumption will change at the same rate as that of income. On the basis of this assumption, we assumed that the lagged endogenous variable, Cs_{-1} would change at the same rate as that of G. D. P.

For equation (30)

The assumption made with regard to Cs_{-1} is the same as explained in the foregoing paragraphs. The lagged endogenous variable, V_{-1}, was allowed to vary at the same rate as its current variable, V. The observed values of capital stock, K, were generally found to increase at lower rates when G. D. P. growth rates were relatively lower, and at higher rates when the latter grew faster. In keeping with these observations, K was allowed to increase successively by 0·5 per cent for each successive increase of G. D. P. growth rates over and above 3 per cent.

The additional external resource requirements estimated from equations (24) and (30), subject to the above mentioned assumptions, are given in Table 3. Column one under each growth rate gives estimates of the imports-exports gap, column two the estimates of investment–savings gap, while column three indicates the more binding one. It could be observed that as the growth rate rises, estimates of the imports- exports gap increase and those of the investment–savings gap decrease. This could be more clearly observed in the linear graphical representation of these against time, shown in Chart 5.

CHART 5



Note: t = 14 for 1973, 15 for 1974 and so on.

Thus during the forecasting period, the imports–exports gap appears as the binding constraint to growth in most years, for all rates of growth. In other words, to sustain any growth rate above 2 per cent in the future, the country would need additional imports which would have to be financed out of external capital. Since export earnings are assumed to remain constant, the imports–exports gap gets increasingly wider as the growth rate rises. It is this gap that would have to be filled with additional external resources to maintain a given level of G. D. P.

To magnify Sri Lanka's future growth problem, let us examine at what rate her economy should grow to achieve a moderate per capita income by the year 1982. To realise a very moderate per capita income of U. S. $ 300 per year (which is about the per capita income of Malaysia in 1972), in the year 1982 Sri Lanka's G. D. P. (which is about U. S. $ 150 in 1972 at current prices) would have to increase from 1972 onwards by about 10 per cent per year. This calculation is made on the assumption that the population would grow at a moderate rate of 2 per cent per year and the rate of exchange remains at U. S. $ 1 = Rs. 5.95. If a more realistic exchange rate is assumed the growth rate of the G. D. P. would have to be relatively higher.

Table 4

External Resource Requirements to Sustain G. D. P. Growth Rates of 10 and 16 Per Cent 1973 - 82

Rupees Million

	10% growth rate	16% growth rate
1973	448	456
1974	499	619
1975	605	808
1976	722	1027
1977	851	1282
1978	992	1577
1979	1128	1927
1980	1319	2316
1981	1507	2776
1982	1714	3311

On the same assumptions, for Sri Lanka to achieve a less moderate level of per capita income, say U. S. $ 500 per year in 1982, her G. D. P. would have to grow at a rate of about 16 per cent per year. The additional external resource requirements (under the more binding import constraint) to sustain these two rates of growth–10 per cent and 16 per cent–are given in Table 4. According to these estimates, the additional external resources that would be required in 1982, for a 10 per cent growth rate, would be only a little less than the present level of export earnings of the country. For a 16 per cent growth rate, the additional external resource requirements in 1982 would amount to about 1·8 times the present level of export earnings. If this amount of extetnal resources is to be met out of the country's own resources, Sri Lanka's export earnings would have to increase at least by about 10·8 per cent per year during the next 10 years.

The present Five Year Plan of Sri Lanka which covers the period 1972–76 expects to achieve an average growth rate of 6 per cent per year during the plan period. Let us now examine the external resource requirements to sustain this expected rate of growth.

The projected estimates of external resource requirements for a 6 per cent growth rate, under the two gaps are plotted in Chart 6. It could be seen that after about 1974 the imports–exports gap becomes more dominant and therefore the binding constraint. The investment–savings gap is dominant only in 1978 and declines gradually thereafter. The projected imports–exports gap and the investment–savings gap are plotted in Charts (7) and (8). The imports–exports gap becomes wider over time while the investment – savings gap gets closed by about 1980.

CHART 6

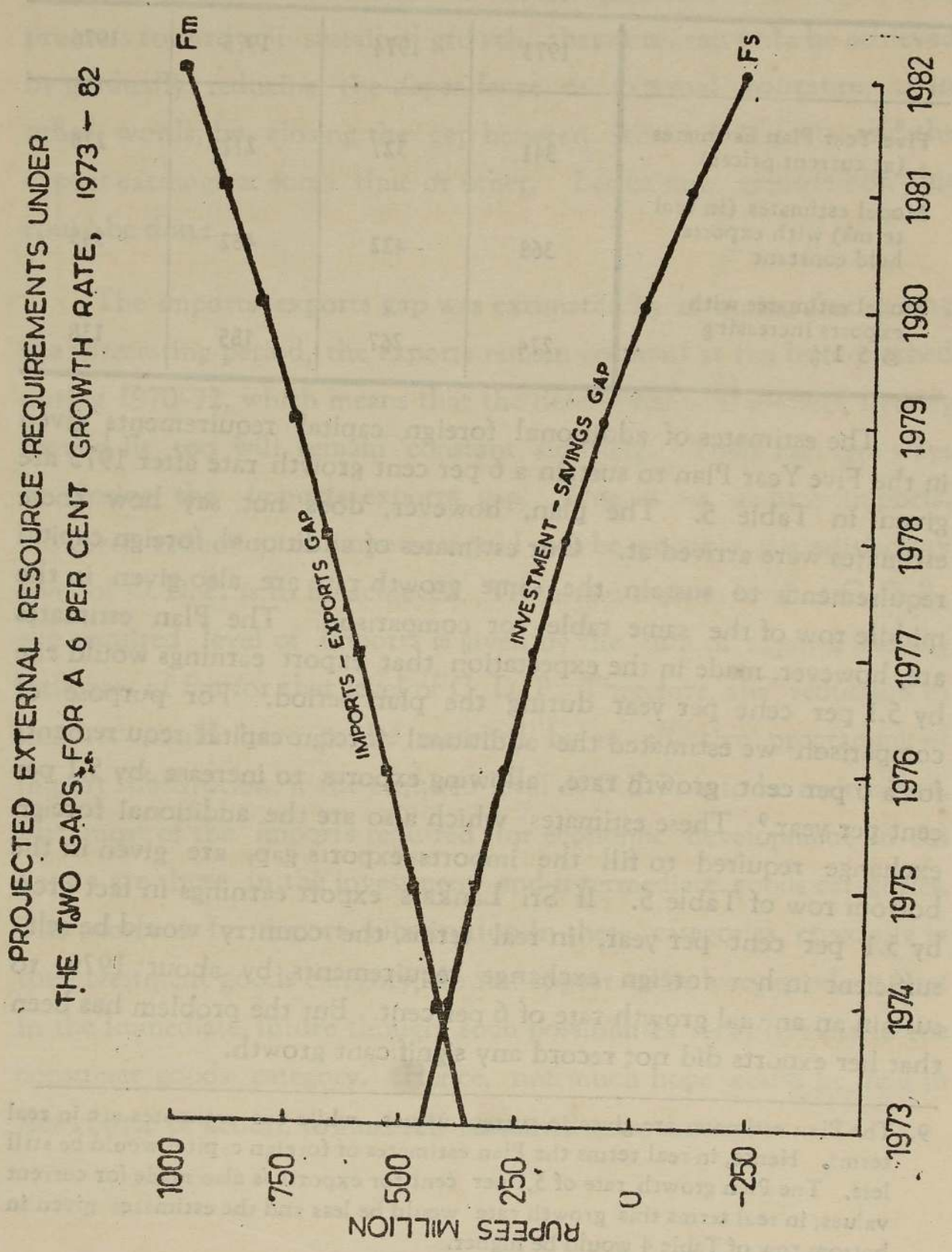


TABLE 5

Five Year Plan and the Model Estimates of External Resource Requirements for a 6 per cent Growth Rate – 1973–76

Rupees Million

	1973	1974	1975	1976
Five Year Plan Estimates (at current prices) ..	341	327	277	226
Model estimates (in real terms) with exports held constant ..	368	422	482	545
Model estimates with exports increasing @ 5·1% ..	274	267	185	138

The estimates of additional foreign capital requirements given in the Five Year Plan to sustain a 6 per cent growth rate after 1973 are given in Table 5. The plan, however, does not say how these estimates were arrived at. Our estimates of additional foreign capital requirements to sustain the same growth rate are also given in the middle row of the same table for comparison. The Plan estimates are, however, made in the expectation that export earnings would rise by 5.1 per cent per year during the plan period. For purpose of comparison we estimated the additional foreign capital requirements for a 6 per cent growth rate, allowing exports to increase by 5.1 per cent per year.[9] These estimates which also are the additional foreign exchange required to fill the imports-exports gap, are given in the bottom row of Table 5. If Sri Lanka's export earnings in fact grow by 5.1 per cent per year, in real terms, the country would be self-sufficient in her foreign exchange requirements by about 1979, to sustain an annual growth rate of 6 per cent. But the problem has been that her exports did not record any significant growth.

9. The Plan estimates are given in current values, while our estimates are in real terms. Hence, in real terms the Plan estimates of foreign capital would be still less. The Plan growth rate of 5.1 per cent for exports is also made for current values; in real terms this growth rate would be less and the estimates given in bottom row of Table 4 would be higher.

Prospects of Self-sustained growth

We have seen in the previous section that the more dominant external resource gap during the forecasting period is the imports-exports gap and that it tends to widen gradually over time. Any progress toward self-sustained growth, therefore, can only be achieved by gradually reducing the dependence on external assistance; or in other words, by closing the gap between required imports and the export earnings at some time or other. Let us now explore how this could be done.

The imports-exports gap was extimated by assuming that during the forecasting period, the exports remain constant at the level reached during 1970-72, which means that the determinants of exports, namely Px and Er too will remain constant similarly. There are two ways of closing the imports-exports gap. One is to reduce imports. However, reduction of imports would not be possible, if a satisfactory level of G. D. P. is to be achieved. To sustain a given level of G. D. P., the required level of imports is given by the sum of exports and the estimates of Fm for that level of G. D. P. Therefore, any reduction in imports would have to be matched by an effective programme of import substitution, if the required level of G.D.P. is to be maintained. But, most of the imports required for economic development in Sri Lanka are those in the investment and intermediate goods categories. The prospects for import-substitution in these categories, especially in the investment goods category, do not appear to be very good, at least in the immediate future though such possibilities seem to exist in the consumer goods category. Hence, not much hope could be had in this course of action, toward self-sustained growth.

CHART 7

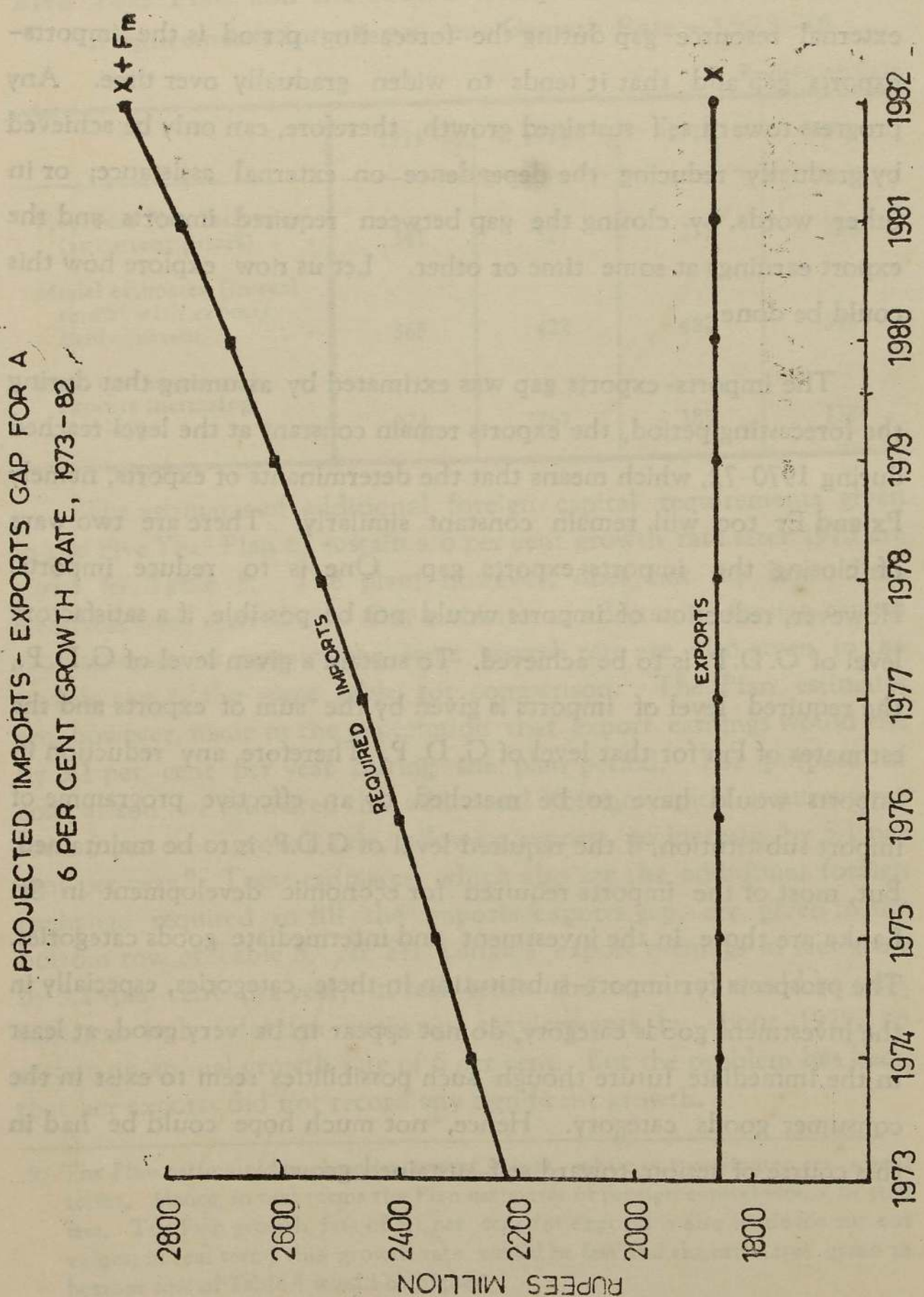
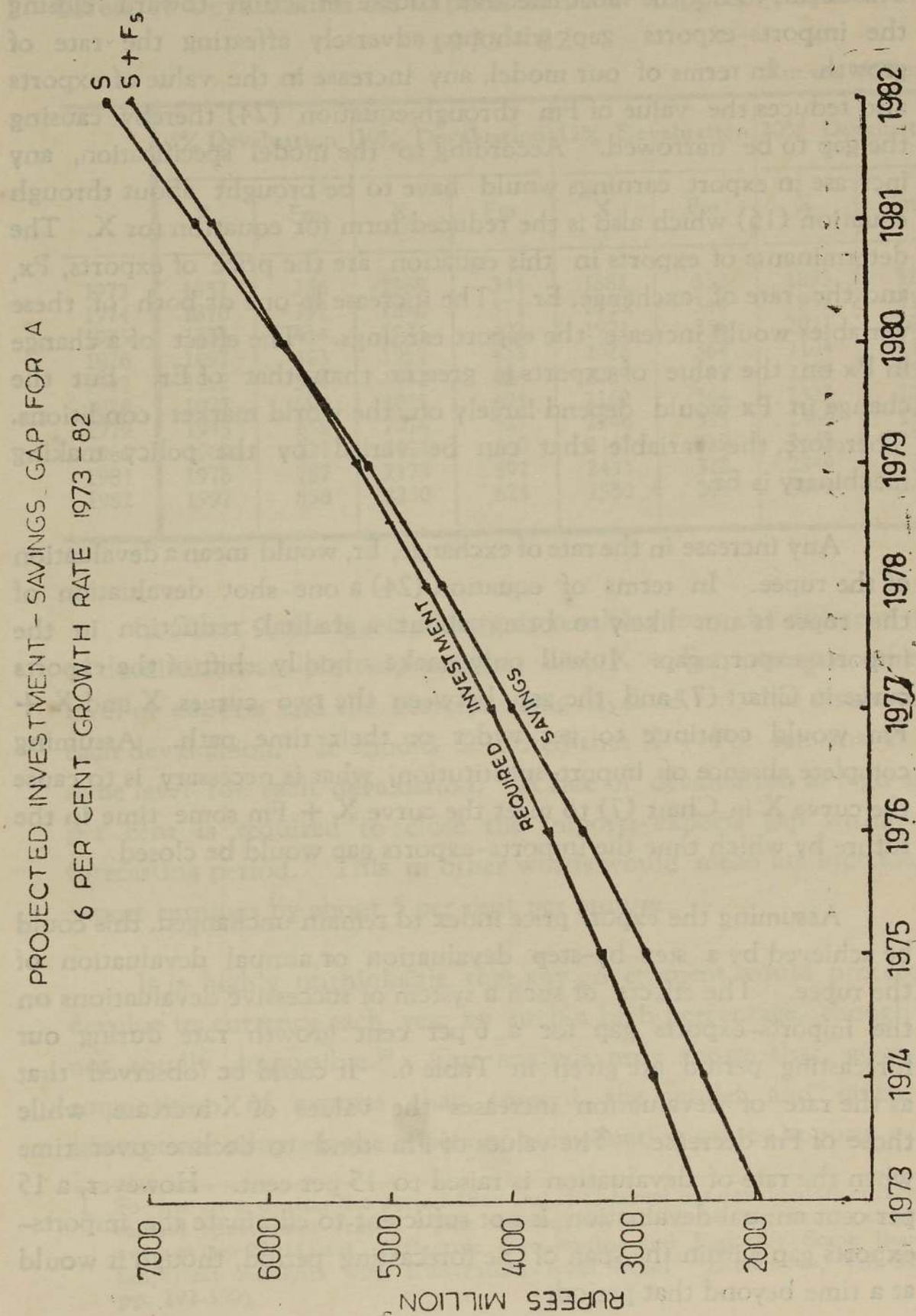


CHART 8



The other course of action would be to increase export earnings. This seems to be the most effective course of action toward closing the imports-exports gap without adversely affecting the rate of growth. In terms of our model, any increase in the value of exports also reduces the value of Fm through equation (24) thereby causing the gap to be narrowed. According to the model specification, any increase in export earnings would have to be brought about through equation (15) which also is the reduced form for equation for X. The determinants of exports in this equation are the price of exports, Px, and the rate of exchange, Er. The increase in one or both of these variables would increase the export earnings. The effect of a change in Px on the value of exports is greater than that of Er. But the change in Px would depend largely on the world market conditions. Therefore, the variable that can be varied by the policy making machinery is Er.

Any increase in the rate of exchange, Er, would mean a devaluation of the rupee. In terms of equation (24) a one-shot devaluation of the rupee is not likely to bring about a gradual reduction in the imports-exports gap. It will only make a bodily shift of the exports curve in Chart (7) and the gap between the two curves, X and X + Fm would continue to get wider on their time path. Assuming complete absence of import-substitution, what is necessary is to cause the curve X in Chart (7) to meet the curve X + Fm some time in the future by which time the imports-exports gap would be closed.

Assuming the export price index to remain unchanged, this could be achieved by a step-by-step devaluation or annual devaluation of the rupee. The effects of such a system of successive devaluations on the imports-exports gap for a 6 per cent growth rate during our forecasting period are given in Table 6. It could be observed that as the rate of devaluation increases the values of X increase, while those of Fm decrease. The values of Fm tend to decline over time when the rate of devaluation is raised to 15 per cent. However, a 15 per cent annual devaluation is not sufficient to eliminate the imports-exports gap within the span of the forecasting period, though it would at a time beyond that period,

Table 6

Effect of Devaluation on Exports and the Imports – Exports Gap, 1973 – 82

Rupees Million

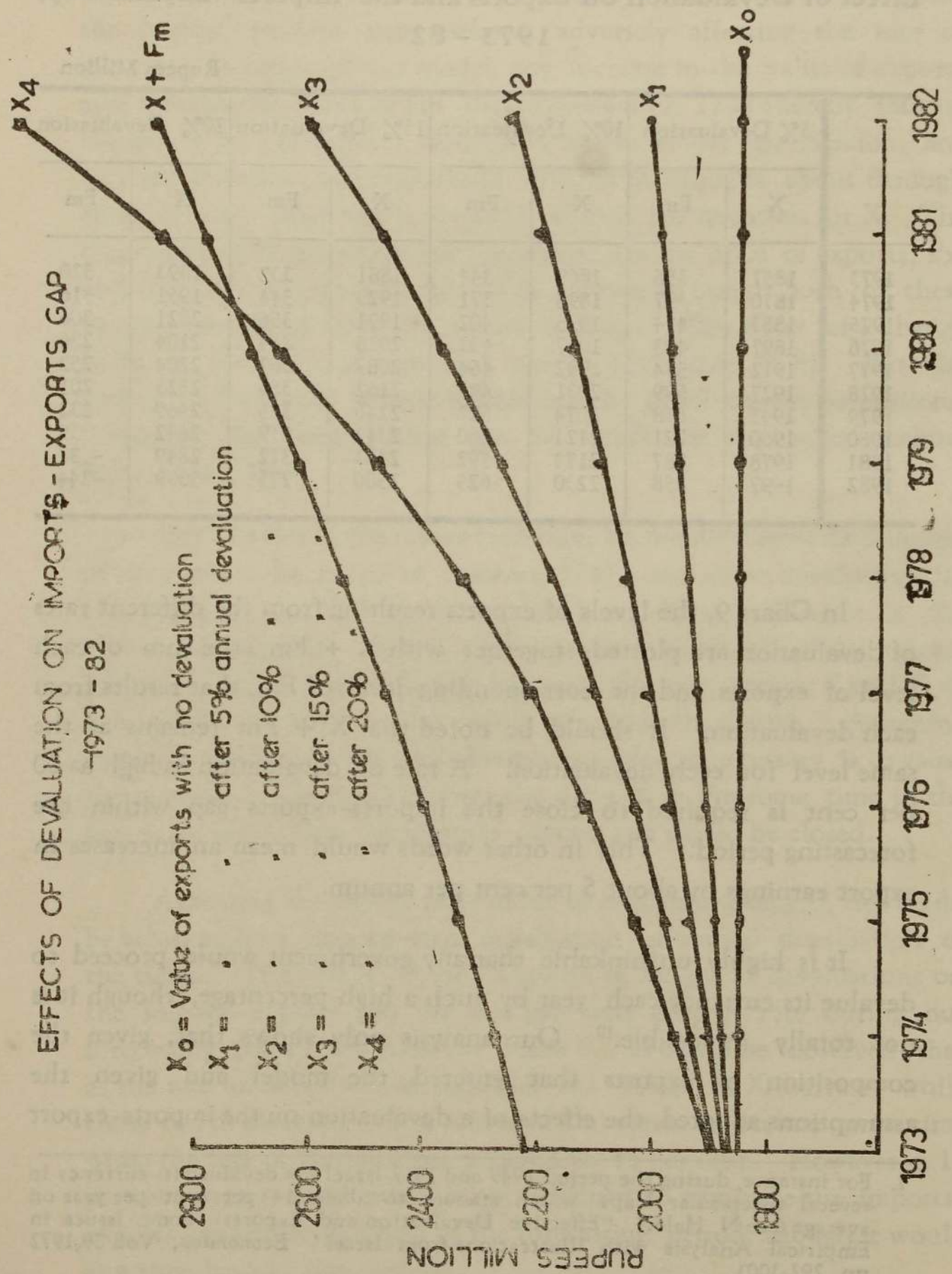
	5% Devaluation		10% Devaluation		15% Devaluation		20% Devaluation	
	X	Fm	X	Fm	X	Fm	X	Fm
1973	1857	356	1869	344	1881	332	1893	320
1974	1870	397	1896	371	1923	344	1951	316
1975	1883	444	1925	402	1971	356	2021	306
1976	1897	493	1957	433	2026	364	2104	286
1977	1912	544	1992	464	2089	367	2204	252
1978	1927	599	2031	495	2162	364	2325	201
1979	1943	658	2074	527	2246	355	2469	132
1980	1960	721	2121	560	2342	339	2642	39
1981	1978	787	2173	592	2453	312	2849	– 34
1982	1997	858	2230	625	2580	275	3099	–244

In Chart 9, the levels of exports resulting from the different rates of devaluation are plotted, together with X + Fm, the sum of each level of exports and the corresponding level of Fm, that results from each devaluation. It should be noted that X + Fm remains at the same level for each devaluation. A rate of devaluation as high as 20 per cent is required to close the imports–exports gap within the forecasting period. This in other words would mean an increases in export earnings by about 5 per cent per annum.

It is highly unthinkable that any government would proceed to devalue its currency each year by such a high percentage, though it is not totally impossible.[10] Our analysis only shows that, given the composition of exports that entered the model and given the assumptions adopted, the effects of a devaluation on the imports-export

1. For instance, during the period 1949 and 1967 Israel has devalued its currency in several spectacular leaps which amount to about 14 per cent per year on average (see N. Halevi, "Effective Devaluation and Exports: Some Issues in Empirical Analysis with Illustrations from Israel' *Economica*, Vol. 39,1972 pp. 292-300).

CHART 9



gap take quite a long time to show up significant results. It, however, indicates an important aspect of the problem. More than 90 per cent of Sri Lanka's exports during the sample period was composed of agricultural commodities. This being the composition of exports, the model shows how little these exports respond to a devaluation. If this composition of exports would persist in the future, the country is most likely to face increasing balance of payments difficulties. In such a situation, if sufficient external capital from other sources are not forthcoming to fill the imports–exports gap, the rate of economic growth is not likely to improve.

IV

Policy Implications

In an imports constrained economy such as Sri Lanka, economic policies should be oriented to foster the supply of foreign exchange. Supply of foreign exchange comes from three main sources, namely (i) earnings from exports, (ii) inflow of foreign private capital, and (iii) inflow of foreign official capital in the form of grants and aid. Of these the former two are subject to the influence of economic policy while the latter one is a matter for negotiation between the government and the foreign authorities. In Sri Lanka, during the last decade or so export earnings remained more or less constant; inflow of foreign private capital was virtually absent and even the receipts of foreign aid was fairly low.

In Sri Lanka a major part of the period since 1960 has been under the nfluence of inward–looking policies.[11] These included: (1) quantitative restrictions on imports, (2) maintenance o fan over–valued exchange rate through exchange controls and (3) bias towards the expansion of public secter enterprises. The possibility that an inward–looking policy strategy could intensify the foreign exchange constraint

11. Inward-looking policies are those policies which in effect protect domestic industries from foreign competition, discriminate gainst export-oriented industries and cause misallocation of resources between industries. On the other hand, outward – look ing policies are those policies which favour free trade.

in a developing economy is well known.[12] This happens through such a strategy's adverse effects on the growth of exports, on the inflow of foreign capital, and on the growth of industries.

Quantitative restrictions on imports usually have the effects of (i) promoting import-substituting industries at the expense of export industries; and (ii) income re-distribution in favour of import licence holders. In Sri Lanka import-substituting industries, however, concentrated more in the production of consumer and semi-luxury goods, since these, under heavy protection, carried wide profit margins.

Over-valuation of the local currency in terms of foreign exchange, make the local market more attractive to industrialists than the foreign markets. Greater profitabily of the local market is even greater when imports are restricted through direct controls. Under such conditions, whatever industrialisation that takes place is likely to be limited and oriented to the local market. It is most likely, therefore, that export-oriented industrialisation in Sri Lanka was inhibited to a great extent by the maintenance of an over-valued exchange rate through direct import and exchange controls. Furthermore, supply of foreign exchange through inflow of foreign private capital too is discouraged under an over-valued currency system.

The bais towards the expansion of the public sector enterprises was a result of the early policy of nationalisation of certain businesses, exclusive right of the public sector to own certain industries and the more recent business acquisition legislation.[13] These reflect the government's concern for the public or state management of certain business and industrial activities. One may, however, question whether the magnitude of industrial expansion that is required in Sri Lanka to salvage the economy from the severe foreign exchange shortage, could be expected to come largely from the public sector. Has the public sector so far displayed sufficiently significant progress in this respect?;

12. The adverse effects of inward-looking policies and the favourable effects of outward - looking policies have been well brought out in D. B. Keesing, "Outward-looking Policies and Economic Development", *Economic Journal*, Vol. 77. 1967, pp. 303-30; Sl Naya, "Variations in Export Growth Among Developing Countries" *Economic Record*, Vol. 44, 1968, pp.480-98; B. Balassa, "Growth Strategies in Semi-industrial Countries", *Quarterly Journal of Economics* Vol. 84, 1970, pp.24-47; and N. J. J. Farley, "Outward-looking Policies and Industralisation in a Small Economy: Some Notes on Irish Case", *Economic Development and Cultural Change*, Vol. 21, 1973, pp. 610-28.

13. Business Undertakings (Acquisition) Act, No. 35 of 1971.

or should not the private sector be relied upon to play a more dynamic role in industrial expansion? The psesent Five Year Plan has correctly placed more emphasis on private sector investment in industry than any previous development plan in Sri Lanka did. However, despite certain concessions such as tax holidays, the threat of nationalisation or being acquired by the state–a threat that largely exists in the business acquisition legislation–is likely to act as a considerable disincentive to large–scale investments in the private sector both by local as well as by foreign investors.

The ultimate result of the inward–looking policies was that no fast enough growth could take place particularly in the export-oriented industries. It is no secret that Sri Lanka's industrial exports remained at a very low level (about 2 per cent of total exports) for a considerable period. In the circumstances, the country's foreign exchange earnings came almost entirely from the exports of traditional export crops and other agricultural products. Earnings from these exports remained more or less constant, and there being no significant growth in industrial exports, total foreign exchange earnings did not improve.

Thus in the absence of exports growth and inflow of foreign private capital, Sri Lanka had to depend for her increasing import requirements entirely on foreign assistance. Receipts of foreign assistance were not very significant either; what was received, in the absence of exports growth, gradually increased the country's debt burden, so much so, that today the foreign exchange required to service the foreign debt amounts to about one half or even more than that of the aid receipts of the country.

In the final analysis, the external resources available to Sri Lanka, both from her own resources and from aid, during the last decade or so, were insufficient to obtain her imports essential to sustain a satisfactory rate of economic growth. As we have found, when the economy is strongly imports constrained, shortage of imports is bound to slow down economic growth.

In view of the findings of our study, a change in the present inward–looking policy strategy seems essential to overcome the foreign exchange constraint successfully. In this respect the policy strategy proposed here is outward–looking and aims at overcoming the foreign exchange constraint largely through the expansion of exports. Since the growth of exports, however, cannot be expected to reach the

required levels in the short period, a substantial amount of foreign capital would be required to relieve the present pressure on forein exchange. In this respect preference should be given to policy measures that would attract foreign private capital. Foreign aid does not seem to be the best recource. The proposed strategy, therefore, should essentially consist of the following measures, which are complementary to each other:

(i) adoption of an equilibrium exchange rate to remove the over - valuation of the rupee that presently characterises Sri Lanka's foreign exchange market;

(ii) gradual relaxation of exchange and import controls; and

(iii) adoption of a more liberal industrial policy.

The dual exchange rate system under the FEEC Scheme introduced in 1968 has been a step in the right direction even though it was not an optimal solution. But its dynamic effects have been largely inhibited by the severe exchange and import controls within which it now operates. When the FEEC Scheme was first introduced, its major objective was for Sri Lanka to move gradually towards an equilibrium rate of exchange and complete relaxation of controls. However, after 1970, the FEEC Scheme was not used towards this objective and the over-valuation of the rupee still persists.

Hence, the adoption of an equilibrium exchange rate should be essential, both for promotion of export expansion and to attract inflow of foreign private capital into domestic industry. In Sri Lanka, export promotion should aim not so much at expansion of her traditional exports, but rather at export–orientation of manufacturing industries. To encourage such export - orientation, an outward - looking policy strategy characterised by liberal trade and industrial policies is likely to be more beneficial.

With the adoption of an equilibrium exchange rate, as proposed, gradual relaxation of import and exchange controls would be possible. In relaxaing the controls, however, care should be taken to give priority

to import of items essential for economic development.[14] With the relaxation of exchange and import controls, the domestic industries would become more competitive with overseas products, and import-substitution would proceed more on the basis of comparative advantage. This is quite different from the short-sighted policy of import-substitution under an inward-looking policy strategy. With an over-valued exchange rate under such a strategy import-substitution would not only be less efficient, but also it would tend to reduce the volume of foreign trade of the country. In a small country like Sri Lanka, reduction in foreign trade is bound to have long-term adverse effects on the economy. What Sri Lanka urgently needs is not a reduction but an upsurge in foreign trade through expansion of exports. For exports to expand, suitable conditions must exist. These conditions are better provided under an open economy than under a closed one.

The fear of state take-over of businesses or industrial undertakings that presently pervades the private sector in Sri Lanka, would have to be dispelled and a greater business confidence about the future would need to be built to enable the private sector to play a more dynamic role in the economy. Adoption of a more liberal industrial policy may be desirable in this respect.

In sum, the economy of Sri Lanka is strongly foreign exchange (imports) constrained. Any attempt to realise a satisfactory rate of economic growth would require a substantial increase in the availability of foreign exchange. If, in the long-run, the country is to be self-sufficient in foreign exchange resource availability, Sri Lanka should attempt now itself, to expand her industrial and other non-traditional exports. Such an attempt is most unlikely to be successful under an inward-looking policy strategy, since such a strategy tends to inhibit foreign trade. An outward-looking policy strategy is likely to be more beneficial in the long run.

41. In this respect a multiple exchange rate system could be used, at the start to relax the desired imports on the one hand and to promote the growth of industrial and other non-traditional exports on the other. Relaxation of imports under such a system, of cousre, would make the present Convertible Rupee Accounts (CRA) system redundant. The reallocation of resources would be more efficient and the distribution of gains more equitable under the former than under the C.R.A. system.

APPENDIX 1

ORDINARY LEAST SQUARES RESULTS

(i) $Cf = -56{\cdot}98 + \underset{(0{\cdot}0381)}{0{\cdot}72341Y}$

$R^2 = 0{\cdot}970$; $d = 2{\cdot}034$

(ii) $Ch = 39{\cdot}86 + \underset{(0{\cdot}01000)}{0{\cdot}03502Y}$

$R^2 = 0{\cdot}526$; $d = 0{\cdot}529$

(iii) $Cs = 98{\cdot}92 + \underset{(0{\cdot}0509)}{0{\cdot}04214Y} + \underset{(0{\cdot}3344)}{7{\cdot}62473Cs_{-1}}$

$R^2 = 0{\cdot}924$; $d = 1{\cdot}565$

(iv) $I = -1540{\cdot}70 + \underset{(0{\cdot}3282)}{0{\cdot}49757\ (V-V_{-1})} + \underset{(0{\cdot}0274)}{0{\cdot}13971K}$

$R^2 = 0{\cdot}726$; $d = 1{\cdot}202$

(v) $Td = 85{\cdot}75 + \underset{(0{\cdot}0019)}{0{\cdot}02512\ V}$

$R^2 = 0{\cdot}746$; $d = 1{\cdot}276$

(vi) $Ti = -453{\cdot}96 + \underset{(0{\cdot}0113)}{0{\cdot}20705\ V}$

$R^2 = 0{\cdot}968$; $d = 1{\cdot}465$

(vii) $G = 70{\cdot}61 + \underset{(0{\cdot}0100)}{0{\cdot}12837\ V}$

$R^2 = 0{\cdot}937$; $d = 0{\cdot}894$

(viii) $X = 617{\cdot}27 + \underset{(3{\cdot}6428)}{12{\cdot}51076Px/Pd} + \underset{(2{\cdot}4972)}{2{\cdot}01212Er}$

$R^2 = 0{\cdot}657$; $d = 2{\cdot}459$

(ix) $Mr = -676{\cdot}76 \underset{(0{\cdot}0628)}{-0{\cdot}00568C} \underset{(1{\cdot}1937)}{-1{\cdot}04092Rp_{-1}} + \underset{(3{\cdot}4764)}{1{\cdot}11160Pm/Pd} + \underset{(1{\cdot}3363)}{2{\cdot}10682Fr} - \underset{(61{\cdot}19)}{30{\cdot}82D}$

$R^2 = 0{\cdot}489$; $d = 3{\cdot}430$

(x) $Mc = 479{\cdot}98 - \underset{(0{\cdot}0700)}{0{\cdot}06639C} + \underset{(4{\cdot}1640)}{1{\cdot}39937Pmc/Pd} + \underset{(2{\cdot}0385)}{0{\cdot}94575Fr} + \underset{(88{\cdot}24)}{139{\cdot}27D}$

$R^2 = 0{\cdot}540$; $d = 2{\cdot}142$

(xi) $Mt = -337{\cdot}49 + \underset{(0{\cdot}0153)}{0{\cdot}03010V} - \underset{(3{\cdot}2609)}{6{\cdot}33273Pmt/Pd} + \underset{(1{\cdot}0849)}{2{\cdot}50852Fr} - \underset{(51{\cdot}62)}{25{\cdot}85D}$

$R^2 = 0{\cdot}729$; $d = 3{\cdot}078$

(xii) $$Mv = \underset{}{182{\cdot}05} + \underset{(0{\cdot}0166)}{0{\cdot}05136V} - \underset{(0{\cdot}5067)}{2{\cdot}6661Pmv/Pd} + \underset{(0{\cdot}8310)}{0{\cdot}07359Fr} - \underset{(39{\cdot}35)}{96{\cdot}52D}$$

$$R^2 = 0{\cdot}855 ; d = 1{\cdot}912$$

(xiii) $$Ms = \underset{}{595{\cdot}07} + \underset{(0{\cdot}0122)}{0{\cdot}01055V} - \underset{(0{\cdot}9237)}{1{\cdot}78034Pm/Pd} - \underset{(0{\cdot}3621)}{0{\cdot}75810Fr} + \underset{(18{\cdot}24)}{69{\cdot}50D}$$

$$R^2 = 0{\cdot}800 ; d = 2{\cdot}161$$

R^2 = Coefficient of determination; d = Durbin–Watson statistic.

Note; The values of Durbin–Watson statistic are given in the OLS results as a measure of serial correlation. These values indicate the lack of serial correlation, except in equation (ii).

APPENDIX 2

Reduced Form Matrix

	Constant	Cs_{-1}	V_{-1}	K	Px/Pd	Er	Pm/Pd	Pmc/Pd	Pmt/Pd	Pmv/Pd	Rp_{-1}	Fr	Mu	D
Cf	5236·29	−4·63920	2·51070	−0·73891	−66·32960	−10·66790	− 9·18120	−2·69730	−32·96930	−14·23500	− 5·80574	22·67661	5·30181	1347·17
Ch	296·02	−0·22191	0·12010	−0 03534	− 3·17277	− 0·51028	− 0·43917	−0·12902	− 1·55703	− 0·68093	− 0·27771	1·08470	0·25360	64·44
Cs	177·89	0·81852	0·02029	−0·00597	− 0·53616	− 0·08623	− 0·07421	−0·02180	− 0·26650	− 0 11507	− 0·04693	0·18330	0 04286	10·89
I	2759·54	−3·95509	1·66693	−0·49058	−56·54859	− 9·09478	− 7·82737	−2·29959	−28·10759	−12·13628	− 4·94962	19·33270	4·52000	1142·51
Ti	1420·23	−1·73659	0·93984	−0·27660	−24 82927	− 3·99332	− 3·43683	−0·00970	−12·34144	− 5·32878	− 2·17327	8·48857	1·98463	504·29
Td	313·19	−0·21280	0·11517	−0·03389	− 3·04261	− 0·48935	− 0·42115	−0·12373	− 1·51233	− 0 65299	− 0·26631	1·04020	0·24320	61·79
G	1232·55	−1·07613	0·58240	−0·17140	−15·38619	− 2·47458	− 2·12973	−0·62569	− 7·64774	− 3·30214	− 1·34673	5·26020	1·22984	313·37
M	571·36	−0·03901	0·02558	−0·00753	− 0·67587	− 0·10870	0·32990	−0·02748	− 0·33594	− 0·14509	− 1·15421	2·21742	0·05402	16·48
Mc	535·32	0·12876	−0 84430	0·02485	2·23072	0·35877	0·30877	−0·41805	1·10879	0·47875	0·19525	−0·32065	0·17830	101·23
Mt	− 84·69	− 0·24554	0·13289	−0·03911	− 3·51070	− 0·56463	− 0·48595	−0·14277	− 7·96350	− 0·75346	− 0·30729	3·72711	0·28061	44·89
Mv	645·98	−0·43471	0·23526	−0·06924	− 6·21538	− 0·99963	− 0·86032	−0·25275	− 3·08937	− 4·01894	− 0·54402	2·20772	0·49680	222 52
Ms	740·33	− 0·13146	0·07114	−0·02094	− 1 87954	− 0·30229	− 2·41553	−0·07643	− 0·93423	− 0·40338	− 0·16451	−0·11833	0·15023	106·07
X	617·27	0 00000	0 00000	0.00000	12·510 76	2·01217	0·00000	0·00000	0·00000	0·00000	0·00000	0·00000	0·00000	000·00
V	9050·22	− 8·35192	4·52000	−1·33025	−119·41166	−19·20512	−16·52818	− 4·85597	−59 35382	−25·62766	−10·45194	40·82419	9·54477	2425·27
F	648·38	−0·72197	0·38045	−0·11197	−22·56164	− 3·62861	− 3·12295	− 0·91749	−11·21431	− 4·84211	− 1·97479	7·71332	1·80338	458·23
Y	7316·79	−6·40240	3·46499	−1·01976	−91·52978	−14·72245	−12·67080	−3·72254	−45·50004	−19·64598	− 8·01235	31·29542	7·31689	1859·15
S	2111·16	−3·23311	1·28648	−0·37862	−33·98695	− 5·46616	− 4·70442	−1·38211	−16·89328	− 7·29417	− 2·97483	11·61938	2·71662	690·28

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GRANT ELEMENT IN EXTERNAL ASSISTANCE THE CASE OF SRI LANKA*

W. HETTIARACHCHI

Foreign aid enables a country to procure goods and services from abroad without having to pay for them immediately out of current exchange earnings. While the gross foreign aid inflow into a country over a period of time indicates the extent to which it has depended on this source of finance to procure resources from abroad, the net resource transfer involved would depend on the terms on which such assistance has been provided. The terms of foreign aid from different sources vary, albeit, very widely. It can take the form of outright grants with no repayment obligations, loans with varying repayment terms, loans on which repayment begins before disbursement is completed, loans repayable in local currency, loans with virtually no interest charge and loans of a strictly commercial type. In as much as the resource sacrifice to the donor as between different types of aid is not equal, so, too, the net resource gain to the recipient differs. A foreign aid loan, for instance, involves a 'subsidy' or 'grant element' only to the extent that it is given on more favourable terms than could be obtained from commercial sources. The moral of foreign aid is that resources are provided on terms that are subsidised by the donors so that they may become somewhat easier than commercial terms. The donor sacrifice or gain to the recipient, if any, is dependent on the margin of 'softness' contained in nominal assistance[1]. Indeed, some writers have rightly defined aid as 'public grants and subsidy elements in public loans'[2].

Sri Lanka has been a recipient of foreign aid from different sources, including international institutions. The terms of assistance have differed from source to source, loan to loan and even purpose to purpose. Consequently, the gross or the nominal aid inflow is not an accurate measure of the net resource gain[3] to the economy. While a

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* The author wishes to thank Dr. L. E N. Fernando who kindly commented on the paper.

1 The donor's sacrifice and recipient's benefit could, however, be different in most cases. For a discussion on this issue, see Schmidt, W.E. "The Economics of Charity: Loans versus Grants", *Journal of Political Economy*, Vol. 72, August, 1964, pp. 387-95.

2 Little, I.M.D. and Clifford, J.M. *International Aid*, George Allen and Unwin, 1965, p. 82.

3 The 'net resource gain' is defined as gross resource transfer minus costs, if any, and does not take into account the income generating capacity of ditferent resources.

part of the assistance came in the form of outright grants, the large bulk represented loans with different interest rates, repayment and grace periods. Hence, it is important to make a distinction between 'aid' or 'grant' element and total assistance. The purpose of this paper is to estimate the grant element in foreign aid received by Sri Lanka during the period 1950-1969. The first part of the paper will explain the concept of grant element. This will be followed, in the second part, by a review of the terms of assistance received by Sri Lanka. Part three will be concerned with the computation of the grant element. The final section will summarise the main issues and draw together our findings.

I

The Concept of Grant Element

The simplest definition of grant element is the difference between the nominal value of a financial flow and the present value of the stream of repayments (amortization and interest) to which the financial flow will give rise, discounted at a rate which represents the opportunity cost of capital. Thus, the grant element of a foreign aid flow is essentially a function of the concessional character of the terms on which it is given. The grant element of a grant is 100 per cent, since there are no service payments, while that of a loan depends on the period of repayment, grace period and the rate of interest. In calculating the grant element of loans, a standard rate of interest – or, more appropriately, a rate of discount – is used which is assumed to represent approximately the market rate of interest. It may be mentioned that this rate of discount is crucial in determining the grant element of a loan. To put it differently, there is a positive correlation between the grant element and the rate of discount, i.e. the higher the discount rate, the higher would be the grant element and vice-versa. The grant element is always zero when the rate of interest is the same as the rate of discount and it is negative when the rate of discount is lower than the rate of interest.

The choice of an appropriate rate of discount presents formidable difficulties. First of all, it depends on whether one is interested in estimating the donor's sacrifice or the recipient's benefit. In the former case, the rate adopted should measure the opportunity cost of the funds involved to the donor country. In the latter, it should represent the rate at which the less developed countries (LDCs) could

borrow in the free-market. One relevant rate might be the interest rate prevailing in international capital markets for bonds issued by the respective LDCs. Some LDCs could raise funds in international capital markets on the strength of their own credit at reasonable rates, but for a large majority of them there is virtually no access to capital markets at the prevailing rates in view of their poor credit worthiness. For a country which has not borrowed in world capital markets for some time and has been practising foreign exchange controls over long periods, such as in the case of Sri Lanka, it is difficult to determine the terms on which it could borrow, but there is little doubt that the terms would be very stiff.

During the mid-sixties, several writers attempted to calculate the grant element in external assistance by measuring the difference between the actual terms and theoretical market costs. Among them the pioneering work of John A. Pincus is outstanding[1]. The method nsed by Pincus consists of allocating a 100 per cent grant component to grants and loans reimbursable in currency of the recipient. Similarly, P.L. 480 supplies[2] valued at world market prices are given 100 per cent grant value, in respect of counterpart funds granted to the recipient and 80 per cent grant value in respect of the counterpart funds loaned[3]. The loans repayable in foreign currency are

1 Pincus, John A., "The Cost of Foreign Aid', *The Review of Economics and Statistics*, No. 4, November, 1963, pp. 360-67; *Economic Aid and International Cost Sharing*, The John Hopkins Press, Baltimore, 1965, Chapter 5; *Cost and Benefits of Aid: A Quantitative Approach*, UNCTAD, TD/B/C3/38, 1967; *Cost and benefits of aid: an empirical* Analysis, UNCTAD, TD/7 Supp. 10, 1967 *Trade, Aid and Development*, McGraw-Hill, New York, 1967, pp. 308-17.

2 Under the U S. Agricultural Trade Development and Assistance Act of 1954 (Public Law 480) food grains and other agricultural commodities are supplied under four main Titles - Title I, II, III and IV. One of the chief attractions of P.L. 480 programme for the recipient countries has been the provision of agricultural commodities in exchange for local currency. Local currency accruals which remain the property of the United States government are disbursed for a number of purposes, viz. provision of development loans and grants to the recipient country, U.S. expenditure in the host country, and sometimes even outside that country, loans to private sector (both U.S. and local) firms active in the host country, as well as for meeting 'common defence' costs. Since 1966, however, a progressively large proportion of food aid has been given as loans which are ultimately repayable in dollars, under the provisions of new legislation on P.L. 480 introduced in 1966. The transition from local currency to concessional dollar sales has been due to the rapid disappearance of agricultural surpluses in U.S.A.

3 Pincus's line of argument is that Title I loans are basically grants as the repayments cannot be used to buy other currencies or to export the recipient's products. However, he does not rule out the possibility that some of the accumulated sums may eventually become convertible. *(Economic Aid and International Cost Sharing, p. 126)*

valued on the basis of the difference between the amounts given and present value of reimbursements, discounted by a hypothetical rate of interest which represents the market borrowing rate of the country[1].

The grant element concept is significant in determining the sacrifice involved in providing aid or the 'aid burden'[2] which depends upon the quantum of (gross) aid given as well as the grant element contained in it. This poses important questions on the aid policies of individual donor countries in discharging their aid obligations. The United Nations has recommended that all donors provide official development assistance (ODA) equal to 0·7 per cent of gross national product (GNP) during the second development decade. Whether the target of 0·7 per cent of G.N.P. refers to the 'aid burden' or the nominal aid flow is crucial in determining the sacrifice falling on donor countries in meeting the U.N. aid norm. If the latter is the case, a donor country can discharge its aid obligation with minimum of sacrifice (low aid burden) by providing assistance on fairly restrictive terms with a low grant element In the former case, for a donor who provides assistance on restrictive terms (low grant element) a significantly larger resource transfer than 0·7 per cent of G.N.P. is required to conform to the U.N. aid norm. The opposite is the case for those whose assistance comes by way of outright grants or interest free loans with liberal amortization terms.

Another significant feature of the grant element concept is that it provides flexibility of manoeuvre to individual donors in meeting their aid obligations through deliberate variations in the level of gross financial flows, with offsetting variations of terms on which aid is given, in order to maintain constant the real sacrifice involved in the provision of aid. Thus, in a system where aid targets are expressed in terms of a particular aid burden the individual donors can decide whether to provide a large volume of aid on fairly restrictive terms or a small volume on highly concessional terms depending on particular circumstances facing them. This flexibility enables the aid donors to synchronise their international obligations with national interests and reduce the tendency on the part of donors with balance of payments deficits to cut back on their aid programmes.

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1 Pincus has used 10 per cent as the approximate rate at which the LDCs could borrow in the free-market. (Ibid.. p. 125)

2 Aid burden = gross aid flow x grant element.

II

Terms of Foreign Aid

The two principal forms of aid are grants and loans; loans could be further sub-divided into 'soft' and 'hard' loans, depending on their terms. Grants have a marked advantage for the recipient as they do not give rise to debt servicing obligations. Therefore, other things being equal, a grant can yield to the recipient country a much larger transfer of resources than an equal loan.[1] However, despite recommendations by the International Organizations that more aid should be given in the form of grants[2], there has been an increasing tendency in the world economy for the share of grants in total aid to decline over the years. For instance, the share of grants in official development assistance provided by the O.E.C.D. member countries has declined from 87 per cent in 1961 to 63 per cent by 1968[3].

Apart from the belief that the burden on the donor of a resource transfer is heavier in the case of grant aid than loan aid[4], there have been other factors which contributed to the reduction in the share of aid given in the form of grants. One such issue is the factor price distortion in less developed countries (LDCs) leading to the adoption of inappropriate production techniques, misallocation of resources and building-up of investment structures which have no relation to the country's factor endowment. The most commonly alleged distortion is the use of capital intensive techniques of production in a capital scare and labour abundant economy. Some donor countries take the stand that to provide aid in the form of grants is to lend support for this type of distortion, which would in the long run be to the

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1 However, some do argue that soft loans are preferable to grants from the view-point of economic development in the recipient country. (Singer. H.W., "Trends in Economic Thought on Underdevelopment", *Social Research*, Winter 1961, pp. 409-10; Pearson. Lester, B., et.al., *Partners in Development; Report of the Commission on International Development*, New York, Praeger, 1969, pp. 162-63).

2 O.E.C.D., *Development Assistance Efforts and Policies*, 1965 Review, pp. 117-22; United Nations, Resolution No. 2170 (xxi) of the General Assembly; UNCTAD, *Trade and Development*, Final Act, Annex A. IV.4.

3 Partners in Development, op. cit., p. 140; Also see UNCTAD, *The Terms of Financial flows and problems of debt servicing*, TD/7/Supp. 3 of 1967, pp. 8-9; Abbot, George C., "Aid and Indebtedness-A Proposal", *National Westminister Bank, Quarterly Review*, May, 1972. p.52.

4 The general notion that grants represent a heavier burden on the donor country than loans of any kind is not necessarily true in all circumstances. (See. Schmidt, Wilson, *Loc. cit.*, p. 389).

detriment of the recipient. On the other hand, if the recipient country is expected to pay an economic price for such capital, they maintain, it would make them more rational in the use of capital, and ultimately guide them to adopt more appropriate production techniques. It has also been argued that providing aid in the form of grants, with no obligation on the part of the recipient to generate sufficient savings and foreign exchange to facilitate debt servicing, lead to channeling of aid to less immediately productive and hence to low priority investments.

While this type of arguments have been frequently advanced, it is doubtful whether they have much practical value. Distortions such as the adoption of inappropriate production techniques are more due to such factors as the continued dependence on technology developed in advanced countries, which may not be suitable for the particular circumstances of LDCs. Misallocation of resources and wastage are commonly found even in countries which have received very little or no grant aid. Furthermore, the necessity to service the debt will not necessarily result in more economical use of aid resources[1] and the countries which waste resources through bad planning do so regardless of the existence or otherwise of service obligations[2]. The basic reason for the decline in the share of grant aid appear to be a lack of will on the part of donor countries to effect a larger resource transfer for the benefit of LDCs.

The sources, magnitudes and forms of aid received by Sri Lanka during the period 1950 - 1969 is given in Table I. Of the total aid received during this period, amounting to Rs. 1,895 million, Rs. 497 million or 26 per cent represented grants, while the balance amounting to Rs. 1,398 million or 74 per cent represented loans. Majority of the donors have combined their aid in the form of grants and loans. Of these both Canada and the People's Republic of China have provided over 50 per cent of their aid in the form of grants. A number of donors (I.B.R.D., U.S.S.R., G.D.R., India, Yugoslavia and Poland) have provided their aid wholly in the form of loans, while assistance from Australia, United Nations, New Zealand and Sweden came entirely in the form of grants.

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1 Schmidt, W.E., *Loc. cit.*, p. 388

2 Little and Clifford, *Op: cit.*, p. 203

Table 1

Sources, Magnitudes and forms of aid Received by Sri Lanka, 1950-1969*

Rank	Source	Total	Grants	Loans	Grants as % of Total
1	U.S.A:	417	84	333	20·1
2	Canada	255	180	75	70·6
3	U K.	225	18	207	8·0
4	I.B.R D.	178	–	178	—
5	F.R.G.	170	15	155	8·8
6	People's Republic of China	126	70	56	55·6
7	Japan	101	2	99	2·0
8	U.S.S R.	95	–	95	—
9	G D.R.	89	–	89	—
10	Australia	69	69	–	100·0
11	France	60	5	55	8·3
12	India	37	–	37	—
13	United Nations	30	30	–	100·0
14	New Zealand	12	12	–	100·0
15	Yugoslavia	9	–	9	—
16	Sweden	9	9	–	100·0
17	Poland	6	–	6	—
18	Others	7	3	4	42·9
	Total	1,895	497	1,398	26·2

* Upto 30th September, 1969.

Source: Ministry of Planning and Economic Affairs – *White Papers on "Foreign Aid", "Economic Indicators"*; Ministry of Finance, *"Foreign Economic Aid. A Review from 1950 - 62", "Foreign Economic Assistance, A review from 1950 - 64"*, and *Accounts of the Government of Ceylon*, Part I; Central Bank of Ceylon, *Annual Reports* and unpublished records.

Table 2
Shares of Grants and Loans in Total Aid, 1950–1969
A Classification by Source

Rs. Million

Source	Total Aid	Grants		Loans	
		Amount	% Share	Amount	% Share
Multilateral Aid	231·7	32·1	15	181·6	85
Bilateral Aid of which:	1,681·5	465·3	28	1,216·3	72
Western*	1,297·9	395·5	30	923·7	70
Sino–Soviet**	325·8	70·0	21	255·8	79
Total	1,895·0	497·2	26	1,397·9	74

Source: Table I

*Includes U.S.A., U.K., Australia, New Zealand, Canada, F.R.G., France, Japan, Sweden and India.

**Includes U.S.S.R., G.D.R., People's Republic of China, Poland and Yugoslavia.

A broader classification by source of the shares of grants and loans in the total foreign aid received by Sri Lanka during the period under review is presented in Table 2. The share of grants in multilateral aid (15 per cent) had been significantly lower than that of bilateral aid (28 per cent). This is explained by the fact that multilateral agencies depend on capital markets for their funds, and the bulk of their aid is in turn given in the form of loans. In the case of bilateral aid, the share of grants in total aid provided by the Western group of countries has been higher than that of the Sino-Soviet group. This is due to the fact that the members of the latter group provide, as a rule, only loan aid, the only exception being the People's Republic of China.

Table 3
Inflow of Foreign Aid 1950–1969*
A Classification by Periods

Rs. Million

	1950 - 1955	1955 – 1960	1960 – 1965	1965 – 1969	1950 – 1969
Loans	12·9	114·0	300·5	970·4	1,397·8
Grants	52·9	141·3	157·6	145·4	497·3
Total	65·8	255·3	485·1	1,115·8	1,895·1
Grants as % of total aid	80·3	55·3	34·5	13·0	26·3

Source: See Table 1

* On a financial year basis

In conformity to global experience, the share of grants in total aid received by Sri Lanka has declined progressively over the years. While the volume of aid received during the period 1950–1955 remained small, an overwhelmingly large proportion of that aid came in the form of grants. Thereafter, during each successive period, although the volume of aid increased, the share of grants in it declined. Consequently, the share of grants declined progressively from 81 per cent in 1950–1955 to as low as 13 per cent during 1965–1969. The decline in the share of grants in total aid receipts is an important factor in determining the grant element in overall assistance received by Sri Lanka.

Loans

As indicated earlier, Rs. 1,398 million or 74 per cent of all economic aid received during the period under review consisted of loans. The major part of this represented loans repayable in convertible currency while a smaller proportion was to be serviced in local currency and the export of Sri Lanka products. Of the total loans, Rs. 612 million represented project loans and Rs. 787 million commodity loans. For purposes of easy comparison the terms of project loans and commodity loans are analysed seperately.

Terms of Project Aid Loans

Table 4

Terms of Project Aid Loans Negotiated by Sri Lanka, 1950–1969

Weighted Averages

Source	Amount Contracted* (as per agreements) Rs. Mn.	Rate of Interest %	Grace Period (Years)	Repayment Period (Years)	Total Amortization Period (Years)
Multilateral ..	530	5·1	4·8	21·7	26·5
Bilateral	858	3·0	4·0	12·2	16·2
of which					
Western Bloc	334	4·3	3·9	16·8	20·7
Sino-Soviet Bloc .	524	2·2	4·0	9·3	13·3
All Sources ..	1,388	3·8	4·3	15·9	20·2

Source: See Table 1

* This differs from amounts actually utilised as shown in Table 2

Table 4 provides a summary of the terms of project aid loans negotiated by Sri Lanka during the period 1950–1969. On average, project loans contracted by Sri Lanka carried an interest charge of 3·8 per cent and an amortization period of 20 years, which included a grace period of 4 years. The weighted average rate of interest on multilateral loans has been higher than on bilateral loans, whereas both grace and repayment periods have been longer for multilateral loans. In the case of bilateral project loans, the weighted average rate of interest on Western loans had been nearly double that of the Sino–Soviet group loans. The weighted average amortization period, however, had been considerably longer in the case of Western loans than those of the Sino–Soviet bloc. The higher interest charge on multilateral loans is explained by the need for multilateral institutions to depend on international capital markets for the bulk of their loan funds. The largest source of multilateral aid to Sri Lanka had been the I. B. R. D. which approved altogether 7 loans for Sri Lanka during the period under review[1]. The rate of interest on I. B. R. D. loans[2] increased progressively from 4¾ per cent for the first Hydro-electric project in 1954 to 6½ per cent in 1968, reflecting a gradual hardening of the terms of I. B. R. D. finance. This was no doubt due to the upward movement in interest rates in the world capital markets. The amortization terms on I. B. R. D. loans (23·5 years) appear to occupy a middle place between the hard and soft ends of the loan spectrum.

Of the Western bloc countries which offered project aid to Sri Lanka, three–Australia, New Zealand and Sweden–offered the whole of their project aid in the form of outright grants, while others–Canada, Federal Republic of Germany, France, United Kingdom and the United States–combined their project aid both in the form of loans as well as grants. Of these, Cananda and the United States provided a major share of their project aid in the form of grants. On the whole, approximately 56 per cent of Western project aid came in the form of grants[3].

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1 Of these only three had been utilised by the end of September, 1969. Disbursements on others, however, commenced thereafter.

2 The rate of interest includes a statutory commission of one per cent.

3 The bulk of this aid came in the form of food aid. They were nonetheless meant for projects, in the sense that counterpart funds arising from the sale of food stuffs were allocated to various development projects. Such aid is classified as project aid in this study, as is indeed the case in Sri Lanka's official documents.

Table 5

The Weighted Average Terms of Western Group Project Loans as per Agreements

Source	Rate of Interest (per cent)	Grace Period (Years)	Repayment Period (Years)	Total Amortization Period (Years)
Canada ..	4·9	4·3	17·1	21·4
Denmark ..	—	7·0	18·0	25·0
Federal Republic of Germany	4·1	4·9	14·7	19·6
France ..	4·5	3·0	5·0	8·0
United Kingdom ..	4·9	1·3	4·9	6·2
United States ..	4·2	3·8	22·9	26·7
All Countries ..	4·3	3·9	16·8	20·7

Source: See Table 1

There has been a considerable heterogenity in the terms of project loans offered by the Western group of countries. They varied from interest free loans with a 50 year amortization period (including a 10 year grace period) at the long end of the spectrum, to loans at 5 per cent interest together with amortization periods as short as 5 years, at the short end. This heterogenity of terms is, however, largely concealed when considered on the basis of weighted averages. For instance, as is seen from Table 5, there is a remarkable uniformity in the rate of interest charged by the different donors in this group.

The facility of servicing a loan in domestic currency, rather than in foreign currency, affords a considerable advantage to the recipient. The magnitude of aid offered to Sri Lanka on this basis has however been rather small–the United States of America being the only donor providing this facility. The United States, of course, provided two types of project loans with this facility–loans in U. S. dollars and loans in Sri Lanka rupees. The latter arose from the disposal of rupee proceeds of P. L. 480–Title I supplies. In the case of dollar loans provided by the Development Loan Fund, Sri Lanka enjoyed the facility of effecting service payments in local currency. Similarly in the case of rupee loans administered by the International Corporation Administration. The fact that the bulk of the project loans given by the United States could be serviced in domestic currency seemed to make their terms considerably more attractive than those of other donor countries.

Unlike in the case of Western countries, there had been a remarkable homogenity in the terms of aid offered by the members of the Sino-Soviet group. All project aid provided by this group, except those from the People's Republic of China, came exclusively in the form of loans. The people's Republic of China combined her aid both in the form of loans and grants, and the loans were free of an interest charge.

Table 6

Weighted Average Terms of Sino-Soviet Bloc Project Loans as Per Agreements

Source	Rate of Interest (per cent)	Grace Period (Years)	Repayment Period (Years)	Total Amortization Period (Years)
People's Republic of China	—	3	10	13
German Democratic Republic	2½	4	9	13
Poland	2½	—	8	8
U. S. S. R.	2½	8	12	20
Yugoslavia	3	2	5	7
All Countries	2·2	4	9	13

Source: See Table 1

The weighted average terms of Sino-Soviet loans indicate that their interest charges have been considerably lower than those of either the Western bloc or the multilateral institutions. But the amortization periods on these loans have been comparatively short. If the People's Republic of China is left out, the terms of Soviet bloc aid reflects the basic character behind the Soviet bloc aid policy. While this group was prepared to provide credit at low interest rates, they nevertheless ensured a return flow of resources with minimum delay[1]. This was achieved by abstaining from giving aid in the form of grants, on the

1 The rationale behind the terms of Soviet bloc aid has been summarised as follows:· · 'the supply of capital equipment helps to accelerate the development of the benefiting country, while the sale provides a market for the supplying country. By charging a reasonable rate of interest the donor avoids the drawbacks of a temporary drain on its national income' (Vassilev, V., *Policy in the Soviet Bloc on Aid to Developing Countries*, O.E. C. D., Paris, 1969, p. 75).

one hand, and insisting on rather short amortization periods for loans, on the other. Most countries also specified that the repayments should be made in sterling[1].

Terms of Commodity Aid

The flow of commodity aid to Sri Lanka began only after the formation of the Aid-Ceylon Club whose membership was wholly confined to members of the Western bloc, together with important multilateral institutions. As in the case of project aid, the terms of commodity aid from the Western bloc countries contained a considerable degree of heterogenity. All commodity aid from Australia and 65 per cent of that from Canada consisted of outright grants. Nonetheless, the share of grants in total commodity aid has been considerably lower than in that of project aid, and as much as 90 per cent of commodity aid came in the form of loans. The terms of loans varied between interest free loans with an amortization period of 50 years (including a grace period of 10 years) to loans at 6 per cent interest and a 5½ year amortization period. On average, commodity aid loans contracted by Sri Lanka during the period under review were subject to a 3 per cent interest charge and enjoyed an amortization period of 19 years, which included a grace period of 3 years.

Table 7
Weighted Average Terms of Commodity Loans As Per Agreements

Source	Rate of Interest (per cent)	Grace Period (Years)	Repayment Period (Years)	Total Amortization Period (Years)
Canada ..	—	10·0	40	50
Denmark ..	—	7·0	18	25
Federal Republic of Germany	2·9	7·0	15	23
France ..	5·6	1·0	7	8
Italy ..	4·5	2·0	12	14
Japan ..	5·3	3·7	9	12
United Kingdom ..	—	3·0	22	25
United States ..	2·8	2·6	19	22
India ..	4·7	1·0	8	9
All Countries ..	3·0	3·2	16	19

Source: See Table 1

1 This appears to be in sharp contrast to the experience in India, where loans from U. S. S. R. and East European countries were repayable in Indian currency. (Sharma, R. K., "Grant Element in External Assistance to India", *The Indian Economic Journal*, October—December, 1973, p. 131)

The Aid-Ceylon Club, formed in 1965, consisted of countries who were also members of the Development Assistance Committee (D. A. C.) of the O. E. C. D. It is interesting to examine whether the terms of assistance offered to Sri Lanka by these countries conform to the norms set in 1965 by the D. A. C. These were that by the year 1968, 70 per cent of the resources transferred to developing countries should be in the form of grants and grant-like contributions, or that the terms should satisfy the following conditions: (a) Grants and loans bearing an interest rate of 3 per cent or less should make up at least 81 per cent of total commitments, (b) Grants and loans with a maturity of 25 years or more should make up at least 82 per cent of total commitments, (c) The weighted average grace period for loan commitments should be at least 7 years[1].

Table 8

Terms of Aid Extended by The Aid Consortium Who Are Members of the O. E. C. D. Compared with D.A.C. Norms and Achievements

	Share of grants and grant like contributions %	Share of grants and loans with interest rates of less than 3 per cent %	Shares of grants and loans with a maturity of 25 years or more %	Weighted average grace period for loan commitments (years)
D. A. C. Norms ..	70·0	81·0	82·0	7·0
D. A. C. Achievements (Average 1965 – 69) ..	56·4	80·5	76·1	5·6
Sri Lanka's Performance* (Average 1965 – 69) ..	12·1	67·8	53·6	3·6

Source: Ministry of Planning & Economic Affairs *Foreign Aid*, 1969, and *Economic Indicators* OECD, *Development Assistance Efforts and Policies*, Annual, 1965—70.

* Average for five aid programmes. This excludes aid from India which is not a member of the OECD. Also excluded are the International Institutions: I B. R. D., I. D. A. and A. D. B.

1 O E. C. D, *Development Assistance Efforts and Policies—1965 Review*, Annex B, pp. 117—120.

The effectiveness of commodity and project aid provided by the members of the Aid Ceylon Club in respect of these norms is examined in Table-8. In terms of the first criterion, the terms have fallen far short of D. A. C. norms. The second criterion has also not been satisfied in many respects. However, here the terms with respect to the rate of interest have, on average, been very nearly satisfied, although those relating to maturity and the grace periods have not. On the whole, the terms of aid to Sri Lanka from the O. E. C. D. member countries during the period 1965-69, have failed to satisfy the norms set by D. A. C. in 1965, by a considerable margin. Also, the aid terms offered to Sri Lanka had been somewhat inferior to average D. A. C. terms during the period. Of course, in the case of some individual donor countries the conditions have been fully met.

III

Grant Element in External Assistance, 1965-1969

We have estimated the grant element in foreign aid received by Sri Lanka during the period 1950-1969 using the Pincus approach, with suitable modifications to conform to the line of argument advanced in this paper. All grants, irrespective of the form in which they were received, are allocated 100 per cent grant value. Loans in local currency out of (Title I) counterpart funds and foreign currency loans repayable in local currency are allocated 80 per cent grant value. In the case of other loans, the grant element is estimated by relating the concessional value of each to its face value. The concessional value (CV) is derived by deducting the discounted value of debt service payments from the face value (F) of each loan. In deriving discounted value, interest and amortization streams are discounted, loan by loan, for each repayment year at a 10 per cent discount rate. The concessional value is expressed in the formula :

$$CV = F - \sum_{t=1}^{T} Pt/(1 - r)^t$$

where Pt is the service payment (both principal and interest) in year t, T is the maturity (including the grace period) of the loan and r is the the rate of discount. CV expressed as a percentage of the face value gives the grant element.

Our computation showed that the grant element of total assistance received by Sri Lanka amounted to Rs. 1182·7 million or 62·4 per cent of the nominal aid inflow. This consisted of Rs. 497·6 million of outright grants and Rs. 685·1 million representing the difference between loan aid and the discounted present value of service payments. Grant element in loan aid amounted to only 49·0 per cent of the nominal value. The computation also shows that the terms of Western bloc aid have been the most attractive, generating, on average, a grant element of 65·8 per cent of their nominal contribution, while multilateral aid seems to have contained the lowest grant element. If we consider individual donors, some have been relatively generous in their aid terms, while the assistance provided by some others contained very little concessionary element. Aid provided by United Nations, Australia, New Zealand and Sweden, though small in magnitude, had the maximum grant element (100 per cent), as their aid came entirely in the form of grants. Of those who combined their aid with grants and loans, aid from Canada and People's Republic of China were the most advantageous with a relatively high grant element. Aid which involved least burden on the donor, came from France, Japan, Poland and Yugoslavia, which on average, contained grant elements of less than 30 per cent.

In Table 10 we have arranged Sri Lanka's aid donors in order of the grant elements contained in their aid. On the basis of the grant element, i. e. the net resource contribution, the rankings of aid donors undergo some change, from the rankings obtained according to the nominal contributions. While the three main aid donors, viz. U.S.A., Canada and U. K. maintain their relative positions, in that order, both I. B. R. D. and Japan suffer declines in their relative positions. On the other hand, People's Republic of China and Australia receive considerably high rankings, reflecting the extremely favourable terms contained in their aid. Also, as the grant element in total aid differs as among the donors, the relative importance of donors within the aggregate grant element show marked differences compared with their importance in total aid. For instance, Cananda contributed only 13·5 per cent of total aid received during the period under review, but has provided 18·7 per cent in terms of grant element. On the other hand, Japan and France whose shares amounted to 5·3 per cent and 3·2 per cent on the basis of nominal aid flows, have contributed only 2·2 per cent and 1·4 per cent, respectively, on the basis of grant element.

Table 9
Grant Element in External Aid

(Rs. Million)

	Total Aid	Grants	Loans	Grant Element in Loans		Overall Grant Element	
				%	Amount	%	Amount
Multilateral Aid							
I. B. R. D. ..	177.7	—	177.7	47.9	85.2	85.2	47.9
United Nations ..	29.5	29.5	—	—	—	29.5	100.0
Other ..	6.5	2.6	3.9	25.5	1 0	3.6	55.4
Total ..	213.7	32 1	181.6	47.5	86.2	118.3	55.4
Bilateral Aid – Western Bloc							
Australia ..	69.3	69.3	—	—	—	69.3	100.0
Britain ..	225.1	18.6	206.5	62 1	128.3	146.9	65.3
Canada .	255.3	180 4	74.9	53.9	40 4	220 8	86.5
Federal Republic of Germany ..	170 1	15.0	155.1	46 9	72.8	87.8	51.6
France .	59 6	4.7	54.9	6.3	11.5	16 2	27.2
Japan .	101.1	2 5	98.6	24.3	24.0	26.5	26.2
New Zealand ..	12 4	12.4	—	—	—	12.4	100 0
Sweden ..	9.0	9.0	—	—	—	9.0	100.0
U. S. A. ..	417.3	83.6	333.7	58.8	196.3	279.7	67.0
Total ..	1319.1	395.3	923.7	51.2	473.3	868.6	65.8
Sino-Soviet Bloc							
G. D. R. ..	89.4	—	89 4	34.1	30.5	30.5	34.1
People's Repub'ic of China ..	126.3	70.0	56.3	63.4	35.7	105.7	83.7
Poland ..	6.2	—	6.2	24.2	1.5	1.5	24.2
Yugoslavia ..	8.7	—	8.7	27.1	2.4	2 4	27.1
U. S. S. R. ..	95.1	—	95.1	49.5	47.1	47.1	49.5
Total ..	325.8	70.0	255.7	45.8	117.2	187.2	57.5
Other							
India ..	36.8	—	36.8	23.4	8.6	8.6	23.4
Grand Total ..	1895 5	497.6	1397.9	49.0	685.3	1182.7	62 4

Source: Computed from the data obtained from the Public Debt Department of the Central Bank of Ceylon.

Table 10

Ranking of Aid Donors in Terms of the Grant Element

Source	Grant Element			Nominal Contributions		
	Amount Rs Mn.	% Share	Rank	Amount Rs. Mn.	% Share	Rank
U. S. A	280	23·6	1	417	22·0	1
Canada ..	221	18·7	2	255	13·5	2
U. K. ..	147	12·4	3	225	11·9	3
People's Rep. of China ..	106	8·9	4	126	6·6	6
Federal Rep. of Germany ..	88	7·4	5	170	9·0	5
I. B. R. D. ..	85	7·2	6	178	9·4	4
Australia ..	69	5·9	7	69	3·6	10
U. S. S. R. ..	47	4·0	8	95	5·0	8
G. D R. ..	31	2·6	9	89	4·7	9
Japan ..	26	2·2	10	101	5·3	7
France ..	16	1·4	11	60	3·2	11
Other ..	67	5·7	12	110	5·8	12
Total ..	1183	100·0		1895	100·0	

The grant element computation may still fail to measure the net benefit to the economy through aid. It is generally recognised that the nominal aid values overstate the real transfers of resources which have been made in a situation where aid is tied, as the nominal value of tied aid may contain an element of excess costs. In Sri Lanka's case, as the whole of the aid inflow was tied in one form or another, the possibilities were that aid imports would have resulted in considerable excess costs. Therefore, an adjustment is necessary to make allowance for the price difference between the tied imports and their world market prices. An appropriate adjustment is, however, ruled out owing to the lack of information regarding the excess cost of foreign aid imports.

Secondly, the computation is based on the assumption of instant disbursement, i. e. all loans are assumed to have accrued to Sri Lanka during the year when the disbursements commenced. In many cases, however, the loans (mainly project) were disbursed over a number of years. Hence the standard method of relating the discounted value of service payments to the face value of each loan tended to overstate the grant element. A more accurate estimate would be to discount the loan itself and relate the discounted value of each loan to the

discounted value of service payments. The principal objection to discounting the loans would be the donors' claim that once a loan agreement is signed the funds are committed for the benefit of the recipient and the fact that funds are disbursed over a period of years is due partly to low capacity to absorb capital on the part of the recipient and partly to technical limitations in the rate of capital absorption in projects involving long gestation periods. Nevertheless, the assumption of instant disbursement contained in conventional grant element computations tends to overstate the net resource gain to the recipient.

Thirdly, the use of a single rate of discount for discounting all loans which have been contracted over a period of some fifteen years presents yet another conceptual problem. The rate of discount, in effect, represents the opportunity cost of capital to the recipient–the approximate rate at which the recipient could borrow in international capital markets. It is a fact that this rate varies directly with the developments in the international capital markets, as well as changes in the domestic economy. Thus, in a situation where the interest rates in international capital markets have risen sharply and at the same time the recipient's economic situation deteriorated over the years, it would be irrational to use a single rate as representing the opportunity cost of loans contracted during a period of fifteen years. On the other hand, the use of different rates also presents a formidable problem, as it involves a detailed evaluation of international and domestic economic conditions during each year. This leaves one with no alternative but to use a single rate which should as far as possible be representative of the whole period.

IV

Summary and Conclusions

Sri Lanka has been a recipient of foreign aid on varying terms from many different sources. Of the total aid received during the period under review amounting to Rs. 1,895 million, 26 per cent represented grants and 74 per cent loans. In keeping with global trends, the share of grants in total assistance received by Sri Lanka has declined over the years, with increasingly adverse implications on her balance of payments. While a few donors have provided aid entirely in the form of grants, a number of them provided their aid wholly in the form of loans, others have combined their aid both in

the form of loans and grants. The terms of loans varied considerably according to source and purpose. The major part of the loans was repayable in convertible currency while smaller share was to be serviced in local currency. On the whole, the terms of assistance to Sri Lanka appear to be less favourable than those applicable to global aid flows.

The grant element which depends on the concessional nature of the terms on which aid is given, is a more accurate measure of the donor sacrifice and the recipient's gain in the provision of foreign aid. The grant element concept, although not entirely free from defects, is also an important tool for understanding the nature of aid, and for comparing costs and benefits of aid received from different sources. While the total aid inflow to Sri Lanka during the period 1950-1969 was Rs. 1,895 milion, the grant element in it amounted to only Rs. 1,183 million or 62·4 per cent of nominal aid. It is also observed that in accordance with the varying terms, the grant element contained in assistance from different sources have varied considerably. Consequently, in terms of grant element the contributions made by different donors have undergone significant changes as compared with their nominal contribution. When aid donors are arranged according to grant element, the ranking of aid donors in terms of their net contributions also undergo some change.

The paper draws pointed attention to the fact that not all foreign aid is equally valuable to the recipient. From this view-point there is a paramount need for negotiating concessionary terms in respect of all assistance offered to Sri Lanka. Although it is more beneficial for Sri Lanka to obtain more aid from donors whose aid contain a higher grant element (grants and soft loans) and to curtail aid from donors the grant element for whose aid is comparatively low, such a policy appears to be impracticable in the context of current foreign exchange problems. Also, the fact that the bulk of aid available to Sri Lanka is subject to annual commitments by donor countries thereby limiting its supply, reduces the lee-way available for such a discriminatory policy. However, it may be worthwhile for Sri Lanka to explore the possibilities of negotiating more concessionary terms from donors whose past contributions have contained very low grant elements. Such a policy will not only ensure maximum resource gain from annual aid flows but also will mitigate the future burden on Sri Lanka's balance of payments.

UTILISATION RATES OF CAPITAL ASSISTANCE IN SRI LANKA

P. AMARASINGHE

In order to analyse the rate of foreign aid utilisation, it is necessary to clarify the concept of foreign aid. One approach is to define official foreign aid as a transfer of real resources or immediate claims on resources such as foreign exchange from one country to another, which would not have taken place as a result of the operation of market forces or in the absence of specific official action designed to promote the transfer by the donor country.[1] This definition specifically avoids the motivation of the donor in determining what aid is. In fact, it would include government guaranteed private foreign investment, which would not have taken place without the guarantee, even though the government as well as the investor makes a profit on it. This is a ditficult definition to relate to the available evidence. Another view is to define foreign aid in terms of sacrifice, eliminating from aid any transfers of capital that do not involve a sacrifice. Such an approach may be aimed at making a clear dividing line between export promotion and foreign aid.

A more meaningful definition for our purposes is to view foreign aid as the transfer of real or financial resources on better, terms than the going rate on such goods, capital or assets. Suppliers' credits and private foreign investments are excluded from the definition.

Most foreign assistance is designed to finance capital assets, commodities and sources required to fulfil a particular economic or social activity. This type of assistance could be defined as project assistance, although the definition attached to 'program' aid and 'project' aid are very loose. However, a loan tied to a specific project such as a hydro-electric dam project could be defined as a project loan. A loan designed to develop the output of the agricultural sector which specifies the use of the loan for, imports of fertilizer and machinery, production credits to farmers and the hiring of technical advisers, and which involves many subsidiary projects, can be defined as a sectoral program loan. The commodity aid component in program assistance

1 R. F., Mikesell, 'Economics of Foreign Aid'. Alma Publishirg Co. Chicago. 1968. p. 194.

is designed to provide 'balance of payments support' by facilitating the importation of raw materials and other commodities. These loans appear to solve the shortage of foreign exchange and will only provide a temporary solution to the foreign exchange problem. Further, commodity aid could fall within the category of program aid, if the commodities are specifically mentioned under program aid.

Appendix I gives details of foreign assistance that could be defined as project, program, and commodity aid. It is seen from this table that the utilisation rates are comparatively higher in the case of commodity loans than in the case of project loans. The utilisation rate refers to the amount of loan disbursed as a percentage of the total amount of loan pledged. The low utilisation rate of project aid could be attributed to many reasons. The utilisation rate in terms of project aid could have been higher, if these loans were evenly distributed. But Sri Lanka received a higher magnitude of aid in terms of program assistance only towards the end of the decade ending 1970. The slack progress in many projects also contributed to the low rate of utilisation. The utilisation rates of commodity aid have been higher due to the fact that the commodity shortages that were being experienced in the Sri Lanka economy gave rise to the quicker utilisation of commodity aid without any time lag. Appendix I also shows the rates of utilisation of commodity loans. In the case of Japanese Yen credits, for example, the utilisation rates differed from 88 per cent to 100 per cent. The overall rate in regard to the utilisation of commodity loans for the decade 1960–1970 is observed to be 74 per cent.

Capital assistance pledged by many countries to Sri Lanka was used mainly for the construction of specific projects. For instance, the International Bank for Reconstruction and Development (IBRD) loan 653 CE and International Development Association (IDA) credit 174 CE were utilised for the Mahaweli Ganga Development Project, and Asian Development Bank (ADB) loan 16 and 17 CEY loan were earmarked for the Uda Walawe Development Project. Canadian loans were utilised for the hydro-electric power projects and the Katunayake Air Port Project. The Kreditanstalt Fur Weideraufbau loans provided by the Federal Republic of Germany were used for the development of the cement industry, Paper Board Factory, Cast Iron Factory and the provision of port facilities. U.S.S.R. aid was basically geared towards the development of iron and steel works, flour milling and

tyre factories. It is seen that the aid utilisation rate differs from loan to loan, depending on the project for which aid is utilised. The time lag in the commitment of aid to the projects and its utilisation could be a result of delays in decision making with regard to the implementation of the projects and lags in the implementation itself. Further, it could be observed that the lack of feasibility studies, the tied nature of loans, the capital intensity of aid pledged, the lack of available technical knowledge, low absorptive capacity and the slow growth in the other sectors could dampen the rate of aid utilisation specially in developing countries including Sri Lanka. The lack of experience in heavy construction activities and the inadequate availability of the infra structure facilities could also retard the rate of utilisation of project aid.

Assistance committed to Sri Lanka for the decade 1960–1970 amounted to Rs. 2,559 million. The assistance utilised during that period amounted to Rs. 1,682 million. The resulting rate of aid utilisation for that period was 65.7 per cent. This is not a very satisfactory performance when the foreign exchange requirements of the country are considered.

Commitment Charges

Due to the non-utilisation and under-utilisation of loans contracted from ADB and IBRD, Sri Lanka has paid an amount to the total of U.S. $. 596,736.64 upto 30th November, 1974 in terms of the following loans as commitment charges.

Table I

	Commitment Charges US $.
IBRD Loan 653 CE ..	464,826·00
IBRD Loan 569 CE upto 2nd July, 1971 .. (Loan cancelled on 16th February 1971)	77,073·00
ADB Loan 17 CEY ..	24,631·16
ADB Loan 31 CEY ..	30,206·48
Total ..	596,736·64

Commitment charges are paid when the loans are committed by the donor for a specific project, and when the loan is not drawn upon according to the schedule of agreed withdrawls. The rates of commitment charges differ from loan to loan, and they depend on the conditions laid down in the loan agreement.

With regard to commitment charges, for instance, the Loan Regulation No. 1 of 28.11.1967 of Asian Development Bank (ADB) states "A commitment charge at the rate specified in the loan agreement should be payable on the unwithdrawn amount of the loan. Such commitment charge shall accrue from a date 60 days after the loan agreement to the respective dates on which amount shall be withdrawn by the borrower from the loan account or shall be cancelled . . . . ".

The International Bank for Reconstruction and Development Loan Regulation No. 3 of 15th October, 1952 states that 'a commitment charge at the rate specified in the loan agreement shall be payable on the amount of the loan outstanding to the credit of the borrower from time to time in the loan account. Such commitment charge shall accrue from the date specified in the loan agreement'.

Table II shows the utilisation rates of some of the project loans contracted and are currently operating.

Table II

Under-utilisation of Selected Foreign Loans

Loan	Date of Agreement	Amount of Loan	Amount disbursed as at 31·12·73	Closing date of Loan	Percentage Utilised as at 31·12·73
IBRD Loan 653 CE ..	31·1·70 Amended on 20·4·71	14,500,000	392,243	30·6·76	2·70
IDA Credit 174 CE ..	30·1·70 Amended on 20·4·71	14,500,000	10,990,535	30·9·75	75·79
IDA Credit 121 CE ..	19·6·68	2,000,000	1,367,459	31·12·75	68·37
IDA Credit 168 CE ..	13·11·69	2,500,000	993,836	31·12·74	39·75
ADB Loan 16 CEY ..	06·11·69	7,705,000	5,008,207	30·9·75	64·99
ADB Loan 17 CEY ..	06·11·69	885,000	745,357	30·6·75	84·22

Source: Department of Public Debt.

Mahaweli Ganga Development Project

I.B.R.D. Loan 653 CE is for the Mahaweli Ganga Development Project. The International Bank of Reconstruction and Development and the International Development Association agreed to provide a loan and a credit of US $. 14·5 million each for the Stage I and Phase I of the Mahaweli Ganga Development Project. Part of the loan proceeds were also expected to be spent, before the construction commenced, on studies to determine the capacity of tunnels to be constructed at Polgolla and Bowatenne. The loan of US $. 14·5 million from the World Bank is to be payable in 30 years and the rate of interest is 7 per cent. There is a grace period of six years, and half yearly repayments commence on 1st January 1976. The credit of US $. 14·5 million from IDA is to be payable in 60 years and has a grace period of 10 years.[1] The credit is free of interest but a service charge of 0·75 per cent is payable on the amount of credit withdrawn.

In terms of the loan agreement, IBRD funds have been withdrawn to meet the commitment charges and this is reflected in the loan account as a disbursement. Sri Lanka pays interest on the resulting disbursement. The utilisation of IBRD loan itself can be effected only after utilising IDA Credit 174 CE. According to the agreement "until all amounts under the Development Credit Agreement shall have been withdrawn and except otherwise agreed between the borrower and the bank no withdrawal shall be made from the loan account

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1 *IDA Credit 174 CE* was mainly meant to be utilised for the following purposes:

(1) The construction of the Polgolla complex consisting of a low diversion dam on the Mahaweli Ganga at Polgolla, a diversion tunnel (about 5 miles long) and a 40 MW/Hydro electric plant.

(2) The construction of the Bowatenne complex consisting of a high diversion dam on the Amban Ganga at Bowatenne to feed the Kalawewa and Kandalama tanks.

(3) The construction of head works and channel improvements on the Dhun Oya and the Sudu Ganga.

(4) The remodelling of the existing Elahera Weir and the 38 mile long Elahera–Minneri–Kantalai canal to carry 1500 cubic feet per second.

(5) The redesigning and reconstruction of the irrigation system on 4000 acres planted with sugar cane in the project area.

(6) Investigations of the area of about 113,000 acres towards west of Habarane for the development in Stage II of the first scheme of the Mahaweli Development Programme

except when under commitment entered into by the bank pursuance to section 5·42 of the general conditions and in respect of interest and other charges on the loan".

This clause appears in most IBRD loan agreements where the loan is taken together with IDA credit. It is in the interest of Sri Lanka to utilise the soft loan first as no interest is paid. But the inevitable payment of commitment charges reduces the grant element of the IDA credit as the IBRD loan is tied to the IDA credit.

Further, it is interesting to note that only 75·79 per cent of the IDA credit has been utilised upto the end of March 1972. The closing date of IDA credit is 30.9.75, and the closing date for IBRD loan 653 CE is 30.6.76. To pay commitment charges 3·2 per cent of the loan has been utilised at the end of August, 1974, and commitment charges amounting to US $. 464,826 has been paid. If the full utilisation of the IDA credit is delayed, Sri Lanka would not be able to utilise a major part of the IBRD loan until its closing date although a considerable amount would have been paid as commitment charges and interest on disbursements on account of commitment charges. Otherwise both IBRD loan and IDA credit will have to be re-scheduled.

IBRD loan 653 CE was amended on April 20th, 1971, taking into consideration, some of the problems that arose with regard to consultancy duties and payments by the farmers. Although the amended agreement was signed on the 20th April, 1971, IBRD continued to deduct the commitment charges on the basis that these charges accrued from March 31st, 1970, i.e. 60 days from the original date of agreement. This type of IBRD procedure is detrimental to developing countries like Sri Lanka as she could not utilise any portion of the loan or credit since no disbursements or withdrawals were possible until the agreement became effective. It could be observed that the date of signing the letter setting out the amendments was deemed to be the date on which the agreement in its final form was signed, and the date of commencement of accrual of commitment charges should be the 19th of June, 1971, i.e. 60 days from April 20, 1971. The past experience with regard to IBRD loan operations shows that IBRD had never before exempted commitment charges on any of its loans to any country including Sri Lanka. Although Sri Lanka's acute foreign exchange shortage and other exceptional circumstances

led to the delay in bringing the loan agreement into effectiveness, IBRD was unable to grant Sri Lanka a waiver of commitment charges between March 31st 1970 and June 19th, 1971.

Other Projects

As regards the wasteful payments of commitment charges, the case of IBRD loan 569 CE can be cited as another example. This loan amounting to US $. 4,900,000 contracted on 12th November 1968 was proposed to be utilised for the development of highways. In this connection, Sri Lanka had to meet a sum of US $. 77,073 as commitment charges in spite of the fact that this loan was not at all utilised for any constructive purpose by the government. The loan was subsequently cancelled on 16th February 1971 and another soft loan, viz., IDA 133 CE had to be utilised for the same project.

IDA credit 168 CE is being utilised for the Drainage and Reclamation Project. This loan was negotiated on 13.11.69 to finance a project, which includes the clearing and enlarging of the existing drains, the construction of new drains, and the improvement of drain outlets to the sea in certain districts in Sri Lanka. But by the end of 1973 only 39·61 per cent of the loan had been utilised.

The project under this credit forms part of the borrower's ongoing program to increase paddy production in low lying coastal areas through drainage and flood controls.[1]

Under the loan ADB 16 CEY signed on 6th November 1969, ADB promised a loan of US $ 7,705,000 and another loan (ADB 17 CEY) of US $ 885,000 to cover the cost of Uda Walawe Scheme.[2]

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1 This benefits about 13,200 acres spread over the following six non-contiguous areas –

About 400 acres in the Iranavila area (Puttalam District).
About 4,600 acres in the Bolgoda area (Colombo and Kalutara Districts)
About 1,950 acres in the Bentota Right Bank area (Kalutara District).
About 1,300 acres in the Dedduwa-Rantotawila area (Galle District).
2,800 acres in the Madampe area (Galle District).
2,150 acres in the Kiralakelle area (Matara District).

2 The project under ADB loan 17 CEY includes the provision of –

(a) construction equipment and machinery, construction and workshop materials and equipment and machinery for agricultural experimental and extension services;
(b) about 500 two-wheel tractors with basic accessory implements;
(c) fertilizer, insecticides and weedicides;
(d) the services of consultants to assist the River Valleys Development Board (RVDB) in carrying out the Project and in preparing a plan for future stages in implementing the Walawe Development Scheme in the Left Bank area.

The closing date of the loan ADB 16 CEY was originally fixed at 31.3.73. However, due to the slow progress of the Uda Walawe Scheme, only 15·54 per cent had been utilised by the end of March, 1972 and the closing date was extended till 30th September, 1975. Subsequently, due to the accelerated progress of the Uda Walawe Project 64·99 per cent had been utilised by the end of 1973. In respect of the second loan, i.e. ADB 17 CEY, satisfactory progress had been made with regard to the utilisation of the loan. A utilisation rate of 84·20 per cent was observed by the end of 1973. However, it is interesting to note that no withdrawals whatsoever had been made from this loan upto the end of July 1972. Sri Lanka had to pay commitment charges which amounted to US $. 24,631·16 by the end of July 1974.

Out of the IDA Credit 121 meant for the Lift Irrigation Project, only 68·37 per cent has been utilised by December, 1973. The project area covers the colonisation schemes of Vannikulam, Maha-kandarawa, Rajangana and the Polonnaruwa District. The purpose of the project is to increase the production of high-land crops, primarily chillies and onions in the project area.[1]

The project falling under the ADB Loan 31 CEY is part of the borrowers program for development of the Port of Colombo, which consists of the construction of deep water mooring facilities and the deepening and widening of the harbour basin and entrance channel with a view to accomodate oil tankers upto 60,000 tons capacity. The project includes the provision of a trailing suction dredger and a tug boat of about 2,500 H.P. assisting large tankers in using the mooring facilities. This credit was fully utilised according to schedule.

These examples point to the fact that Sri Lanka should take serious note of the commitment charges paid when such loans were not-satisfactorily utilised to the benefit of the country, and should therefore

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1. The project includes
   (i) The acquisition, installation and use of low lift pumps
   (ii) The construction of an irrigation system to serve about 6,500 acres.
   (iii) Land levelling of the 6500 acres and mechanised jungle clearing in the youth settlement areas at Polonnaruwa.
   (iv) The construction of about 200 cottages in the youth settlement areas at Polonnaruwa.
   (v) The provision of technical services to assist in the training of extension workers assigned to the Project

exercise more care and attention in utilising the loans according to the schedule, which may require proper planning and speedy action.

Aid Tying and under-utilisation

One of the reasons for the under-utilisation of loans contracted is the tied nature of loans which prevents the utilisation of loans if the project has not progressed according to schedule. There is another aspect of aid tying. That is the extra cost that the recipient has to bear in terms of aid tying. All foreign assistance except multilateral aid, supplied by IBRD, IDA and ADB are of tied nature. In most cases they are tied to source, project and commodity. Whatever the specific type of restriction, tying reduces the value of aid to the recipient country. Most forms of tying result in higher prices. The country tying approach makes the recipient to forego the advantage of competitive conditions in the international markets. Further, the tied aid limits the feasibility of a country to select the appropriate technology. The limitations imposed on the recipient country with regard to the selection of source of supply are likely to give rise to costs of various types and magnitude, depending on the form of tying and the characteristics of the recipient's economy.

A distinction could be made between direct and indirect costs of tying. One can define direct costs as the excess of the delivered price actually paid by a recipient for each item over the lowered delivered price which a receipient country would have paid, had the aid not been tied. This could be estimated by comparing projects for which international tenders were invited.

Indirect costs could be classified as (i) excess costs on purchases related to the original tied purchases (e.g. spare parts for machinery imported under economic assistance) and (ii) costs arising out of monopolistic practices by suppliers.

On the estimation of these costs, one may face problems due to the differences in product specifications, which make it difficult to compare the products from different sources. Further, the data available do not show the full range of prices which would have been available if the aid financed purchases had not been tied to a particular source.

The extent to which tying could interfere with the optimum choice of investment projects and techniques in Sri Lanka is not quantifiable to a large extent. As defined above, direct cost of tying can be estimated as the excess of the delivered price actually paid for goods by Sri Lanka over the lowest delivered price which she would have paid if aid were not tied. There is a practical difficulty in an empirical test on these lines, because of the paucity of data on the comparable products imported from different sources. Since there is a shortage of foreign exchange, Sri Lanka has to depend increasingly on tied project aid. Consequently, she is not in a position to call for world tenders whereby competitive prices could be obtained. Therefore, it is difficult to compare prices quoted in tenders and prices paid on aid financed imports. But empirical tests conducted in Pakistan, Chile, Iran and Tunisia, suggest that tying raises the procurement price of goods.[1]

If the aid is source tied, the recipient is prevented from buying the goods from a country where the comparative costs would be lower. In the circumstances, tied capital assistance creates non-optimal patterns of resource allocation in a recipient country such as Sri Lanka.

The above argument could be proved by using a simple model.[2]

Assume that recipient produces a single product, no exports and no domestic factors are needed to produce the good. Two inputs A and B, are both imported utilising foreign aid tied to purchases from two aid giving countries I and II. Hence, the only way of financing the required inputs is by using the source tied aid. Country I has the comparative advantage in the production of commodity A and country II has the comparative advantage in the production of commodity B. Prices are assumed to be fixed at the source. The production function of the recipient is assumed to have isoquants convex to the origin.

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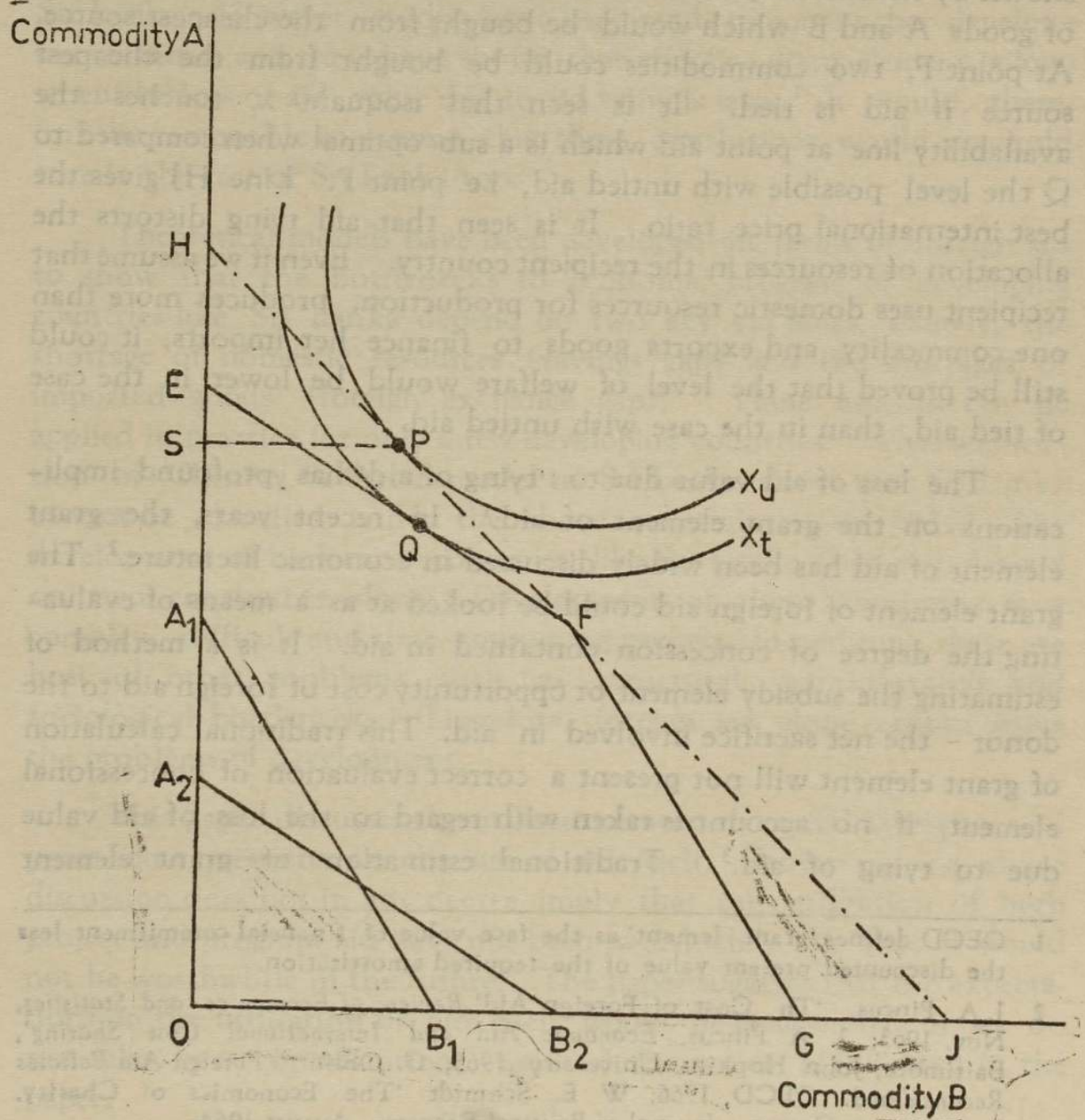
1. In dealing with the problem of aid tying, following literature could be quoted. Arnold. C Harberger 'Issues' concerning capital assistance to less developed countries. *Economic Development and Cultural Change*. Jan. 74. J Baghwati: 'Tying gof Aid' (UNCTAD Dec. TD/7/Supp. 4. New York 1967. UNCTAD 'The Cost of Tying to Recipient Countries' Dec. TD/7/Supp. 8. New York Nov. 1967.
   H. W. Singer, '*External Aid: For Plans or Projects*: Economic Journal. Sept. 65. Mabul-ul-Haq – "Tied Credits – A Quantitative Analysis:" John Adler and P. W.Kuznet ed *Capital Movements and Economic Development*. St. Martin Press 1967.
2. J. M. Healy, 'The Economics of Aid.' Routledge and Kegan Paul, 1971.

Figure 1

EFFECT ON ALLOCATION OF RESOURCES DUE TO AID TYING



FG // $A_1 B_1$
EF // $A_2 B_2$
$OE = OA_1 + OA_2$
$OG = OB_1 + OB_2$

Line AB shows the available combination of A and B under aid from country I where commodity A is cheaper. $A_2 B_2$ shows the combination of goods available under aid from country II where commodity B is cheaper. Therefore, line EFG is the total tied aid availability line.

If the same aid is not source tied, the aid availability would be shown by the line HFJ. This line represents all possible combinations of goods A and B which would be bought from the cheapest source. At point F, two commodities could be bought from the cheapest source if aid is tied. It is seen that isoquant x_t touches the availability line at point aid which is a sub-optimal when compared to Q the level possible with untied aid, i.e. point P. Line HJ gives the best international price ratio. It is seen that aid tying distorts the allocation of resources in the recipient country. Even if we assume that recipient uses domestic resources for production, produces more than one commodity and exports goods to finance her imports, it could still be proved that the level of welfare would be lower in the case of tied aid, than in the case with untied aid.

The loss of aid value due to 'tying of aid' has profound implications on the grant element of aid.[1] In recent years, the grant element of aid has been widely discussed in economic literature.[2] The grant element of foreign aid could be looked at as a means of evaluating the degree of concession contained in aid. It is a method of estimating the subsidy element or opportunity cost of foreign aid to the donor – the net sacrifice involved in aid. This traditional calculation of grant element will not present a correct evaluation of concessional element, if no account is taken with regard to the loss of aid value due to tying of aid.[3] Traditional estimation of grant element

1 OECD defines 'grant element' as the face value of financial commitment less the discounted present value of the required amortization.

2 J. A Pincus. 'Th Cost of Foreign Aid' *Review of Economics and Statistics*, Nov. 1963; J. A Pincus. *Economic Aid and International Cost Sharing'*, Baltimore, John Hopkins University 1965; G. Oblin. *Foreign Aid Policies Reconsidered*. OECD, 1966; W E. Schmidt 'The Economics of Charity. Loans versus Grants. *Journal of Political Economy*, August 1964.

3 For details on grant element obtained by Sri Lanka see - B.V.A. Anthonisz The Role and impact of External Assistance on the Economy of Sri Lanka, 1950-70. *Staff Studies*, Vol. 3 No. 1 Central Bank of Ceylon - Colombo April 1973. See also, W. Hettirachchi. Grant Element in External Assistance: The case of Sri Lanka. in this volume. pp.

underestimates real concessional element. If the loss of aid value due to 'tying' could be estimated, the effective grant element could be lower than the grant element estimated under the traditional methods.

As data on cost of aid tying are, unfortunately not avilable, it is not possible to estimate the effective grant element in capital aid to Sri Lanka. However, studies have been made in some other developing countries and these have shown that effective grant element is low, when the loss of aid value due to aid tying is large.[1] It would, therefore be reasonable to assume that these conclusions would also hold true in the case of Sri Lanka too.

Theoretical models have been developed in terms of foreign aid to show that the bottlenecks to economic progress of developing countries like Sri Lanka depend on two key variables, namely, the shortage of domestic resources (savings gap) and the shortages of imported goods (foreign exchange gap).[2] These models can be applied in practice for only a few developing countries. The application of Chenery & Strout model to Sri Lanka shows that Sri Lanka cannot be classified under the above constraint cases only.[3] The development of backward economies like Sri Lanka does not depend on two constraints alone. Development of these economies is a complex, difficult and time-consuming process. In addition, there are host of other problems such as structural, administrative and sociological bottlenecks. Therefore, foreign aid alone cannot solve the problems of development.

This paper discusses the utilisation rates of capital assistance and poses some questions on the use of aid itself. However, the above discussion does not in any degree imply that our utilisation of both project and program aid have not been worthwhile, or that it would not be worthwhile in the future. The paper suggests that the expectations on the utilisation of aid itself would be exaggerated, if we do not take into consideration, some of the issues highlighted in the paper.

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1. Ishizo Miyamoto, 'The Real Value of Tied Aid The Case of Indonesia 1967-69.. *Economic Development and Cultural Change*. April 1974.
2. H. B., Chenery, and A. M. Strout 'Foreign Assistance and Economic Development. *American Economic Review*: Sept. 1966.
3. T. E. Weisskof. The Impact of Foreign Capital Inflow'. *Journal of International Economics*. Vol. 2 No. 1 Feb. '1972. p.33.

The severe shortage of foreign exchange experienced in Sri Lanka implies that, she should maximise the use of available foreign resources. The value of available assistance is also reduced to some extent due to the tied nature of loans. This type of loss is beyond her control. However, she could minimise the extra costs which are within her control by speedily implementing the projects according to schedule. Sri Lanka's capacity to claim higher quantities of assistance would be reduced if the present aid utilisation rates continue to be low.

APPENDIX I

Foreign Aid Utilisation Rates in Sri Lanka

Loan	Date of Agreement	Amount of Loan	Amount Disbursed as at 31·3·72	Rate of Foreign Aid Utilisation as at 31·3·72
IBRD				
IBRD Loan No. 101 CE ..	9· 7·54	US$ 16,500,000	$ 15,899,409	96·36%
,, ,, 209 CE ..	17· 9·58	US$ 7,400,000	$ 7,306,484	98·73%
,, ,, 283 CE ..	6· 6·61	US$ 15,000,000	$ 14,106,365	94·04%
,, ,, 653 CE ..	30· 1·70	US$ 14,500,000	$ 204,218	1·41%
IDA				
IDA Credit No. 121 CE ..	19· 6·68	US$ 2,000,000	$ 905,632	45·28%
,, ,, 133 CE ..	12·11·68	US$ 646,000	$ 624,479	96·61%
,, ,, 168 CE ..	13·11 69	US$ 2,500,000	$ 567,132	22·69%
,, ,, 174 CE ..	30· 1 70	US$ 14,500,000	$ 3,183,933	21·96%
ADB				
ADB Loan No. 16 CEY ..	6·11·69	US$ 7,705,000	$ 1,197,192	15·54%
,, ,, 17 CEY ..	6·11·69	US$ 885,000	—	Nil
,, ,, 31 CEY ..	5· 5·70	US$ 2,600,000	$ 1,902,088	73·16
,, ,, 71 CEY ..	10· 9·71	US$ 3,600,000	—	Nil
,, ,, 78 CEY	21·12·71	US$ 4,150,000	—	Nil
Canada				
Canadian ECIC Credit ..	26· 4·63	C$ 10,800,000	C$ 8,766,151	81·16%
Canadian Loan for Katunayaka Air Port Project ..	22· 3·66	C$ 1,500,000	C$ 1,500,000	100·00%
Canadian Loan for Maskeliya Oya Project ..	20· 5·68	C$ 750,000	C$ 458,694	61 15%
Canadian Loan for Mechanised Logging Projet ..	26· 1·71	C$ 4,500,000	—	Nil
Commodity Loan i ..	11· 1·66	C$ 1,000,000	C$ 994,815	99·48%
,, ,, ii ..	11· 9·67	C$ 500,000	C$ 499,798	99·95%
,, ,, iii ..	15· 5·68	C$ 1,250,000	C$ 1,250,000	100·00%
,, ,, (1969-(1) ..	18· 2·69	C$ 1,000,000	C$ 1,000,000	100·00%
,, ,, (1969-(2) ..	18· 2·69	C$ 1,000,000	C$ 996,879	99·68%
,, ,, (1969-(3) ..	21· 9·69	C$ 2,000,000	C$ 1,997,816	99·89%
,, ,, (1970) ..	15· 8·70	C$ 2,300,000	C$ 1,865,367	81·1 %
,, ,, (1971) ..	13· 8·71	C$ 2,500,000	—	Nil

(contd:)

Loan	Date of Agreement	Amount of Loan	Amount Dirbursed as at 31·3·72	Rate of Foreign Aid Utilisation as at 31·3·72
China, Peoples Republic of				
China Loan No. 1 ..	17· 9·58	Rs. 50,000,000	Rs. 49,999,983	99·99%
,, ,, 2 ..	25·10·64	Rs. 20,000,000	Rs. 6,272,841	31·36%
,, ,, 3 (Purchase of Rice ..	12· 9·70	RMB 22,155,000	RMB 22,155,000	100·00%
,, ,, 4 (Convertible Currency Loan) ..	27· 5·71	Rs. 150,000,000	Rs. 150,000,000	100·00%
,, ,, 5 (Purchase of Rice) .	8·10·71	RMB 16,571,940	RMB 15,434,786	93·13%
Denmark				
Danish Credit ..	28·12·68	DK 20,000,000	DK 18,414,869	92·07%
France				
Franch "SOCEA" Credit .	5·10·63	FF 8,000,000	FF 8,000,000	100·00%
France/Ceylon Credit 1966 for Commodities ..	31· 8·66	FF 40,000,000	FF 36,661,768	91·65%
,, ,, 1968 ,, ..	30· 6·68	FF 40,000,000	FF 32,178,954	80·44%
,, ,, 1969 ,, ..	1· 9·69	FF 45,000,000	FF 13,002,711	28·89%
,, ,, 1971 ,, ..	25·10·71	FF 30,000,000	FF —	Nil
Germany, Federal Republic of				
Kreditanstalt fur Weideraufbau Loan No. AL 47 (Cement Industry) ..	19· 7·62	DM 32,000,000	DM 32,000,000	100 00%
Kreditanstalt fur Weideraufbau Loan No. AL 48 (Port Development) ..	19· 7·62	DM 8,000,000	DM 8,000,000	100·00%
,, ,, 351 (Paper Board Factory) ..	22· 3·67	DM 17,500,000	DM 17,186,683	98·2 %
,, ,, 352 (Cast Iron Factory) ..	22· 3·67	DM 4,000,000	DM 3,997,380	99·93%
,, ,, 270 (Commodity) ..	7· 1·61	DM 32,000,000	DM 32,000,000	100·00%
,, ,, ,, 323 ..	2·11·66	DM 25,000,000	DM 25,000,000	100·00%
,, ,, ,, 370 ..	13·12·67	DM 10,000,000	DM 10,000,000	100·00%
,, ,, ,, 414 ..	8· 7·68	DM 10,000,000	DM 10,000,000	100·00%
,, ,, ,, 486 ..	22 9·69	DM 10,000,000	DM 10,000,000	100 00%

(contd:)

Loan	Date of Agreement	Amount of Loan	Amount Disbursed as at 31·3·72	Rate of Foreign Aid Utilisation as at 31·3·72
Germany, Democratic Republic of				
GDR Line of Credit ..	22· 2 65	£ 17,500,000	£ 8,595,072	49·11%
India				
Commodity Loan – 2 ..	16· 8·67	I·Rs. 50,000,000	I·Rs. 45,283,812	90·56%
,, – 3 ..	30 6·69	I·Rs. 50,000,000	I·Rs. 43,449,063	86·89%
,, – 4 ..	26·11·71	I·Rs. 54,000,000	I Rs. —	Nil
Italy				
Italian Credit for Commodities ..	25· 7·68	Lire 2,500,000,000	Lire 1,508,161,740	60·00%
Japan				
Japan/Ceylon Loan for Commodities 1966 – 1 (1st Yen Credit) ..	14· 1·66	Yen 1,800,000,000	Yen 1,793,375,605	99·00%
,, ,, 1966 – 2 (2nd Yen Credit) ..	9· 9·66	Yen 1,800,000,000	Yen 1,775,582,650	98·00%
,, ,, 1967 – 1 (3rd Yen Credit) ..	22· 9·67	Yen 1,800,000,000	Yen 1,799,303,511	99·00%
,, ,, 1968 – (4th Yen Credit) ..	3· 9·68	Yen 1,800,000,000	Yen 1,758,086,628	97·00%
,, ,, 1969 (5th Yen Credit) ..	24·10·69	Yen 1,800,000,000	Yen 1,792,984,413	99·00%
,, ,, 1971 (6th Yen Credit) ..	15· 2·71	Yen 1,800,000,000	Yen 1,591,004,108	88·38%
,, ,, 1971 (Special Yen Credit) ..	17· 5·71	Yen 1,080,000,000	Yen 1,079,912,304	99·99%
Japan/Ceylon Loan for Commodities 1972 (7th Yen Credit) ..	17· 2·72	Yen 3,500,000,000	Yen —	Nil
Poland				
Polish Line of Credit ..	25· 4,63	£ 3,325,002	£ 476,454	14·32%

(contd:)

Loan	Date of Agreement	Amount of Loan	Amount Disbursed as at 31·3·72	Rate of Foreign Aid Utilisation as at 31·3·72
United Kingdom				
U.K. Line of Credit for Telephone equipment ..	17· 3·61	£ 2,735,000	£ 2,735,000	100·00%
U.K. National & Grindlays Bank Loan ..	26· 3·68	£ 275,000	£ 275,000	100 00%
U K. Loan for Galle Water Supply Scheme ..	21· 1·71	£ 625,000	—	Nil
U.K. Loan for Special Equipment for the Army ..	27· 7·71	£ 748,000	—	Nil
U.K./Ceylon Comodity Loan 1965 ..	4·11 65	£ 2,000,000	£ 2,000,000	100·00%
,, 1966 – 1 .	14· 5·66	£ 1,570,000	£ 1,570,000	100 00%
,, 1966 – 2 ..	26· 9·66	£ 2,000,000	£ 2,000,000	100·00%
,, 1967 – 1 ..	7· 2·67	£ 1,570,000	£ 1,570,000	100·00%
,, 1967 – 2 ..	7· 7·67	£ 2,000,000	* 2,000,000	100·00%
,, 1968 – 1 ..	1· 3·68	£ 1,570,000	£ 1,570,000	100·00%
,, 1968 – 2 .	7·10 68	£ 2,500,000	£ 2,500,000	100·00%
,, 1969 – 1 .	5· 7·69	£ 4,500,000	£ 3,977,650	88 39%
,, 1970 ..	28· 8·70	£ 5,000,000	—	Nil
,, 1971 (Tractors) ..	3· 9·71	£ 1,200,000	—	Nil
,, 1971	4·11·71	£ 1,000,000	—	Nil
U. S. A.				
ICA Loan No. 83—1 —(383— B —001) ..	14· 5·57	$ 2,500,000	$ 2,500,000	100·00%
,, 83—2 —(383— G —005) ..	25· 3·59	$ 2,200,000	$ 2,190,285	99·55
,, 83—3 —(383— G —006) ..	23· 9·59	$ 6,000,000	$ 5,436,856	90·61%
,, 83—4 —(383— G —007) ..	22· 9·61	Rs. 5,327,458	Rs. 5,327,458	100·00%
D.L.F. Loan No. 4 —(383— A —002) ..	24· 6·58	$ 1,475,942	$ 1,475,942	100·00%
,, 9 —(383— A —004) ..	3· 9·58	$ 750,000	$ 726,000	96·8 %
,, 156 —(383— A —007) ..	30· 1·61	$ 93,002	$ 93,002	100·00%
AID Loan (383— G —009) ..	31· 8·62	Rs. 7,012,526	Rs. 7,012,527	100·00%
AID Loan (383— N —010) ..	15· 2·66	$ 7,500,000	$ 7,153,544	95·38%
AID Loan (383— G —011) ..	3· 8·66	Rs. 15,216,264	Rs. 15,168,152	99·68%
AID Loan (383— H —012) ..	8· 4·67	$ 7,500,000	$ 7,390,446	98·53%
AID Loan (383— H —014) ..	8· 8·69	$ 5,000,000	$ 4,114,714	82·29%

(contd)

Loan	Date of Agreement	Amount of Loan		Amount Disbursed as at 31·3·72		Rate of Foreign Aid Utilisation as at 31·3·72
PL 480 Loan 1967 ..	27·10·67	$	9,970,000	$	7,566,442	75·89%
PL 480 Loan 1968 ..	21· 6·68	$	15,000,000	$	13,908,699	92·72%
PL 480 Loan 1969 ..	19· 2·69	$	17,500,000	$	13,933,873	79·62%
PL 480 Loan 1972 ..	27· 9·70	$	14,000,000	$	11,899,298	84·99%
PL 480 Loan 1971 ..	20·12·71	$	15,428,000	$	3,466,191	22·46
U.S Loan for purchase of Bell Jet Ranger Helicopters	29· 6·68	$	308,329	$	308,329	100·00%
U.S.S.R.						
USSR Line of Credit ..	25· 2·68	Rbsl.	27,000,000	Rbls.	18,071,193	66·93%
USSR Laan for Iron & Steel Works Project-Stage 2 and 3 – Contract Mo. 7536 ..	5· 9·68	,,	36,000	Rbls.	29,523	82·0 %
USSR Loan for Special Equipment – Rubles 525,000	12· 5·71	,,	525,000	Rbls.	484,027	92·16%
USSR Loan of Rubles 80,000 Stage 2 & 3 of Iron and Steel Project Contract No. 40019 ..	7·10·71	,,	80,000	Rbls.	30,741	38·43%
YUGOSLAVIA						
Yugoslavia Line of Credit ..	18· 9·59	£	6,416,671	£	769,921	11·99%

Source: Dept. of Public Debt.

SOCIO-ECONOMIC VARIABLES IN SRI LANKA'S DEMOGRAPHIC TRANSITION: AN ANALYSIS OF RECENT TRENDS

NIMAL SANDERATNE*

INTRODUCTION

It is useful to identify two models of demographic development. The first is based on the historical experiences of the industrialised European countries, while the second model draws on the experiences of most less developed countries.

Both models view demographic development in three stages. The first stage is common to both models. It is characterised by a low population growth rate owing to the high death rate nearly wiping out the effect of a commensurately high birth rate.

The second stage in the two models is strikingly different In the European model, it is a stage of moderate population growth owing to the gradual decline in the death rate and a relatively high birth rate. In contrast, in the less developed country model, this stage is marked by a rapid increase in population owing to a drastic decline in the death rate and the continuation of the previously high birth rate. The decline in the death rate, which is achieved in the first model over perhaps a century or more, is attained in the second, in a decade or less.

Besides the time dimension, important differences surround the demographic developments of this stage in the two models. In the European experience, the decline in the death rate was a consequence of improvements in economic conditions which were brought about by their own technological achievements. As such the population increase was economically and socially desirable, or at least, supportable. Further, where a population increase was disadvantageous, the alternative of emigration was available. In the case of the LDCs, the decline in mortality was achieved by exogenous technological developments, and did not in the main reflect an indigenous

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* Mr. W. Bandaranayake of the Economic Research Department collected and computed several statistics contained in this paper.

technological and industrial achievement. On the other hand, it may be argued that in the case of most countries, the drastic decline in mortality which led to a high dependency ratio, was a strain on the economic resources of these countries and detrimental to their economic development

The third stage is common to both models. It is one of low population growth owing to a decline in the birth rate commensurate with the low death rate. While in most developed countries this stage has already been achieved, in the LDCs it is still a goal.

The factors responsible for a country reaching the third phase of a low fertility rate matched by a low mortality rate are the most controversial in the literature on demography. Many point out that socio-economic conditions should change prior to the successful implementation of a family planning program. Philip M. Hauser, Kingsley Davis and Roland Freedman are among the prominent protagonists of this position. For instance, Hauser is sceptical of the possibility of family planning programs achieving significant reductions in population growth rates in the remainder of this century, for no country has witnessed a decline in fertility in a traditional society characterised by mass illiteracy and poverty,[1] He further points out that:

> The examples of "successful" family planning programs to date (e. g. Taiwan, Hong Kong, Singapore, South Korea) are in areas in which fertility declines had already set in before the advent of national family planning policies and programs: and which have rising levels of education and income per capita so as to preclude the extension of their experience to populations still steeped in illiteracy and poverty.[2]

Hauser therefore advocates "non-family planning methods of population control". By this he means programs which concern themselves with changing the ecological, social, psychological and cultural factors. Fertility behaviour, he contends, is a dependent variable of the sociological factors and not manipulatable as an attitudinal factor independent of the social milieu. As Hauser puts it:

1. Philip M. Hauser, "On Non-Family Planning Methods of Population Control" in Bose, Desai and Jain (compilors) *Studies in Demography*, George Allen & Unwin. Lond. 1970 p. 355.
2. *Ibid loc. cit.*

> (F)ertility behaviour is in large measure dependent upon the social milieu, and changes in fertility behaviour necessarily involve social change. Or, put in another way, knowledge of the person's attitudes, values and motivation cannot be expected to account for differences in fertility behaviour out of their cultural context: and consequently, changes in fertility behaviour cannot be produced through efforts to change attitudes, values or motivation, except in the context of changes in the social order.[1]

Similarly Kingsley Davis stresses the need for appropriate socio-economic policies to render family planning attractive. While contraception is a useful technological device, he contends, it would have limited impact without the appropriate supporting socio-economic policies.[2] Freedman stresses the modernizing factors like greater urbanization, the adjustment to modern mortality rates and broader social networks transcending local community and group interests. He points out that major changes occurred in the social and economic structure prior to the large scale adoption of family planning methods. The failure of family planning programs in the developing countries today, he contends, is owing to the lack of these preconditions.[3] However, none of these writers deny the need to commence family planning projects, they merely draw the attention of policy makers to their limitations and necessity for action in other areas.

Goran Ohlin, on the other hand, is optimistic about the prospects of success in family planning. His optimism is based on the view that most parents in underdeveloped countries have come to not want large families, major break-throughs have been achieved in contraceptive technology especially the intra-uterline device, and a large number of countries and governments have accepted family planning programs.[4] As can be observed his position is somewhat less concerned with the broader socio-economic context in which the family planning programs should be undertaken.

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1. *Ibid* pp 357—358.
2. Kingsley Davis, "Population Policy: Will Curren Programs Succeed?, in *Ibid* pp. 369—398.
3. R. Freedman, "The Sociology of Human Fertility" *Current Sociology*, 1961/62.
4. Goran Ohlin, *Population Control and Economic Development*. OECD Paris, 1967.

The present paper attempts to analyse the socio-economic variables bearing on the demographic transition in Sri Lanka. Our experience is both useful and interesting for several reasons. Demographic statistics are available for a long period and relatively reliable for LDCs. Further, we underwent the second stage in the demographic transition in a very dramatic way about twenty five years ago. The fairly long period since then affords an opportunity to observe the socio-economic impact of this. Currently the country appears to be taking the turn into the final stage and therefore is a useful case study for the purpose of investigating the socio-economic factors bearing on the transition. The paper will concentrate on recent demographic developments which throw light on the socio-economic variables which are likely to reduce the birth rate and thereby decrease the population growth rate.

FIRST STAGE

The first stage of Sri Lanka's demographic development is the common experience of pre-modern societies. In the nineteenth and early decades of the twentieth century, birth rates and death rates were high. In normal years, birth rates were slightly higher than death rates; thereby resulting in a slight secular increase in population. In some years of epidemics (e. g. 1877, 1878, 1885, 1889, 1919 and 1935) death rates were higher than birth rates and a decline in population occurred in these years.

Prior to 1900 Cholera was responsible for a significant number of deaths. For instance, in 1891, as many as 39.22 deaths per thousand were caused by Cholera alone. Typhoid continued to be a significant killer till some time later and in 1901 caused as much as 49·61 deaths per thousand. Dysentry accounted for 31·48 deaths per thousand in 1929. By 1939, Sri Lanka's control of these infective diseases had shown remarkable success and death through all infective and parasitic diseases excluding Tuberculosis, Dysentry and Malaria accounted for only 74·98 deaths per thousand. Yet, as Malaria alone caused 78·06 deaths per thousand the same year, the country was still in the first demographic stage. In 1946, while deaths from other infective diseases were kept at a static level, deaths caused by Malaria increased to 92.59 per thousand. The gains achieved in the control of other infective diseases were therefore more than offset by the increase in malarial deaths and a relative stability in population was maintained till 1946. Till this year the rate of natural increase did not reach 2 per cent per annum.

The birth and death rates for the past century are given in Table 1, and for a clearer perspective of trends, these data are summarised in Table 2 by five years annual averages. The diagramatic representation given in Figure 1 illustrates the first two stages of the demographic transition. The period since 1946 falls in the second stage but the latter years of the intercensal period 1963–1971 bear characteristics of the third stage discussed later.

Since under registration of births and deaths each year is likely in the earlier years, the population figures obtained at the census since the first population census of 1871 are given in Table 3. This table gives an analysis of population increase for the intercensal periods. On the basis of this analysis, which ignores migration increases, the first stage of the demographic transition is once again seen to extend till 1946.

SECOND STAGE

The second stage of Sri Lanka's demographic transition illustrates most forcefully what Davis has called "The amazing decline of mortality in under-developed areas".[1] This stage will be analysed in terms of the underlying causes for the decline and the repercussions on the economy over the long run.[2]

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1. Kingsley Davis, "The World Demographic Transition", *Annals of the American Academy of Political and Social Science.*

2. This stage of Sri Lanka's demographic transition has been widely discussed and there is controversy about the underlying causes. The literature includes: S. A Meegama, "Malaria Eradication and its Effect on Mortality Levels", *Population Studies*, Vol. 21 No 3 (1967) pp 207-237: P. Newman, "Malaria Eradication and its Effect on Mortality Levels - A Comment' *Population Studies* Vol 23, No. 2 (1969) pp. 285—286 : P. Newman, "Malaria Control and Population Growth", *The Journal of Development Studies* Vol 6, No. 2 (1970) pp. 133—158: H. Cullumbine, "An Analysis of the Vital Statistics of Malaria in Ceylon", *Ceylon Journal of Medical Science* (1950) pts. 111 & IV, pp. 133-142 H. Frederiksen, "Malaria Control and Population Pressure in Ceylon", "Public Health Reports 75 (1900) pp. 865—868: H. F ederiksen, "Determinants and Consequences of Mortality Trends in Ceylon", *Public Health Reports* 76 (1961) pp. 659—663: R. H Gray "The Decline of Mortality in Ceylon and the Demographic Effects of Malaria Control", *Population Studies*, Vol. 28. No. 2, (1974) pp. 205—229.

Table 1

Sri Lanka's Mid-year Population, Birth and Death Rates and Rate of Natural Increase, 1874–1973

Year	Mid-Year Population ('000s)	Births (per '000)	Deaths (per '000)	Rate of Natural Increase (per cent)
1874	2,516	29·7	20·7	0·9
1875	2,531	28·1	22·0	0·6
1876	2,573	30·1	24·3	0·6
1877	2,670	26·8	31·7	−0·5
1878	2,741	23·1	27·6	−0·5
1879	2,772	25·1	20·8	0·4
1880	2,759	26·2	18·3	0·8
1881	2,756	27·1	27·2	0·0
1882	2,773	26·7	19·7	0·7
1883	2,782	29·6	19·3	1·0
1884	2,794	31·3	22·3	0·9
1885	2,815	28·1	29·1	−0·1
1886	2,830	27·1	23·7	0·3
1887	2,855	32·7	24·0	0·9
1888	2,901	31·8	26·4	0·5
1889	2,939	27·7	28·5	−0·1
1890	2,980	31·9	23·0	0·9
1891	3,022	31·9	28·7	0·3
1892	3,088	30·2	27·5	0·3
1893	3,121	31·3	29·6	0·2
1894	3,145	33·2	27·9	0·5
1895	3,194	31·8	27·6	0·4
1896	3,241	32·0	25·3	0·7
1897	3,316	37·7	23·7	1·4
1898	3,396	38·8	26·6	1·2
1899	3,430	38·5	30·6	0·8
1900	3,521	38·6	28·7	1·0
1901	3,583	37·5	27·6	1·0
1902	3,630	39·1	27·5	1·2
1903	3,704	40·0	25·9	1·4
1904	3,768	38·5	24·9	1·4
1905	3,902	38·6	27·7	1·1
1906	3,883	36·5	35·1	0·1
1907	3,886	33·6	30·7	0·3
1908	3,923	40·8	30·1	1·1
1909	3,970	37·7	31·0	0·7
1910	4,035	39·0	27·3	1·2
1911	4,121	38·0	34·8	0·3
1912	4,151	33·3	32·4	0·1
1913	4,220	38·6	28·4	1·0
1914	4,251	38·2	32·2	0·6
1915	4,355	37·0	25·2	1·2
1916	4,483	39·0	26·8	1·2
1917	4,590	40·1	24·7	1·9
1918	4,677	39·2	31·9	0·7
1919	4,480	36·0	37·6	−0·2
1920	4,486	36·5	29·6	0·7

Year	Mid-Year Population ('000s)	Births (per '000)	Deaths (per '000)	Rate of Natural Increase (per cent)
1921	4,522	40·6	31·1	1·0
1922	4,603	39·1	27·5	1·2
1923	4,684	38·7	30·3	0·8
1924	4,765	37·5	25·8	1·2
1925	4,847	39·9	24·2	1·6
1926	4,928	42·0	25·3	1·7
1927	5,009	41·0	22·6	1·8
1928	5,091	41·9	26·0	1·6
1929	5,172	38·3	26·2	1·2
1930	5,253	39·1	25·5	1·4
1931	5,326	37·4	22·1	1·5
1932	5,389	37·0	20·5	1·7
1933	5,419	38·6	21·2	1·7
1934	5,560	37·2	22·9	1·4
1935	5,608	34·4	36·6	− 0·2
1936	5,642	34·1	21·8	1·2
1937	5,725	37·8	21·7	1·6
1938	5,826	35·9	21·0	1·5
1939	5,916	36·0	21·8	1·4
1940	5,972	35·8	20·6	1·5
1941	6,178	36·5	18·8	1·8
1942	6,179	36·7	18·6	1·8
1943	6,296	40·6	21·4	1·9
1944	6,442	37·1	21·3	1·6
1945	6,650	35·9	21·5	1·4
1946	6,854	37·4	19·8	1·8
1947	7,037	38·6	14·0	2·5
1948	7,244	39·7	13·0	2·7
1949	7,455	39·1	12·4	2·7
1950	7,678	39·7	12·4	2·7
1951	7,876	39·8	12·7	2·7
1952	8,074	38·8	11·8	2·7
1953	8,290	38·7	10·7	2·8
1954	8,520	35·7	10·2	2·6
1955	8,723	37·3	11·8	2·6
1956	8,929	36·4	9·8	2·7
1957	9,165	36·5	10·1	2·6
1958	9,388	35·8	9·7	2·6
1959	9,625	37·0	9·1	2·8
1960	9,896	36·6	8·6	2·8
1961	10,168	35·8	8·0	2·8
1962	10,443	35·5	8·5	2·7
1963	10,646	34·1	8·5	2·6
1964	10,903	33·2	8·8	2·4
1965	11,164	33·1	8·2	2·5
1966	11,439	32·3	8·3	2·4
1967	11,703	31·6	7·5	2·4
1968	11,992	32·0	7·9	2·4
1969	12,252	30·4	8·3	2·2
1970	12,516	29·4	7·5	2·2
1971	12,699	30·1	7·7	2·2
1972	12,951	29·7	8·0	2·2
1973	13,180	27·8	7·7	2·0

Sources: Reports of the Registrar-General on Vital Statistics, and Registrar-General's Department

Figure 1

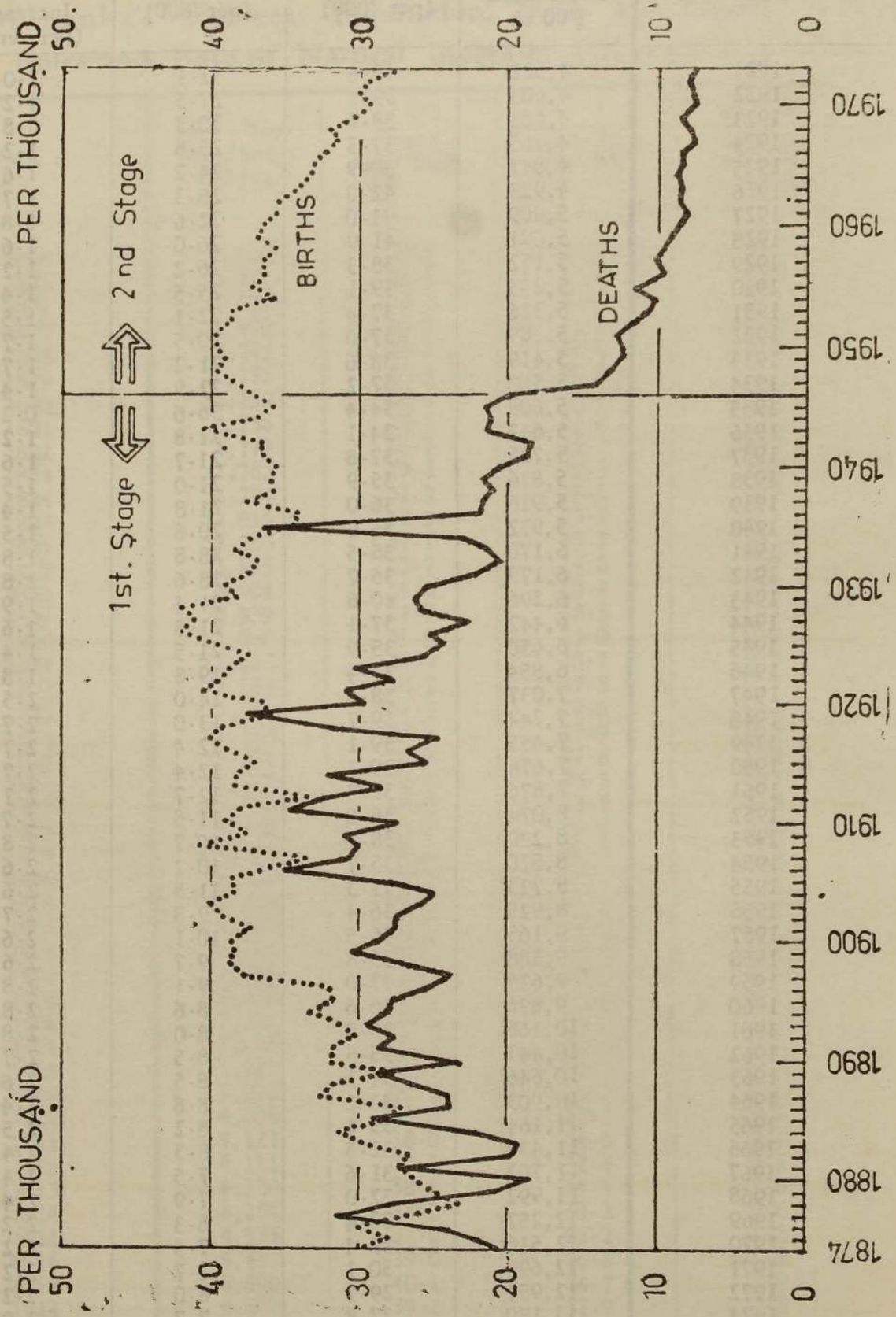

Table 2

Five Year Annual Averages of Rates of Birth, Death and Natural Increase, 1874–1973

Period	Births (per '000)	Deaths (per '000)	Rate of Natural Increase	
			(per '000)	(per cent)
1874–1878	27·6	25·3	2·3	0·2
1879–1883	26·9	21·1	5·8	0·6
1884–1888	30·2	25·1	5·1	0·5
1889–1893	30·6	27·5	3·1	0·3
1894–1898	34·7	26·2	8·5	0·9
1899–1903	38·7	28·1	10·6	1·6
1904–1908	37·6	29·7	7·9	0·8
1909–1013	37·3	30·8	6·5	0·7
1914–1918	38·7	28·2	10·5	1·5
1919–1923	38·2	31·2	7·0	0·7
1924–1928	40·5	24·8	15·7	1·6
1929–1933	38·1	23·1	15·0	1·5
1934–1938	35·9	24·8	11·1	1·1
1939–1943	37·1	20·2	16·9	1·7
1944–1948	37·7	17·9	19·8	2·0
1949–1953	39·2	12·0	27·2	2·7
1954–1958	36·3	10·3	26·0	2·6
1959–1963	35·8	8·5	27·3	2·7
1964–1968	32·4	8·1	24·3	2·4
1969–1973	29·5	7·8	21·7	2·2

Sources: Same as Table 1

Table 3

Population at Census Years and Inter-Censal Increases 1871–1971

Census Year	Population	Inter-censal Increase	Average Annual Population Growth (per cent)
1871	2,400,380	—	—
1881	2,759,738	359,358	1·4
1891	3,007,789	248,051	0·9
1901	3,565,954	558,165	1·7
1911	4,106·350	540,396	1·4
1921	4,498,605	392,255	0·9
1931	5,306,171	808,266	1·7
1946	6,657,339	1,350,468	1·5
1953	8,097,895	1,440,556	2·8
1963	10,582,064	2,484,169	2·7
1971	12,711,143	2,129,079	2·2

Source: Census Reports

Note: The first population census was taken in 1871 and thereafter at ten-year intervals till 1931. The census scheduled to be taken in 1941 was taken in 1946 owing to the Second World War. This was followed by censuses in 1953 and 1963. The last census taken in 1971 brings the census year to the original decennial series. Therefore the 1946, 1953 and 1963 census years are exceptional.

In the single year 1946–47, Sri Lanka's crude death rate fell by 34 per cent from 19·8 per thousand to 14 per thousand. This was achieved primarily owing to the spraying of houses with a DDT solution. In 1946 about 200,000 houses were sprayed every six weeks. The spraying campaign gained in intensity and coverage over the next two years with 1·8 million houses sprayed in 1947 and 3·4 million houses in 1948. The total cost of the campaign in the years 1946–48 was Rs. 6 million[1].

The dramatic success of the DDT spraying has led some commentators to ascribe nearly the entire success to this technological factor. While the importance of the DDT spraying is indisputable, a technological explanation ignores rather important socio-economic variables bearing on the success.

The dramatic curtailment of the death rate by the spectacular reduction in malarial deaths was possible, because over a longer period, health conditions had been improved. This is one of the reasons why it was possible to curtail deaths so dramatically in Sri Lanka while the reduction in the death rate in other countries was over a longer time-span. As has been pointed out earlier, non-malarial deaths had been already reduced and a single health hazard drew the energies of the medical authorities. Snodgrass has expressed this well:

> In many respects Ceylon had a superb public health record: smallpox, yellow fever, cholera, plague and other infectious diseases which were still scourges elsewhere in the tropics had been brought under control in Ceylon and were unlikely ever to be a major problem again. Malaria thus came to command increasing attention[2].

When we look to the factors responsible for the improvements in general health conditions, important socio-economic variables are seen at work behind the technological factors. Foremost among these factors was that in 1931 the British granted a new constitution whieh amounted to internal self-government with a proviso for a reserve veto power vested in the British Governor. This veto power was not likely to be used and was never used to block policies designed to improve health conditions, land settlement, and educational policies.

1. D. R. Snodgrass *Ceylon: An Export Economy in Transition*, Richard D. Irwin, Inc. 1966, p. 86.'
2. *Ibid* p. 86

Even more important was the fact that the new constitution was based on universal franchise. The new rulers dependent for their power on the masses were naturally intent on pursuing policies responsive to the needs of their 'masters'.

The building of roads and hospitals, the restoration of irrigation works and land settlements, were among the priority items of the government. For instance, by 1939 the government had established 120 hospitals with over 10,000 beds or a bed per 500 of the population. More than 400 doctors staffed these hospitals which had 3,000 other employees.[1]

Health policies had an important bearing on land settlement policies. The Dry Zone's resettlement schemes or colonization was not attractive earlier owing to the endemic malarial infestation. Therefore, malarial eradication was a sine qua non for agricultural development. Viewed more narrowly, malarial eradication would enable political favours to be granted to large numbers of land hungry peasants.

The intervention of the second World War also had a demographic significance both positive and negative. The difficulties the country underwent during the war years impressed the need for a greater degree of self-sufficiency in food crops. At a time when the only available major strategy was through land expansion this meant opening up the malaria infested Dry Zone. On the negative side, the financial stringency necessitated by the War, prevented the adoption of measures for the control of malaria. The scientific and technological knowledge for the control of malaria was available prior to 1946 but not utilisable in Sri Lanka owing to her economic conditions. In other words, Sri Lanka's death rate in 1946 was higher than it would have been had there not been an economic constraint to the application of the then known technology. No sooner the war was over the economic constraint was not merely removed but the country emerged with a large reserve of funds obtained through country's role as the major supplier of natural rubber to Britain and the allies. (Foreign reserves in 1946 were nearly 1200 million Rupees with a continuing surplus in the balance of trade for the next five years).

1. *Ibid* p. 733

Another factor which facilitated the eradication of malaria was the fact that malaria was largely confined to the sparsely populated region of the country. This enabled an intensified effort within a small area, thereby reducing the cost and the administrative manageability of the campaign

An important characteristic of this stage of the demographic transition is that the resultant population increase was not only owing to a decrease in the death rate but also due to a rise in the birth rate. While some allowance may be made for improved registration of births, the increased fertility is attributable to the improved health conditions. Further, the eradication of malaria and the subsequent resettlement of the Dry Zone created an economic environment in which increased family size was an advantage for agriculture on the larger holdings. The lack of economic pressures to reduce family size was further accentuated with social welfare policies adopted by the government around this time. These included free schooling with a free mid-day meal, free health services and subsidised rice rations to all.

We may summarise the causes for the second stage in the demographic transition to be primarily owing to the eradication of malaria and secondarily owing to improvements in health serviees, nutritional levels, new settlements, and welfare measures which eased the economic pressures of a rapid population increase. Behind the technological factors responsible for the drastic curtailment were economic, social and political forces. We turn now to consider the socio-economic consequences of the population boom.

The curtailment of the death rate had a significant impact on the population profile of the country. In 1946 the proportion of the population below 15 years was 37 per cent: in 1953 and 1963 it rose to about 41 per cent; and fell slightly to 39 per cent in 1973. As can be seen from Table 4 the dependency ratio (the proportion of the population below 15 years and over 60 years as a per cent of the population of 15-59 years) increased significantly in 1953 and declined somewhat in 1963 from that of 1946 and 1953 owing to the decrease in the proportion of persons over 60 years. But the age group of over 60 had increased substantially in 1973, resulting in a dependency ratio of nearly 84 per cent. The 1973 population by age groups and sex given in Table 5, discloses that as much as 50 per cent of the country's population was under 20 years.

Table 4
Age Composition of Sri Lanka's Population 1946, 1953, 1963 & 1973.

Age Group in years	Percentage of Population in Each Age Group			
	1946	1953	1963	1973
Less than 15 ..	37·2	41·1	40·7	39·1
15 to 59 ..	57·4	53·6	58·1	54·4
60 and over ..	5·4	5·3	1·2	6·5
Total ..	100·0	100·0	100·0	100·0
Dependency Ratio ..	79·8	86·6	72·1	83·8

Source: Statistical Abstracts of Ceylon 1950 and 1965 and Registrar General's Dept.

Table 5
The Estimated 1973 Mid-year Population by Age and Sex

Age Group	Male	Female	Total	Per cent in Each Age Group	Cumulative percentage
	in thousands				
0 — 4	922	894	1,816	13·78	13·78
5 — 9	875	848	1,723	13·07	26·85
10 — 14	829	794	1,623	12·32	39·17
15 — 19	731	712	1,443	10·95	50·12
20 — 24	618	616	1,234	9·36	59·48
25 — 29	493	494	987	7·49	66·97
30 — 34	404	393	797	6·05	73·02
35 — 39	363	344	707	5·36	78·38
40 — 44	330	299	629	4·77	83·15
45 — 49	293	256	549	4·17	87·32
50 — 54	243	211	454	3·44	90·76
55 — 59	199	166	365	2·77	93·53
60 — 64	161	130	291	2·21	95·74
65 — 69	128	102	230	1·75	97·49
70 — 74	93	73	166	1·26	98·75
75 — 79	40	38	78	0·59	99·34
80 — 84	26	24	50	0·38	99·72
85 — Over	18	19	37	0·28	100·00
Total	6,766	6,413	13,179	100·00	—

Source: Registrar General's Department

The increase in numbers of those between 15 and 20 years coming into the work force is of particular social and economic significance. The implication of the influx of a large youth population will be discussed here in relation to two factors. First, the conventional consideration of its dependent economic and social cost. Second, the less discussed long range impact on unemployment and social unrest given the particular framework of the country's social, economic and political policies.

Given Sri Lanka's social policies, the increase in the youth population was a particularly heavy economic cost. Education was free: a free mid-day meal was provided for children: rice was subsidised or free: and both consultation and hospital medical services were free. The curtailment of any of these was not possible as these were sensitive political issues. As a result resources which were needed to be expended on directly productive economic enterprises were diverted to expenditure which could yield a return only in the long run.

The structure of Sri Lanka's economy – – its high import–export character – – added further complications. The increase in population and consequent increase in consumption led to considerable increases in imports of basic food items such as rice, flour and sugar. This meant the diversion of the accumulated and currently earned foreign exchange resources for consumption expenditure rather than the import of capital goods needed to restructure the economy which was highly dependent on a few export crops.

While the population increase made the much needed structural transformation of the economy difficult, the influx of a sizable youth population on the work force at the next stage created a serious unemployment problem. This was a particularly serious situation as these youth had received varying degrees of formal schooling and considered it their right to expect secure employment, as had been available for persons of equivalent educational attainments earlier.

The International Labour Organization which conducted a study of the employment problem in 1970–71 summarised the root causes of unemployment in its report entitled **Matching Employment Opportunities and Expectations** as follows:

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1. Several burdens imposed by a high population growth rate are discussed in greater detail in Dayapala Wijewardena's Paper "Population Growth and Economic Development in Sri Lanka" in this volume.

> In brief, the emergence of chronic large scale unemployment was due to the contrast between the fast growth of population and the inertia of the economy in the face of adverse trends in worldmarkets. The particular form unemployment now increasingly takes – the jobless secondary school leaver - reflects the still more striking contrast between this economic inertia and the accelerating out-put of a conventional educational system[1]

The report pointed out an unemployment rate of 15 per cent in 1969–70 with a rate of unemployment among the 15 to 24 age group being over 40 per cent. Those in this age group with the General Certificate of Education had an unemployment rate of 70 per cent. There is an annual outflow of 250,000 youth from schools seeking employment and a third of them is estimated to have 10 years of schooling.[2]

Another recent study entitled **Employment and Unemployment in Ceylon** makes the same point when it says "Population growth is, of course, the key to much that has happened in Ceylon.[3] It focusses attention on the fact that the rapid increase in the population of the age group 15-24, "intensified the problem of finding desirable jobs for school leavers"[4] It points out that while the increase in the male population in the age group 15 to 24 has been 2.7 per cent per annum in the decade 1953–1963, the growth rate increased to 3.6 per cent for the period 1963–1968. In the case of female population growth rates, for the same age group and over the same periods, it was initially higher at 3.2 per cent but increased only slightly to 3.3 per cent.[5]

This rapid influx of youth, many of whom have a secondary or higher education, into the labour market posed a serious threat to the entire social system. The ILO team itself noted the waste and danger of Sri Lanka's unemployed youth:

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1. International Labour Office, *Matching Employment Opportunities and Expectations – A Programme of Action for Ceylon* — Geneva 1971. p 17.
2. Ibid. pp 3-4.
3. P. J. Richards, Employment & Unemployment in Ceylon. O. E. C. D. Paris 1971. p. 36
4. Ibid. p. 42.
5. Ibid loo. cit.

> The high incidence of unemployment amongst the educated means that wasteful underutilization of labour is worse in Ceylon than in many less developed countries. This is not just a matter of so many man years of educational investment going to waste. Education is a process of selection as well as of training. A good proportion of the young people with higher educational qualifications are likely to be among those in their generation with greater natural endowments of intelligence and persistence. Thus the most naturally gifted are precisely the ones whose energies and talents are being used to fuel a burning resentment instead of firing a creative life.[1]

The inability of successive governments to solve this problem was largely responsible for the youth revolt in April 1971. The energies and talents of a large number of youth were burned away in prison camps resulting also in a sizable expenditure being diverted for this purpose. Besides, many youth were killed during the revolt. More broadly, the April 1971 revolt was the most serious threat to the existing socio-political system.

The socio-economic impact of the population explosion was of an order which threatened the entire social system. This is not to imply that policies could not have been formulated to dampen the effects of the demographic development or even take advantage of it to propel the economy to higher levels. Theoretically one could in retrospect devise policies which could have done so. But given the existing framework of policies and institutions, the population upsurge seriously affected the capacity of the system to meet its needs and aspirations. On the one hand, there was the social cost of the high dependent ratio of the population, on the other hand, the influx of educated youth seeking employment was of such dimensions as to be incapable of resolution. This in turn resulted in tensions which ultimately threatened the basic political, economic and social foundation. Perhaps the dimensions of the employment problem would be clear when one realises the fact that the Five Year Plan 1971–76 does not consider it an attainable objective to solve the employment problem. Despite the emphasis of the Plan on employment generation it only seeks to reduce the number unemployed.

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1. ILO. op. cit. pp. 35 – 36.

Third Stage

Sri Lanka's recent demographic developments are discussed with a view to answering the question whether the country has reached the third stage or is likely to reach it soon. Several socio-economic factors are discussed to discern what relationship may exist between these variables and fertility trends.

The statistics given in Table 1 and illustrated in Figure 1 disclose a declining trend in crude birth rates since 1960. Yet, the crude birth rate is not a good index of a decline in fertility as it may be achieved by a change in age and sex structure of the population of reproduction age and changes in the marital distribution of the population.

A more refined measure than the crude birth rate for comparing the rapidity with which a population increases is the fertility ratio. Unlike the crude birth rate it eliminates to some extent biases caused by differences in age and sex structure of the population. The comparative fertility ratios for three years, a decade apart, are given in Table 6. This discloses that the fertility ratio increased over the first decade and declined in the next decade.

Table 6

Comparative Fertility Ratios, 1953, 1963, 1973

Year	Fertility Ratio
1953	895
1963	1019
1973	956

Note: Fertility ratio has been computed as follows:

$$\frac{\text{Number of children under 4 years}}{\text{Number of women aged 20-44 years (inclusive)}} \times 1000$$

This figure is not comparable to figures of other countries as the number of children used in other countries is generally those under 5 years.

A more sophisticated analysis to isolate biases due to differences in the age and sex structure of the population, is to standardise the crude birth rate. Such a standardisation has the effect of converting the crude birth rate of a particular year to a birth rate given a particular age and sex structure. The standardised birth rates for different years enables a more relevant comparison of fertility trends as well as enables us to see whether the factors responsible for a decline in the crude birth rate were changes in the age or sex distribution of the population.

An analysis of N. Wright on fertility changes is first summarised and then a more updated analysis is provided to test Wright's hypothesis.[1] Wright standardised the crude birth rate as well as made adjustments for under registration in 1953. He isolates the components of the decrease by age and marital distribution. His calculations are given in Table 7.

Table 7

Actual and Standardised Birth Rates and Change, 1953 and 1963

Year	Crude Birth Rate per Th.	Standardised Birth Rates		
		1953 Age Distribution	1953 Marital Distribution	1953 Age-Marital Distribution
1953	39·4 (43·3)			
1963	34·6	36·7	37·3	39·6
Percent Change	-12·2(-20·1)	-6·9 (-15·2)	-5·3 (-13·9)	+0·5 (-8·5)

Note: Figures in parenthesis on the basis of an adjusted birth rate of 43·3 for 1953
Source: N. Wright "Fertility Change in Ceylon", Demography, Vol. 5, 1968, P.790

Wright's standardisation discloses that of the actual decline in the crude birth rate of 12·2 per cent, 6·9 per cent was achieved by a change in age distribution. Had the age distribution in 1963 been the same as in 1953, then the decline in crude birth rate would have been 6·9 per cent. Had the marital conditions, such as the age of marriage and conjugal conditions in 1963, remained as in 1953, then

1. N. Wright, "Fertility Change in Ceylon", Demography, Vol. 5 (1968), pp. 745–756.

the decline in 1963 would have been only 5·3 per cent. Had both these conditions remained constant over the decade, the crude birth rate would have actually increased by 0·5 per cent.

A distinction must be made between changes occurring due to changes in age structure and changes in marital condition. The former is a statistical change which is dependent on the demographic changes that have already occurred. The marital distribution, on the other hand, is a socio-economic variable. The most important component of the marital distribution is the age of marriage. The later the age of marriage of women the lower is the fertilily potential. (We will return to a discussion of this aspect after a further analysis of the standardised birth rates).

Therefore, what is significent is that when the differences in the age structure are discounted, the fertility decline was only 6·3 per cent. When adjustments are made for the under registration of births in the two years, based on sample surveys of the corresponding years, the decline in the crude birth rate is an impressive 20·2 per cent. Yet as much as 15·2 per cent is accounted for by the change in age distribution between 1953 and 1963. This implies that other factors accoun ted for only a 4·9 per cent change in fertility. This is an even smaller change than the figures unadjusted for under registration suggest.

Wright sums up his analysis of the demographic statistics of 1963-66 thus:

> It seems unlikely that changes in marital structure are entirely responsible for the declines in age specific fertility between 1963–66. Nor is it likely that changes in age–marital structure are primarily responsible for the continued decline of the crude birth rate from 1963–1967. In the absence of reliable data after 1963 the role of population changes in the decline of the crude birth rate cannot be settled conclusively. It seems more likely, however, that declines in marital fertility have contributed more to fertility decline after 1963 than they did from 1953–63.[1]

The decline in the crude birth rate has been particularly striking in the last five years as can be seen from Table 1. In Table 8 the annual average crude birth rate is given for five year periods,

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1· Ibid p. 752

1954–1973. This discloses a distinct fall in the average crude birth rate in the last two years, This decline suggests the need for a more refined analysis of recent figures to find out whether the recent decline provides more conclusive evidence of a fertility decline, than Wright was in a position to observe with statistics upto 1966.

Table 8

Mean Annual Crude Birth Rate in Five Year Periods 1954 - 1973

Period	Mean Annual Crude Birth Rate
1954 — 59	36·3
1960 — 63	35·8
1964 — 69	32·4
1970 — 73	29·5

Source: Registar General's Department

An unmistakable decline in the age-specific fertility rates for all age groups is observable in Table 9. This implies that changes in the female age structure of the population is not likely to lead to an increase in the crude birth rate. In other words, the decline in the crude birth rate is indicative of a declining fertility trend, which cannot be arrested by a restructuring of the age composition of the female population.

Table 9

Age Specific Birth Rates 1963 - 1970

Age Group / Year	Age Specific Birth Rate Per Thousrnd								Percent Decline 1963 – 1970
	1963	1964	1965	1966	1967	1968	1969	1970	
15 — 19 Yrs.	51·8	49·4	50·0	48·1	46·7	49·2	46·4	45·6	12·0
20 — 24 ,,	227·8	218·9	218·9	212·1	209·4	216·0	211·4	202·4	11·2
25 — 29 ,,	278·4	266·6	269·2	262·8	257 9	255·1	249·0	232·8	16·4
30 — 34 ,,	239·5	226·5	220·7	215·6	207·0	204·8	190·1	164·5	31·3
35 — 39 ,,	157·0	149·5	153·1	149·5	145·5	152·1	137·6	118·4	24·6
40 — 44 ,,	45·8	45·0	42·1	43·8	44·1	44·2	40·2	35·5	26·9
45 years and over	1·8	1·7	1·6	1·8	1·7	1·7	1·7	1·5	16·7

Source of basic data: Registrar General's Department.

Note: The age specific birth rates are calculated as follows:

$$\frac{\text{No. of births by Maternal age}}{\text{No. of women in each age group}} \times 1000$$

Two other statistical measures to observe fertility trends are that of total fertility and the gross reproduction rate. The total fertility figure indicates how many children would be born on an average for every one thousand women of child bearing age, given the age specific birth rates and the assumption that no women die during this time. Similarly, a decline in the gross reproduction rate indicates the average number of future mothers born per thousand women of child bearing age. Again there is an assumption that no women die. These two rates given in Table 10 for 1963 – 1970 also indicate a downward trend in fertility.

Table 10

Total Fertility and Gross Reproduction Rate 1963 – 1970.

	Total Fertility	Gross Reproduction Rate per 1000
1963	5011	2460
1964	4789	2351
1965	4778	2346
1966	4669	2292
1967	4562	2240
1968	4616	2267
1969	4382	2152
1970	3994	1961
Percent Decline	20·3	20·3

Source: Basic data from Registrar General's Department.

Note: Total Fertility = Sum of Age Specific Fertility Rates X 5
Gross Reproduction Rate = Total Fertility X Average Rates of Female Births 1963 – 1970 (49·1%).

As discussed earlier a good measure to discern whether fertility trends are declining is obtained by standardising the crude birth rate. The standardised birth rates (with 1953 age – sex structure) is given in Table 11. This discloses a declining trend with significant decreases in the most recent years. Since a significant decline in the crude birth rate has occurred since 1970, and a decline in the age specific birth rate is observable till 1970, the standardisation of the birth rate in these years is likely to be more decisively indicative of whether a significant change in fertility has occurred. However, the data required to standardise the crude birth rates since 1970 are not yet available.

Table 11

Standardised Birth Rates 1963-1970

Year	Crude Birth Rate	Standardised Birth Rate with 1953 Base	Per cent decline from 1953
	... per thousand ...		
1953	39·4	39·4	—
1963	34·4	37·1	5·8
1964	33·2	34·6	12·2
1965	33·1	35·9	10·0
1966	32·3	35·1	12·3
1967	31·6	34·3	14·6
1968	32·0.	34·8	13·2
1969	30·4	32·9	18·6
1970	29·4	33·0	18·3

Source: Basic data from Registrar General's Department.

All indicators of fertility disclose a declining trend. Several socio-economic variables are likely responsible for this decline in fertility. The cumulative impact of several economic factors is shown in a sharp increase in the age at marriage.

Sri Lanka has had a rather higher age at marriage than other Asian countries. Yet the differences in the average ages of marriage of both males and females between 1946 and 1963 have been minimal. Since 1963, however, a rapid increase in the average age of marriage is observable. The average age at marriage of women in 1963 was 22·2. In 1971 this age had risen to 23·5. The mean age of marriage of men was 27·8 in 1963 and had risen to 28·0 in 1971[1]. The increase in the average age at marriage is somewhat biased by the fact that some existing customary marriages have been registered. This would have had the effect of raising the average age at marriage. Yet since this is not likely in a large proportion of marriages the increase in mean age of marriage reflects a real increase in age.

1. Department of Census and Statistics, *Bulletin on Vital Statistics 1974 p.* 6.

This increase is likely owing to factors such as changes in occupational structure, the increase in the length of schooling, inadequate employment opportunities and a greater proportion of non-self employment. An imbalance in the sex ratio in the marrying ages has also been advanced as a significant factor. The sexual imbalance is, however, based upon the assumption that conventional marriage age differentials in the two sexes are maintained. These marriage age differentials could themselves be adjusted, if the other socio-economic variables promote early marriages. Although these forces are likely to continue to influence fertility trends downwards they are not factors to depend on for an important break- through in reducing the birth rate, as the average age of marriage is already high and a further increase of a significant amount is not very likely.

We now turn to discuss the impact of socio-cultural factors on fertility. Such an analysis is generally difficult without specific field surveys. Yet we may attempt this in the case of Sri Lanka's statistics by examining the crude birth rates of the different ethnic communities. Since particular socio-economic and cultural factors could be identified with each of the ethnic groups, within broad limits, it is possible to draw some tentative conclusions. The crude birth rate per thousand for each of the major ethnic groups is given for the years 1960 - 71 with four year annual averages in Table 12.

One of the striking aspects of these statistics is the low crude birth rate for the Indian Tamils and its decline in recent years. It has fallen from 33 per thousand in 1960 to 26 per thousand in 1971. In terms of the 4 year annual averages the birth rate has fallen from 31 to 26 per thousand from 1960 - 63, to 1668 - 71. When allowance is made for a greater degree of under registration in earlier years, the real drop is likely higher. This trend is contrary to the general thesis that the birth rate has a positive correlation with literacy and education. A closer examination of the factors responsible for this declining trend is illuminating of the impact of socio-economic factors bearing on fertility.

The literacy and education levels of the Indian Tamils are significantly lower than other sections of the population. The Socio-Economic survey of 1969-70 disclosed that 43 per cent of the estate labour force had no schooling whatsoever and 48 per cent had only 1 to 5 years of schooling. In comparison, only 10 per cent of the

Table 12

Crude Birth Rates by Ethnic Groups 1960 - 1971

	— Annual Crude Birth Rates per Thousand —												Average Annual Crude Birth Rate		
	1960	1961	1962	1763	1964	1965	1966	1967	1968	1969*	1970*	1971*	1960 - 1963	1964 - 1967	1968 - 1971
Sinhalese	36·5	35·7	35·0	34·1	32·7	33·0	32·1	31·3	32·2	30·5	29·2	29·9	35·3	32·3	30·5
Ceylon Tamils	38 8	38·4	39·7	36·9	37·2	36·5	35·4	34·6	33·7	32·0	31·5	31·8	38·5	35·9	32·3
Indian Tamils	33·1	31·4	31·4	29·1	27·7	27·1	26·3	27·1	26·4	25·6	25·3	25·7	31·3	27·1	25·8
Cyelon Moors	42·7	42·9	43·9	41·7	42·9	40·9	42·3	40·9	40·9	39 2	38 8	39.0	42·8	41·8	39·5
Indian Moors	21·1	19·6	18·9	18·3	15·4	13·6	11·4	11·8	9·9	9·4	7·9	8·7	19·5	13·1	9·0
Malays	37·9	34·8	33·1	42·6	33·0	34·3	29·6	26·5	26·4	25·5	23·2	24·4	37·1	30·9	24·9
Burghers and Eurasians	25·4	22·4	21·9	21·7	24·4	21·7	20·7	19·9	19·1	19·0	17·5	18·3	22·9	21·7	18·5
Europeans	14·1	19·0	19·6	23·4	—	–	–	–	–	–	–	–	19·0	–	–
Others (Pakistanis Europeans etc.)	19·2	16·4	19 0	43·4	43·3	23·2	24·0	26·3	21·5	21·5	21·3	21·4	24·5	29·2	21·4

* Provisional

Source: Reports of the Registrar – General of Ceylon on Vital Statistics and Registrar – General's Department.

rural labour force had no schooling and 39 per cent between 1 and 5 years of schooling.[1] Similar underdevelopment in literacy and education was disclosed in the Consumer Finance Survey 1973. Table 13 gives the educational characteristics of the different ethnic communities and the average crude birth rates for 1968-71. This does not show a clear correlation between educational and literacy attainments and the crude birth rate. Since the educational and literacy levels do not indicate a positive correlation what then explains the striking decline in fertility?

Table 13

Literacy, Educational Attainments and Crude Birth Rates

Communities	No Schooling Illiterate (Percent)	No Schooling 1973 (Percent)	Index of Education Attained 1973	Crude Birth Rate 1968 - 71
Kandyan Sinhalese ..	30·2	33·6	3·71	30·5
Low Country Sinhalese ..	23·8	25·9	4·57	
Ceylon Tamils ..	29·8	33·5	3·52	32·3
Indian Tamils ..	44·5	51·5	1·89	25·8
Ceylon Moors ..	33·7	36·9	3·23	39·5
Indian Moors ..				9·0
Malays ..	20·2		5·66	24·9
Burghurs & Eurasians ..	13·5	—	6·64	18·5
Others ..	22·7	17·4	4·74	21·4
All Communities ..	29·0	32·2	—	—

Sources: Survey of Sri Lanka's Consumer Finances 1973 & Registrar General's Office.

While Hinduism does not prohibit contraception its conservatism is hardly likely to be an advantagous factor Nearly all Indian Tamils are Hindus in religion with a very small number of Roman Catholic Christians.

The Indian Tamils in Sri Lanka form a distinct ethnic-cultural community with little or no interaction with the other communities in the country. They live and work mainly in tea and rubber estates; the children attend special estate schools, their medical needs are often met within the estate; and they even patronise only their own little shops on the estate for their daily needs. Their status is precarious.

1. Department of Census and Statistics, *Socio-Economic Survey 1969 - 70*

Most Indian Tamils do not have citizenship rights and of about 1·2 million of them in the country, 600,000 are to be repatriated to India while 375,000 are to be given citizenship under the Indo-Ceylon agreement.

The deteriorating economic conditions and the uncertainty of their future are important factors. The deterioration in economic conditions has been particularly rapid. In the 1950's an adult in the estate sector was more or less certain of employment. With the increase in estate population and the reduction of employment on estates consequent on the decline in tea prices a serious unemployment situation developed in this sector. For instance in 1969/70 the proportion of the labour force fully unemployed was a little less than 9 per cent; about 10 per cent of the employed manpower was estimated to be working short hours.[1] Since wages are low this creates serious economic difficulties. Employment outside the estates is not possible due to linguistic and cultural factors, the lack of outside employment opportunities and the lack of citizenship.

A few other factors also help to explain the decline in fertility. The Indian Tamil labour is highly unionised and tends to follow the advice of labour leaders. The main estate labour unions came out in favour of birth control about a decade ago and this is likely to have asserted an important influence on the adoption of family planning. The estate management too encouraged it. Further a high ratio of women are employed on the estates. Pregnancy is therefore a direct cause for the reduction of family incomes especially where the woman is an important income source. Unlike in peasant agricultural conditions, where increases and decreases in labour availability are compensated for within the family by other members of the family working more or less and family income left hardly affected, in the estates the withdrawal of a labour unit results in a lower income.

Both the highest birth rate and the least decline in birth rates are found among the Ceylon Moors. Muslims have the lowest average age at marriage for both males and females. In 1965 the mean age at marriage of males was 27·5 and of females 19·7. As many as 81·4 per cent of females who were married in 1965 were below 25 years old.[2] All these figures do not show any significant decline in the last few years.

1. International Labour Office, *op. cit* p 31
2. Report of the Registrar General of Ceylon on Vital Statistics 1965 p.20

Cultural traits that are likely to have an influence on fertility are the near complete dominance of the male in family life, the non-exposure of most muslim women to broader social life, their limited employment in gainful occupations and the overhelming control that religious ideas and views have in muslim living. Some of these factors may not bear on the muslim elite classes whose way of living is in many ways akin to the westernised elites of other ethnic groups. But since the westernised elite is a very small fraction of the muslim population this is not of demographic significance. Besides, even among these elites it is generally observed that their family and social life continues to be tradition-bound considerably more than that of other ethnic groups. Religious ideas of the muslim religion are also inimical to family planning and birth control adoption.

All these socio-cultural factors point to a prolonged period of resistence to birth control and continued high fertility. Whether changes in economic conditions are likely to assert a counter influence is a matter of conjecture. Since the muslim population constitutes only 7 per cent of the total population, this may not be particularly important except that the non-adoption of a particular group leads to political argument against such adoption by other ethnic groups. In fact, some opponents of family planning argue against the majority Sinhalese community's adoption of birth control on the spurious ground that they would be reduced to a minority as other ethnic groups such as the Ceylon Tamils and Muslims would not similarly adopt birth control.

Both the Sinhalese and Ceylon Tamils have shown only a slight decline in birth rates. However, the crude birth rate among the Sinhalese is slightly lower than that of the Ceylon Tamils and has been so for many years. Since the Sinhalese comprise largely Buddhists, and the Tamils, Hindus, these figures may be used for comparison of the cultural impact of the two on fertility. Yet the differences are not significant to draw inferences about the impact of religion as these differences may be owing to economic factors and educational levels, Unlike in the case of the Indian Tamils, where distinctive educational, occupational and cultural characteristics are identifiable, the heterogeneity of the Sinhalese and Ceylon Tamil population prevents a simple correlation being drawn between cultural characteristics and fertility.

Another variable which is often cited as a crucial factor in the reduction of fertility is the degree of urbanization. The only basis on which we could demarcate areas by the level of urbanization is to consider town areas as urbanised and see whether these areas have a significantly lower birth rate. In 1965 the crude birth rate for all town areas was 31·9 per thousand as against the national crude birth rate of 33·1. Therefore, ostensibly the urban birth rate is lower than the non-urban birth rate. However, the category consists of a wide range of urbanization. If we consider the urban areas of Colombo and its immediately surrounding urban regions, we find the following birth rates per thousand in 1965; 27.8, 27.8, 33.3[1] Even these do not suggest a significant difference. However, we cannot reject the hypothesis that urbanization has a bearing on fertility.

The average crude birth rates for two recent periods (1963-67 and 1968-72) of the 22 districts are given in Table 14. In order to observe whether there are regional fertility differences the different

Table 14

Average Crude Birth Rates and Population Density by Districts

District	Average Crude Birth Rates		Population Density 1971 (Persons per Square mile)
	1963 – 67	1968 – 72	
Colombo ..	29·9	28·8	3374
Kalutara ..	27·3	26·2	1180
Kandy ..	34·0	30·4	1299
Matale ..	37·9	32·6	411
Nuwara Eliya ..	33·1	29·7	956
Galle ..	28·0	27·2	1142
Matara ..	33·7	30·3	1223
Hambantota ..	35·1	30,8	341
Jaffna ..	32·1	29·4	730
Mannar ..	38·3	34·3	81
Vavuniya ..	40·2	37·0	67
Batticaloa ..	43·1	39·9	271
Amparai ..	40·7	37·2	237
Trincomalee ..	39·8	37·6	190
Kurunegala ..	33·6	29·3	558
Pattalam ..	35·2	32·1	331
Anuradhapura ..	39·3	36·5	141
Polonnaruwa ..	37·7	34·3	125
Badulla ..	37·4	33·2	566
Moneragala ..	42·8	39·0	70
Ratnapura ..	32·2	31·8	529
Kegalle ..	26·7	24·8	1016

Sources: Department of Census and Statistics. *Bulletin on Vital Statistics 1974* and *Statistical Abstract of Ceylon 1970-1971*

1. *Ibid*, p.H135

districts have been grouped into four categories on the basis of districts with the average 1968-72 crude birth rates per thousand of 24 to below 29; 29 to below 33; 33 to below 37; and 37 to 40.[2] These four groups are shown on a map in Figure 2. This map discloses a striking geographic continuity or the location of the four groups in identifiable areas of the country. This suggests important socio-economic variables.

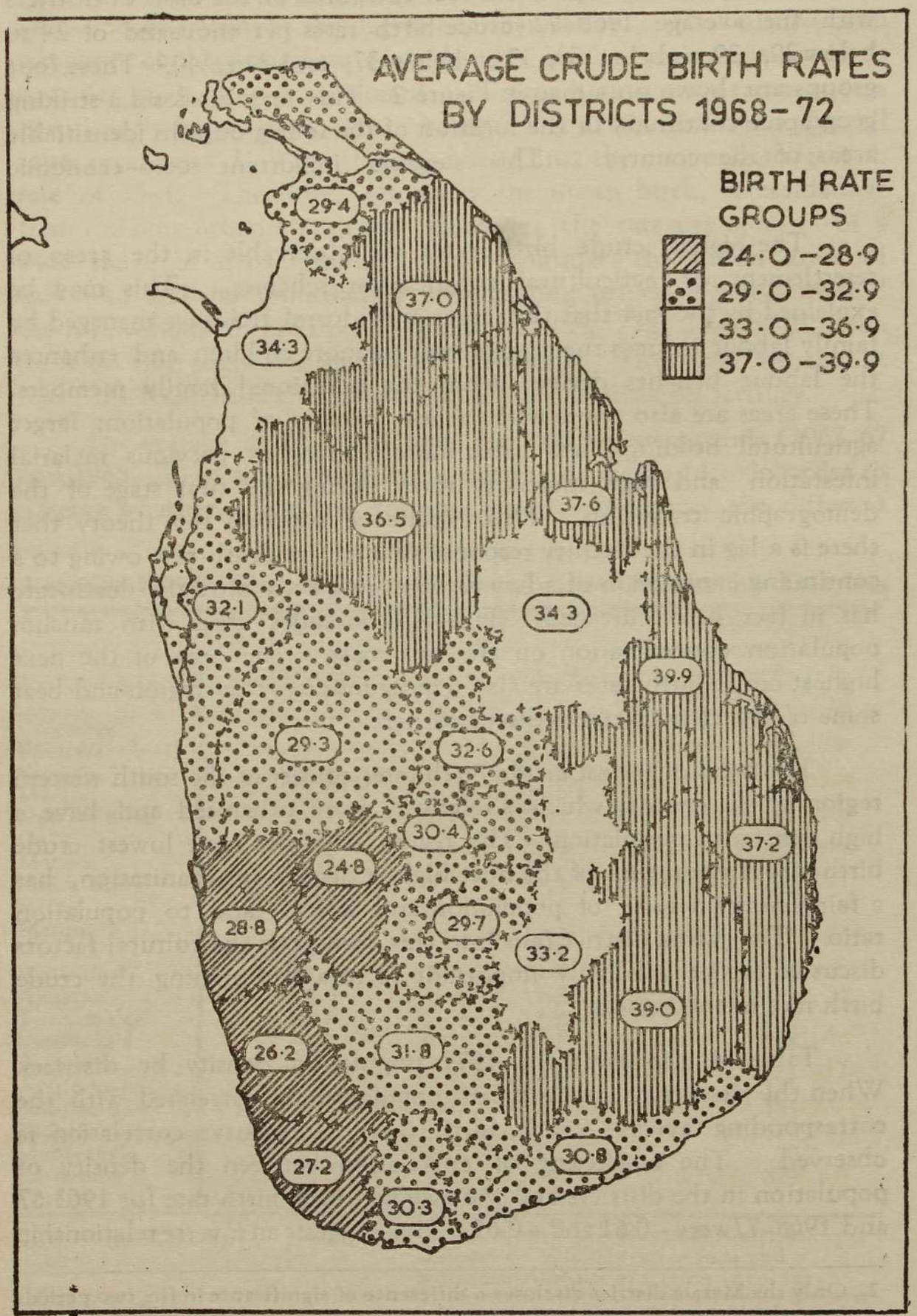
The highest crude birth rates are observable in the areas of resettlement or agricultural colonization schemes. This may be explained by the fact that the larger agricultural holdings managed by family labour reduces the cost of bearing more children and enhances the labour benefits derived from the additional family members. These areas are also those with a low density of population; larger agricultural holdings; less urbanization; areas of previous malarial infestation and high mortality rates during the first stage of the demographic transition. This experience supports the theory that there is a lag in the fertility response to a cut in death rate owing to a continuing expectation of a low survival rate even after the death rate has in fact been curtailed. This also includes areas with muslim population concentration on the east coast. The area of the next highest crude birth rates are also contiguous to this region and bear some of the characteristics discussed here.

The areas of lowest crude birth rates consist of the south western region of the country which is relatively more urbanized and have a high density of population. The region with the next lowest crude birth tate is the region of the next highest degree of urbanization, has a fairly heavy density of population and a low land to population ratio. The Jaffna district falls into this group but the cultural factors discussed earlier are likely important factors determining the crude birth rate in this region.

Table 14 also gives the 1971 population density by districts. When the districtwise density of population is correlated with the corresponding average crude birth rates, a negative correlation is observed. The coefficient of correlation between the density of population in the districts and the average crude birth rate for 1963-67 and 1968-72were - 0.61 and - 0.65. This suggests an inverse relationship

2. Only the Matale district discloses a difference of significance in the two periods into which the data have been grouped.

Figure 2



between population density and the crude birth rate. This level of negative correlation of the two variables with 22 observations is enough to grant the coefficient is sufficiently significant. The probability of a sample of this size yielding a negative correlation coefficient of this magnitude, if the two variables are not correlated, is less than 1 per cent.

Abhayaratne and Jayawardene who arranged the twenty-two districts of Sri Lanka by demographic characteristics have also found that districts with common demographic characteristics are nearly contiguous. They contend:

> The districts can be arranged in a continuum according to the magnitude of the crude birth rate. Almost the same ranking results if the criterion utilised is the density of the population, the average age at marriage, the total fertility, or the proportion of the population married, for a low birth rate is associated with a high density of population, a high average age at marriage, a low total fertility and a low proportion of the population married.[1]

Two other factors affecting population growth is the death rate and migration. We have discussed the sudden decline in mortality which was responsible for the demographic transition from the first to second stage. It is, however, a characteristic of the third stage that the fall in population growth rate occurs owing to a decline in the birth rate while the death rate tends to reach a stable level. Since 1961 Sri Lanka's crude death rate has been around 8 per thousand.

The crude birth rate is a poor indicator of mortality owing to the influence of the age structure. A better indicator of mortality rates is the expectation of life at birth. In 1962-64 the expectation of life at birth was 63·3 years for males and 63·7 years for females. The corresponding rates for 1967 were 64·8 and 66·9 years.[2] At this level of life expectancy only a small decrease in the crude death rate is possible. However, a higher crude death rate may be expected with the aging of the population.

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1. O. E. R. Abhayaratna and C. H. S. Jayawardene, *Fertility Trends in Ceylon*, Colombo 1967 p. 127.
2. T. Nadarajah. *Life Tables. Ceylon 1962-1967*, Department of Census and Statistics 1970.

This paper has concentrated on mortality and fertility trends which effect the rate of natural increase. For completeness it must be added that the rate of population growth is affected by the net migration rate. Till 1901 migration constituted a very important source of population increase. Though declining it was significant till 1931, when it began to constitute a smaller proportion. Since 1963 there has been an outflow of population which has reached a significant proportion since 1971 owing to the implementation of the plan to repatriate about one half million persons of Indian origin and then natural increase. However, this movement will decline once the agreed number is repatriated by about 1983.[1]

Summary and Conclusions

Sri Lanka's demographic transition from the first stage of a low population growth, owing to commensurately high birth and death rates, to the second stage, of a rapid population growth rate owing to a drastic decline in the mortality rate, occurred dramatically in 1945-47. Although this transition was possible owing to the exogenous technological developments, the adoption of these developments was possible owing to several socio - economic conditions. For over two decades Sri Lanka remained at this stage. Consequently the economy bore a considerable social and economic cost especially owing to a high dependency ratio in a context of necessary welfare measures. A very serious unemployment problem has been one of the most severe strains on the economic system and has been of an order which threatened the system itself.

However, the economic difficulties engendered by the rapid population increase have themselves been an important factor bearing on the subsequent decline in fertility. The rapid decline in birth rates among the Indian Tamil community and the postponement of the age of marriage are particular indications of this. The analysis of several indices of fertility in this paper indicate a downward trend in fertility. Although data required to analyse the period 1970-73 are not yet available, the decline in the crude birth rate together with the decline in several fertility measures between 1963 and 1970 indicate a likely decline in the birth rate in the coming years. These are of an order which indicate that Sri Lanka has reached the third stage of

1. See Dayapala Wijewardena's paper in this volume for a more detailed discussion of migration.

a relatively slow population growth owing to a decline in birth rate. The differences in fertility by districts which show an inverse relation ship between the degree of urbanization and the birth rate, support the generally propounded hypothesis that urbanization leads to a decline in birth rates. On the other hand, the rapid decline in fertility among the Indian Tamils who have low levels of literacy and educational attainments demonstrate that literacy, though an influencing factor, is not a binding constraint on the reduction of population. Since several of the socio-economic variables identified as having a bearing on fertility are likely to continue their influence, the decline in fertility is likely to continue. Owing to this there could be an expectation of achieving the low population projections for the third quarter of this century.

COMPETITIVENESS OF CHILLI AND PADDY CULTIVATION: AN EXAMINATION OF DATA FROM THE ANURADHAPURA DISTRICT

K. S. E. JAYATILLAKE
M. U. A. TENNAKOON

During the last four years the cultivation of chillies has enjoyed a price advantage over rice cultivation and serious concern has been expressed on the possibilities of a significant diversion of resources from rice to chilli cultivation. While the market for chillies is virtually free from administrative controls, rice marketing is a state monopoly and severe restrictions exist on the unauthorised transportation of rice. In this situation, relative prices are not an indication of the relative demand for the two commodities. Hence, if a substantial diversion of resources away from paddy occurs, as alluded, it would mean a serious waste of resources. The inquiry that led to this note was initiated with the purpose of quantifying the effects of the price difference and it has used data collected from 15 traditional villages in the Anuradhapura district.[1] (These villages formed a part of the sample in a survey conducted by the Central Bank, in 1974, in the Mahaweli Development Area). However, the inquiry concluded that the fear of a diversion of resources from rice cultivation to other crops is mainly unfounded.

Recent Price Movements

The rapid expansion of chilli cultivation in Sri Lanka in recent years provides an excellent example of production responding to price incentives. Till recently almost the entire consumption of dried chillies was met by imports. The imports which amounted to 12,600 tons in 1971 was reduced to 6,710 tons in 1972. In 1973 the imports were further reduced to 1,177 tons which is less than one tenth of the imports of 1971. The latest published Customs data show that there were no chilli imports during the first nine months of 1974. In the circumstances, the price of dried chillies, which was less than Rs. 4.00 per lb. prior to curtailment of imports, rose upto as high as Rs. 40.00. Chillies, being a crop of short duration of 5 to 6 months needing no

1. The importance of the district in the cultivation of the two crops is indicated by the following figures. The district produced 10·8 per cent of the paddy output in the Maha Season, 1973, and 18·7 per cent of the chilli output, 1973.

costly infra-structure, responded quickly to the price incentive in the form of increased production. As a result, in 1974, the consumer price of chillies varied between less unrealistic rates of Rs. 7.50 and Rs. 18.00 per lb. Unlike in the case of perishable agricultural products where middlemen control the market, the farmer realises a substantial share of the consumer price of chillies.

In the case of paddy the guaranteed price to the farmer is Rs. 33.00 per bushel. With the view to making rice cultivation more attractive the Government increased the guaranteed price of rice from Rs. 18.00 in 1973 to Rs. 33.00 in 1974. Yet the price received by the farmer continues to be unfavourable when compared to the price of chillies as shown in the appendix. The guaranteed price of paddy is taken as the market price of paddy in this study because, in the surplus paddy producing areas, it can be regarded as a good approximation to the farm gate price. Despite the high market price of rice in unauthorised rice transactions, farmers in the major rice producing areas, like the Anuradhapura district, are unable to profit from it, since a large part of the price difference is absorbed by 'frictional' costs arising from severe administrative restrictions on free transportation of rice.

A Naive View of the Problem

While the requirements of credit, fertilizer and agro-chemicals are substantial in the case of paddy, the cultivation of chillies, as currently practised in the Anuradhapura district, requires hardly any fertilizer, or credit and little agro-chemicals. Hence, when a diversion of resources from paddy to chilli is said to take place, for all practical purposes, it can only mean a diversion of land and labour. On this line of argument, the solution to the problem of resource allocation was thought to take the following naive form.

A village seeking to maximize profit in the cultivation of crops should follow one of the following three ways in the allocation of arable land to a particular crop:

(a) If arable land is the binding constraint and if there is another crop that gives a higher profit per acre, that crop will be allocated the maximum possible land before any land is allocated to the particular crop.

(b. i) If labour is the binding constraint and if there is another crop that gives a higher profit per labour unit as well as per acre, that crop will be allocated the maximum possible land before any land is allocated to the particular crop.

(b. ii) If labour is the binding constraint and if there is another crop that gives a higher profit per acre and a lower profit per labour unit, that crop will not be allocated the maximum possible land before any land is allocated to the particular crop. This does not show the method of allocation which, in fact, depends on the profitabilities and labour inputs associated with the problem.

Under the cases (b. i) and (b. ii) some arable land could remain unemployed. No proofs of these statements are given here as two are obvious and the other can easily be derived by way of a linear programming solution.

Application to Survey Data

The unemployment data gathered from the 15 villages show that during the two months of October and November, when the cultivation activity was at its highest, there was only a negligible percentage of the work force unemloyed. (Here the work force was defined as the number of males and females between 14–65 years of age less the number of school-going and disabled persons). The peak cultivation season can therefore be regarded as a period of labour scarcity. Furthermore, as shown in the appendix, both the profit per acre and the profit per unit of labour are higher from chilli cultivation than from paddy cultivation. Therefore, if the implied underlying model from which the above conclusions follow is correct, preference will be given to chilli over paddy in the allocation of land (and therefore labour). As a direct corollary it follows that land suitable for both paddy and chilli will not be allocated to the former crop.

Before the validity of these conclusions are examinad in the light of sample data, it is appropriate to deal with some problems associated with the cultivation of chillies in irrigated paddy lands. Under the Paddy Lands Act of 1958 and the Agricultural Lands Law of 1973, the cultivation of asweddumized rice lands with any other crop, unless authorized, is illegal. It appears that this aspect of the law is not strictly enforced. Apart from the legal prohibition, problems set by

nature restrict the use of irrigated paddy lands for chilli cultivation. The chilli plant requires a well drained soil particularly during the early period of its growth. During the rainy season these conditions could be found mainly in the undulating highlanding and not in the irrigated paddy fields subject to inundation. Retention of water at the roots of chilli plant for a long period of time is harmful though the same is favourable for the paddy plant. Therefore, if at all, in such lands the crop can commence only at the end of the main rainy season, but the water in most of the village tanks is inadequate to meet the water needs of the chilli plant in the ensuing five or six months. However, the villages with a perennial supply of water, such as those receiving their water from major irrigation canals or those with large reservoirs could divert their paddy lands to chilli during the Yala season without precluding the possibity of a Maha paddy crop.

The data presented in Table 1 show the allocation of land for cultivation. The irrigated lands in the 15 villages, except Palugaswewa and Potanegama, do not have a perennial supply of water and in agreement with the arguments adduced in the last paragraph no such land has been diverted from paddy. However, contrary to expectation, the irrigated lands in Palugaswewa and Potanegama with a perennial supply of water from Kala-Yoda Ela, also have remained under paddy during the Yala as well as Maha. A possible explanation for non-cultivation of chilli in the irrigated paddy land during the Yala season, inspite of a regular supply of water, is that the real benefits to the farmer from rice cultivation exceeds that from any other possible crop. If the villagers do not produce their requirement of rice they will be able to obtain only the cereals available on the ration which are far from adequate. Therefore, they will endeavour to produce rice to reach self sufficiency. In this regard, it is also relevant to point out that an individual farmer is unable to consider market prices as given and to act accordingly, independent of the other farmers. For instance, he will be unable to cultivate the more profitable chilli in irrigated land and expect the prices to remain unchanged, because he is fully aware that his field could switch to chilli only if other fields in the neighbourhood also swith to chilli, for no two crops with different requirements of water and different periods of growth can be cultivated in the same tract of irrigated fields.

Table 1 - Acreage Cultivated with Rice and Other Crops in the 15 Sampled Villages-1973/74 Maha

Village	Irrigated Rice Acerage		Chena Acreage	
	Cultivated	Uncultivated	Chilli	Other Crops
Nellumtottama ..	45	3	39	19
Kongollewa ..	12	16	26	15
Batalawatta ..	10	–	–	–
Kuda Indigollewa ..	43	–	2	13
Hurigaswewa ..	4	43	22	22
Ihalagama (Kurukkankulama) ..	10	15	15	13
Malawa* ..	53	142	31	89
Ihalagama (Dunumadala Oya) ..	34	37	2	12
Medagama ..	89	96	20	45
Palugaswewa ..	182	–	–	–
Pahamunegama ..	44	79	132	36
Ketakale ..	209	100	79	8
Nikiniyawa ..	–	90	47	78
Potanegama ..	86	1	25	120
Ratmalgaha-Ela ..	76	11	5	25
Total ..	897	633	445	495

* In addition, Malawa has 32 acres of rainfed riceland of which only 14 were cultivated.

Based on data from the Survey of Sri Lanka's Consumer Finances 1973,[1] it is estimated that on the average an individual in the rural sector needs about 5 bushels of unhusked rice per year in addition to the rice distributed under the ration scheme. The average consumption in the rural sector as a whole is likely to be less than the average consumption of the farm families. Furthermore, in aiming at self sufficiency, the farmer has to give due consideration to the vagaries of weather and hence the self sufficiency level ought to be much higher than five bushels (over the receipts on ration). The level of self sufficiency ought to vary from village to village and there are no data available to make estimates of these levels.

The data in Table 2 show the average level of output of unhusked rice per person in the 15 sampled villages. It is likely that only one village, namely, Kuda Indigollewa, with an average produc-

1. Survey of Sri Lanka's Consumer Finances, 1973, Central Bank of Ceylon, Colombo, 1974.

tion of 57 bushels per person has exceeded the level of self sufficiency. A figure of 58.4 bushels recorded against Nellumtottama is misleading because the irrigated fields in this village sustain a larger population than the 37 persons resident in the village.[1]

Table 2

Average Production of Unhusked Rice per Person in the 15 Sampled Villages

Village	No. of persons in the village	Production (bushels)	Average production per person (bushels)
Nellumtottama ..	37	2160	58·4
Kongollewa ..	101	444	4·4
Batalawatta ..	19	350	18·4
Kuda Indigollewa ..	63	3612	57·3
Hurigaswewa ..	167	200	1·2
Ihalagama (Kurukkankulama) ..	225	400	1·8
Malawa ..	187	1537	8·2
Ihalagamr (Dunumadala Oya) ..	200	1190	6·0
Medagama ..	230	3916	17·0
Palugaswewa ..	553	8554	15·5
Pahamunegama ..	350	1540	4·4
Ketakale ..	385	7106	18·5
Nikiniyawa ..	460	–	0·0
Potanegama ..	1030	5504	5·3
Ratmalgaha-Ela ..	1220	2284	1·9

An apparent Contradiction

If rice is more profitable than chillies only upto the point of self sufficiency in rice, as already argued, it implies that the farmer would cultivate rice only as far as meeting his consumption needs. If this be the case, how could the Anuradhapura district produce a rice surplus? The apparent contradiction partially arises from the use of the average yield data for comparison of profitabilities of the two crops. There is a point beyond which the yield per acre of rice makes rice cultivation more profitable than chilli cultivation. A case in point is Kuda Indigollewa where the rice cultivation is continued beyond the point of self sufficiency because, at a yield of 84 bushels per acre the returns to

1. A large number of residents has left the village but continues to cultivate the fields in the village.

land and labour become higher than those of chilli. In most of the colonization schemes the rice yields are high enough to give competitive returns to land and labour and accounts at least partially for the rice surplus. It is also possible that the clause in the Agricultural Lands Law that restricts the asweddumized lands to rice is enforced more effectively in colonization schemes and rice is grown in these schemes even when it is comparatively disadvantageous.

Another possible explanation is provided by the method of allocation referred to as (b. ii) above. It can be shown easily that when the rice yield is sufficiently high a situation can arise where profit from rice per labour unit is higher than that from chillies, while the profit per acre from rice is lower. In this situation rice could receive a land allocation more than necessary to reach self sufficiency and consequently a surplus could arise.

Possibility of Labour Diversion

As seen from Table 1, about 40 per cent of the irrigated land has been left uncultivated and the question arises whether labour instead of land has been diverted from paddy. In Palugaswewa and Potanegama with adequate irrigation facilities virtually all irrigated fields were cultivated and as such there has been no diversion of labour from paddy. Hence one wonders, in the case of other villages, whether a deterioration in irrigation facilities rather than a labour diversion has made difficult the cultivation of some land which once enjoyed satisfactory irrigation facilities. The data gathered in the survey show that this, in fact, was the case. Generally, a village has a main tank and a number of small tanks. Over the years the tanks have got silted and the releasable storage has declined. In the case of three villages, Hurigaswewa, Nikiniyawa and Malawa, the catchment areas of their main tanks have been tapped in the renovation of other tanks. Table 3 gives the releasable storage and the reasons for neglect of paddy lands under the main and minor tanks. Of the 40 minor tanks belonging to the 15 villages, 10 were completely breached and another 20 had releasable storage not exceeding 4 feet.

Table 3

Reasons for Non-cultivation of Irrigated Rice Lands

Village Name	Irrigated Rice (Acreage)		Releasable Water Storage (ft.)		Reasons for Non-cultivation
	Cultivated	Non-cultivated	Main Tank	Minor Tanks	
Nellumtottama ..	45	3	8	5,1,1	
Kongollewa ..	12	16	8	6,0,0,0,0	Four feeder tanks breached
Batalawatta ..	10	–	8	–	
Kuda Indigollewa ..	43	–	4	–	
Hurigaswewa ..	4	43	8	–	Catchmeni area tapped by a renovated tank
Ihalagama (Kurukkankulama) ..	10	15	5	–	Tank neglected, water inadequate
Malawa ..	53	142	7½	4,2,2,0,3	Catchment area tapped by a renovated tank; minor tanks silted.
Ihalagama (Dunumadala Oya) ..	34	37	11½	7,	Inadequate water
Medagama ..	89	96	8	0,0,0,0,7, 5,5	Four tanks breached; fragmentation
Palugaswewa ..	182	–	*		
Pahamunegama ..	44	79	13	4,4,5,5,3,) 8,9,2,2,3,4	Tanks silted, fragmentation
Ketakale ..	209	100	8	4,4,4,4,3,0	One tank breached, other tanks silted
Nikiniyawa ..	–	90	6½	–	Catchment area tapped by renovated tanks.
Potanegama ..	86	1	11	*	
Ratmalagaha-Ela ..	76	11	10	4,3	Lowering of tank sluice denied water to som land.

* Water supplied by Kala– Yoda Ela.

There is a certain practice among the dry zone farmer which is sometimes interpreted as the farmer's preference for chillies over rice. With the onset of the north-east monsoon rains the farmer plants chillies and only thereafter takes to irrigated rice cultivation. This, however, is not due to a special preference for chillies but is a strategy to cultivate both crops with a limited labour supply. Furthermore, the farmer, very wisely, is reluctant to sow his irrigated rice fields until the reservoirs hold sufficient water to irrigate his fields.

Conclusion

Data gathered from 15 randomly drawn traditional villages in the Anuradhapura district do not show a diversion of resources from rice cultivation as alluded. Due to physical limitations chilli cannot be grown in irrigated rice lands during the Maha season. Even though chilli could be grown in irrigated land with a perennial supply of water during the Yala season no such cultivation is practised due to a variety of reasons including the one that the real value of rice arising from the need for subsistance is higher than that of chilli.

APPENDIX

Table A presents estimates of the average profit per acre and per labour day obtained from rice cultivation in the 15 sampled villages referred to in the text. The average yield is in terms of unhusked rice. The output is evaluated at the guaranteed price of Rs. 33·00 per bushel. The average yield and the average cost pertain to a successful normal Maha season and their computations were based on the concensus of opinion among the village elders. All labour input were valued at the labour rates prevailed at the time of survey in the villages. Since the text considers a situation of labour scarcity the inclusion of the imputed value of the farmer's own labour in the cost was considered appropriate. In the computation of the overall averages for the 15 villages the area cultivated with rice during the 1973/74 Maha season were used as weights.

The average output from an acre of chilli was taken to be 8 cwts. of dried chilli. The output valued at a price of Rs. 6·00 per lb. amounts to Rs. 5376·00. The average cost of production per acre of chilli was obtained from the data provided by the Department of Agriculture, by excluding the expenditure on application of fertilizer and irrigation. Then the cost per acre of chilli amounts to Rs. 1872·00, and the number of man-days required to cultivate an acre is 191. Accordigly, the profit per acre and per man-day are Rs. 3504·00 and Rs. 18·34 respectively.

Table A

Returns to Land and Labour from Rice Cultivation in the 15 Sampled Villages

Village	1973/74 Maha Acreage Cultivated	In a normal Maha Period per Acre Average					Average Profit per Labour Unit
		No. of Man-days Used	Yield (Bushels)	Value of Yield (Rs.)	Cost (Rs.)	Profit (Rs.)	(Rs.)
Nellumtottama ..	45	54	48	1584	595	989	18·31
Kongollewa ..	12	55	37	1221	475	746	13·56
Batalawatta	10	36	35	1155	550	605	16·80
Kuda Indigollewa ..	43	83	84	2774	691	2083	25·09
Hurigaswewa ..	4	49	50	1650	467	1183	24·14
Ihalagama (Kurukkankulama)	10	58	40	1320	776	544	9·37
Malawa ..	53	96	29	957	783	174	1·81
Ihalagama (Dunumadala Oya)	34	53	35	1155	923	232	4·37
Medagama ..	89	62	44	1452	1065	387	6·24
Palugaswewa ..	182	94	47	1551	965	586	6·23
Pahamunegama ..	44	43	35	1155	770	385	8·95
Ketakale ..	209	79	34	1122	1297	-175	-2·21
Nikiniyawa ..	–	–	–	–	–	–	–
Potanegama ..	86	77	64	2112	1097	1015	13·18
Ratmalgaha-Ela ..	76	88	30	990	969	21	0·23
Weighted Average ..		76	43	1419	996	423	5·56

THE IMPACT OF WELFARE SERVICES IN SRI LANKA ON THE ECONOMY

H. N. S. KARUNATILAKE

For more than twenty five years successive governments in Sri Lanka have been committed to continuing a policy of providing extensive welfare services to all segments of the population. These benefits have included subsidies on essential foodstuffs, particularly rice, free education, free medical care and subsidised prices for public transportation and housing. The ceilings on the prices of essential goods and services by means of price controls and rationing have also indirectly contributed to making available goods and services to the public at prices which would not be obtainable in a free market and hence giving the consumer a concealed subsidy. Since these very liberal welfare measures have been available over a long period of time Sri Lanka occupies a unique position in the world economy. Other than a few countries such as Sweden, no other country can boast of an extensive scheme of welfare services anywhere near what Sri Lanka has had without a break since the country attained independence. A significant feature is that all these welfare benefits were obtained without any effort on the part of the people. They were virtually thrust on them by political benevolence.

An evaluation of the total benefits and the cost of welfare measures is indeed very timely in view of the recent decline in the rate of growth of the economy from an average of 4.6 per cent in the sixties to 2.3 per cent in the last four years and the increase in the magnitude of problems like unemployment, rising prices, the supply of foodstuffs and an increasing population. In the past, particularly in the forties and fifties, the country had the means to finance a comprehensive scheme of welfare services because foreign exchange and rupee resources were available and the population was smaller. The demographic, social and economic changes and the attendent problems which have emerged rapidly since then have pointed to the need to re-examine the quantum of welfare expenditure and there is the need today to strike a balance in the development strategy between these two objectives – welfare and growth. The question that is often posed is whether a review of welfare expenditure should not have been undertaken ten years earlier

and whether further delays in re-examining policies on welfare would aggravate the country's economic difficulties even further. The very high level of expenditure on social welfare has been the major factor that has contributed to progressively limit the amount of resources that government could divert to maintain investment at a high level. The resulting low level of government investment has had an impact on the private sector of the economy as well. Since government investment stimulates activity in other sectors by creating a demand for goods and services and since economic activity especially in agriculture is interdependent with services and industry the inability for government investment to increase appreciably has tended to slow down the growth rates in other sectors of the economy.

This paper briefly attempts to appraise the beneficial and the unfavourable effects of welfare measures. It would be concerned in particular with the impact on social wellbeing, employment, income distribution, savings, productivity, rural urban migration, the level of intersectoral investment and other varibles.

Table 1 shows the increase in the expenditure from 1949/50 on the three of the major welfare services, the subsidy on rice (net), education and health services. It also gives the total expenditure on these services form 1949/50 onwards, expressed as a percentage of current expenditure and capital expenditure respectively.

Table 1 shows that for more than fifteen years without a break expenditure on welfare services has appreciably exceeded government capital expenditure. In this computation the capital expenditure on medical and health services has been excluded from total welfare expenditure and only recurrent expenditure has been taken into consideration Upto 1955/56 with the exception of 1950/51 and 1951/52 total capital expenditure exceeded total welfare expenditure mainly because the subsidy on rice was comparatively small. But from 1959/60 onwards expenditure was heavily weighted in favour of welfare expenditure. Moreover, capital expenditure could have been increased only through the curtailment of welfare expenditure. Government in the fifties and sixties did not find this possible because of the significant political implications of such a move. In 1960/61 money spent by government on welfare was 132 per cent of capital expenditure and in 1963/64 the percentage had risen to 171. Thereafter, except in 1970/71 and 1971/72, it has declined percentagewise primarily due to

Table 1

Total Expenditure on Welfare Services

Rs. Million

	Subsidy on rice (net)	Recurrent expenditure on education	Recurrent expenditure on health	Total expenditure on welfare services	Total current expenditure	Welfare expenditure as % of total current expenditure	Total capital expenditure	Welfare expenditure as % of capital expenditure
1949/50	39·0	85·0	50·2	174·2	537·2	32·43	258·5	67·39
1950/51	111·4	96·5	63·3	271·2	709·2	38·24	259·3	104·59
1951/52	199·2	104·4	78·1	381·7	861·8	44·29	379·9	100·47
1952/53	85·6	111·3	79·0	275·9	841·2	32·80	358·3	77·00
1953/54	10·7	118·8	79·3	208·8	728·0	28·68	293·0	71·26
1954/55	33·5	139·7	89·2	262·4	710·8	36·92	357·3	73·44
1955/56	71·9	155·4	97·8	325·1	891·8	36·45	366·6	88·68
1956/57	103·3	160·0	104·7	368·0	1110·0	33·15	346·9	106·08
1957/58	109·6	189·3	118·3	417·2	1054·8	39·55	447·5	93·23
1958/59	143·4	227·5	140·5	511·4	1280·2	39·95	463·6	110·31
1959/60	187·0	270·4	139·2	598·6	1366·7	43·80	454·6	131·68
1960/61	246·0	264·2	141·0	651·2	1485·5	43·84	490·9	132·65
1961/62	228·6	279·5	143·2	651·3	1512·7	43·06	563·9	115·50
1962/63	231·7	291·0	143·6	666·3	1520·3	43·83	465·0	143·29
1963/64	367·3	305·7	144·3	826·3	1737·5	47·56	483·2	171·01
1964/65	264·4	323·5	148·5	736·4	1896·3	38·83	535·4	137·54
1965/66	275·3	324·5	156·4	756·2	2019·5	37·54	589·7	128·23
1966/67	195·6	338·1	168·4	702·1	2129·2	32·97	695·4	100·96
1967/68	285·0	377·1	196·1	858·2	2363·2	36·32	789·2	108·74
1968/69	305·6	410·6	210·0	926·2	2668·4	34·71	909·8	101·80
1969/70	307·5	472·4	235·7	1,015·6	3032·0	33·50	883·1	115·00
1970/71	524·4	483·4	238·1	1,245·9	3174·2	39·25	799·6	155·82
1971/72	598·7	649·1	317·4	1,565·2	4263·1	36·72	1140·2	137·29
1973	570·4	563·4	261·8	1,395·6	3876·8	36·30	1160·8	120·22
1974	776·3	579·3	288·9	1,641·5	3990·3	41·21	1465·5	112·21

Source: Central Bank
Food Commissioner

the allocation of more budgetary funds for economic development. The sharp increase in welfare expenditure in relation to capital expenditure in 1970/71 and 1971/72 was due to the restoration of the rice ration to four pounds. Taking the total expenditure on welfare, it will be seen that welfare expenditure in 1974 is at the peak level of Rs. 1,465 million which is 41 per cent of current expenditure and 112 per cent of capital expenditure.

Table 2

Welfare Expenditure and the Budget Deficit 1949/50–1975

Year	Deficit/Surplus (+) (Rs. Million)	Total welfare expenditure (Rs. Million)	Deficit as % of welfare expenditure
1949/50	– 178	174·2	102·1
1950/51	– 65	271·2	23·9
1951/52	– 276	381·7	72·4
1952/53	– 255	275·9	—
1953/54	+ 11	208·8	—
1954/55	+ 83	262·4	—
1955/56	– 40	325·1	12·3
1956/57	– 228	368·0	61·9
1957/58	– 249	417·2	59·7
1958/59	– 446	511·4	87·2
1959/60	– 488	598·6	81·6
1960/61	– 509	651·2	76·8
1961/62	– 501	651·3	76·9
1962/63	– 439	666·3	65·9
1963/64	– 519	826·3	62·8
1964/65	– 520	736·4	70·6
1965/66	– 682	756·2	90·2
1966/67	– 723	702·1	102·9
1967/68	– 850	858·2	99·0
1968/69	– 947	926·2	102·2
1969/70	– 1150	1015·6	113·3
1970/71	– 1327	1245·9	106·5
1971/72a	– 1707	1565·2	109·0
1973	– 1414	1395·6	104·2
1974b	– 1982	1644·5	120·5
1975c	– 2060		

a. 15 months
b. Revised Estimates
c. Approved Estimates

Source: Central Bank of Ceylon

Table 2 shows the budget deficits expressed as a percentage of welfare expenditure. Before 1955, these deficits were small in comparison to the size of the deficits today. In 1953/54 and 1954/55 there were overall budget surpluses and these two years are quite

unique in the annals of budgetary management in Sri Lanka. Since these two financial years the size of the deficits has progressively increased. After 1959/60 in particular, the deficits have exceeded Rs. 500 million per year and after 1969/70 Rs. 1,000 million per year. In 1975 the deficit for the first time is expected to exceed Rs. 2,000 million. These figures in table 2 show that the deficits have been the outcome of the very high level of welfare expenditure. Deficits have increased along with the escalation in expenditure on welfare. Had there been no welfare expenditure the budget deficits would have been virtually non existent. Since at least some part of the deficits has been financed by bank borrowings it has resulted in inflation and what is more the deficits have beeen mainly for financing current consumption and not capital expenditure. Looked at in a different way these deficits have compelled government to increase its domestic and foreign debt. Both foreign and domestic debts are at peak levels today. It is not necessary here to elaborate on the adverse long term repercussions of the increase in the public debt. As interest rates have risen over the years debt servicing could turn out to be a serious problem.

It is not easy to make quantitative assessments of all the benefits of individual welfare measures such as subsidised rice, free education and free medical care, nor is it possible on the other hand, to make a quantitative and comprehensive evaluation in the aggregate. The benefits of social welfare programmes of the kind that Sri Lanka has are very difficult to appraise since the entire population has benefitted from them and the beneficiaries themselves may not be able to assign results or quantify the value of particular welfare services thay have received. The greater part of thc appraisal, therefore, would have to consist of generalisations and observations and only some conclusions would be supported by findings in statistical and other social surveys. Individually, and as a whole, these measures have benefitted the community in a great many ways and not all this is quantifiable and much of it could be categorised as social benefits. Moreover, the quantum and the extent of these benefits have in practice varied not only on a regional basis but also between individuals and groups considerably. Although education is free, not all have taken advantage of it and the same is true of medical care. In the case of education for instance, if good schools do not exist in certain districts the people in that area cannot make the most of free education. This is also applicable to

medical services if properly equipped hospitals are only found in the cities and major towns, Although the benefits under each of these facilities have been very comprehensive, other than in the case of subsidised foodstuffs the impact of the other welfare services in practice has not been diffused equally because all individuals have not had the capacity to benefit from them or due to regional differences in the quality of the service.

The Rice Subsidy

It would be useful to indicate separately the social and economic benefits of each of these major welfare measures which have been in operation for more than 25 years. Historically, the subsidy on rice, was introduced during the second world war when it was the accepted policy of the government to ensure that consumers got essential foodstuffs at controlled prices and rice was the major item among them. The objective was to insulate the consumer from the high cost of foodstuffs because of a shortage of food supplies in all countries in that period. Rationing and price control went hand in hand because one was required to make the other effective. During the war, rationed goods were distributed through a network of consumer cooperative shops and the system worked well. The wartime policy of rationing and price control mostly benefitted fixed income earners such as teachers, government servants and others connected with the administrative sevices. The income levels of all other categories of employees rose with increased wartime activity and a fair proportion of the population had the capacity to pay higher prices because of suppressed inflation resulting from the boom.

It is indeed difficult to explain why as a matter of policy this system of providing rice at a fixed price was continued after the end of the war. The purely economic justification for this indeed was weak because the wartime shortages of food had largely come to an end by 1949. From the little that is known it was probably a major political issue between the parties that were seeking the support of the people to

gain power in the legislature. Several political parties opposed any modifications to the subsidy scheme in the fifties and for this purpose they were able to secure the support of the trade unions and the organised working class. Apart from this fact, since rice could be imported at relatively low prices, normally for less than £ 40 (sterling) per ton except in 1951, 1952 and 1953, it could not be argued that in the forties and fifties the subsidy was really necessary. The people could have paid the actual cost of imported rice in view of the fact that the country even at the height of the Korean War boom did not have the kind of inflation it is experiencing today; the real incomes of the people were very much higher than what it is today. The Korean War boom pushed up the price of imported rice from £ 40 in 1949 to £ 58 in 1952. Furthermore, the people had the choice of having access to a variety of food substitutes particularly flour at lower prices. This was in the period before 1959 when a wide range of foodstuffs could have been imported into the country with little or no restriction. Although rice was rationed, locally produced rice was freely available and cost about twice the price of imported rice. The bulk of the rice provided on the ration was imported. The government preferred to buy imported rice because it was cheaper than the local product. As table 4 shows the guaranteed price for paddy of Rs. 12 per bushel was higher than the cost of importing an equivalent quantity. Sales by the producer to government was voluntary and the bulk of the rice was sold to the middlemen who were able to offer a higher price than the guaranteed price. Where the producer was indebted to the middleman, the latter often paid a price to the producer which was less than the guaranteed price.

From a financial standpoint the rice subsidy has created the greatest problems for budgetary policy, the progressively increasing budget deficits after 1956 could be largely attributed to this factor. Taking into account the budgetary position upto 1955 the budget in effect, could finance these welfare services because the overall deficits were comparatively small or non existent for some years. In this period the government was able to harness enough revenue in order to meet both current and capital expenditure without serious modifications to the tax system and with a relatively low incidence of taxation. Substantial changes in the tax system were initiated with the implementation of the Kaldor recommendations in the late fifties. When it comes to subsidies on rice the level of government expenditure is not only

Table 3

Cost of Subsidy on Rice

Rs. million

	Subsidy on Rice (Gross)	Profit from sale of foodstuffs 1	Subsidy on rice (Net)	Capital expenditure	Rice subsidy as percentage of capital expenditure
1949/50 –	85·8	46·8	39·0	258·5	15 09
1950/51 –	132·3	20·9	111·4	259·3	42·96
1951/52 –	217·3	17·8	199 2	379·9	52·43
1952/53 –	166·3	80·7	85·6	358·3	23·89
1953/54 –	96·9	86·2	10·7	293·0	3·65
1954/55 –	122·9	89·4	33·5	357·3	9·38
1955/56 –	165·2	93·6	71·9	366·6	19·61
1956/57 –	164·7	61 4	103·3	346·9	29·78
1957/58 –	198·9	89·3	109·6	447·5	24·49
1958/59 –	246·4	103·0	143·4	463·6	30·93
1959/60 –	309·8	122·8	187·0	454·6	41·14
1960/61 –	379·2	133·2	246·0	490·9	50·11
1961/62 –	420·2	191·6	228·6	563·9	40·54
1962/63 –	434·9	203·2	231·7	465·0	49·83
1963/64 –	452·5	85·2	367·3	483·2	76·01
1964/65 –	451·5	187·1	264·4	535·4	49·38
1965/66 –	483·1	206·8	275·3	589·7	46·68
1966/67 –	459·2	263·6	195 6	695 4	28·13
1967/68 –	567·4	282·4	285·0	789·2	36·11
1968/69 –	593·1	291·6	305·5	909·8	33·58
1969/70 –	554·1	246·6	307·5	883·1	34·82
1970/71 –	602·3	77·9	524·4	799·6	65·58
1971/72 –	666·1	61·4	598·7	1140·2	52·51
1973 –	603·2	32·8	570·4	1160 8	49·14
1974 –	781·8	5·5	776·3	1465·5	52·97

Source: Central Bank
Food Commissioner

1. Mainly sugar and flour and to some extent maldive fish

related to the amount of the subsidy per pound of rice which could increase or decrease with the price of imports or the decision of government to raise the quantum of the subsidy but also to the number of beneficiaries under the scheme

With regard to the rice subsidy the most significant feature has been that upto the financial year 1955/56 the subsidy was contained at a level less than Rs. 100 million except in 1950/51 and 1951/52 when the subsidy cost more with the increase in the world market price of rice. In the period 1955/56 to 1966/67 the average expenditure was

about Rs. 250 million per year and in this period the cost of importing rice did not exceed £ 40 (sterling) per ton. Between 1968/69 and 1974 the net subsidy has more than doubled rising form Rs. 305·6 million. to Rs. 776.9 million. The latter reflects in part the progressive increase in the world market price of rice from £ 56 per ton in 1968/69 to £ 179 in 1974. After 1973, the sharp increase in the expenditure on the subsidy on rice has occurred despite the reduction in the ration and a higher price to the consumer.

From 1959 onwards and upto about 1969 a substantial portion of the subsidy on rice, often as much as 50 per cent, was met out of profits made on the sale of other foodstuffs The figures, given in table 3 relate to the net subsidy on rice which have taken into account profits made on the sale of other foodstuffs. Between 1959 and 1969 although the gross subsidy was very substantial the net subsidy was much less and this was in a large way offset by profits on the sale of other foodstuffs particularly sugar, flour and to some extent maldive fish. Before 1972 the relatively low prices at which sugar and flour were imported in comparison with prices prevailing in the world markets today enabled the government to do this. After 1972 with the increase in the price of sugar in world markets government's profits from the sale of sugar have dwindled considerably and today this is negligible, the same is true of flour. The effect of this has been to put further pressure on budgetary resources for the maintenance of the subsidy on rice and has contributed to a sharp increase in the net subsidy.

At the outbreak of the last war the population of Sri Lanka was around 6 million or less than a half of what it is today. Population started increasing rapidly after 1945 with an appreciable fall in the crude death rate. In 1947 the death rate declined from 20·3 to 14·3 per thousand while the fertility rate remained at the high level of 38 per thousand. From 1945-1955 the rate of population increase was such that in a matter of 10 years the population rose by about 50 per cent to 8·7 million. In its political commitment to continue expenditure on welfare services successive governments do not seem to have given serious consideration to the implications of the subsidies in the context of a rapid increase in population which would in turn result in considerably higher outlays on all welfare measures. Of these the most immediate impact is created by the rice subsidy where every new born child after about one year automatically gets the subsidy

because he is entitled to a ration book. Had there been a ceiling on expenditure on each of these items which was related to population growth, then the present problems would not have arisen because the expenditure could have been contained at manageable levels.

The impact of the subsidised rice and other foodstuffs on the community must also be evaluated from a nutritional standpoint. The question to which an answer is not readily available is the extent subsidised rice has raised the nutritional levels of those who are existing at or below the minimum subsistence levels, this includes the bulk of the unemployed and those receiving less than Rs. 600 per year. Data on rice consumption available from most social surveys have basic shortcomings. The surveys record the purchase of rice by households and not necessarily actual consumption. In the case of free or subsidised rice, purchases considerably exceed actual consumption. For instance, the draw off on the free one pound or half pound of rice has always been in excess of 95 per cent. It is wellknown that a large number of people who purchase rice on the ration often sell it at prevailing market (higher) prices to others in order to increase their money incomes. Out of the proceeds of the sale of subsidised rice the first choice of the consumer would be to purchase other foodstuffs which may be cheaper. The details of diversion of expenditure have not been recorded in any of the consumer finance surveys. The nutritional levels of this category of persons will improve only if they spend the proceeds from the sale of free or subsidised rationed rice on other foodstuffs and not on clothing and miscellaneous items. Subsidised foodstuffs upto 1972 increased the real incomes of all categories of people in this country including income tax payers; today this benefit is confined only to non income tax payers. In particular, it contributed to increase the incomes of the poorest sections of the community because the subsidised and rationed rice always had a higher value in the open market. In relation to demand and given a certain price level rice has always been a commodity that has been in short supply in the country.

The subsidised rice has appreciably contributed to greater equality in income distribution. This is evidenced in the findings of the Consumer Finance Survey of 1973 where monetary values have been assigned to the free rice on the ration and other income in kind. From the point of view of income, subsidised or free rice has been instrumental in giving an income theoretically to those who would be

recorded as having no income at all. A feature which is peculiar to the Sri Lanka economy is that even though a person may by definition be classified as being unemployed and has, therefore, a zero income, in the real sense he does not fall into the zero income category because the monetisation of subsidised rice, the sale of rationed commodities in the open market and other free services provide him with an income. In Sri Lanka, therefore, a situation prevails where unemployed persons do not have a zero income. Those who try to compare the pattern of income distribution for unemployed persons in Sri Lanka with that prevailing in other economies find it difficult to understand this phenomenon.

A general effect of the rice subsidy, which has often been categorised as inflationary, is that by raising real incomes it has released purchasing power for expenditure on other goods particularly imports. An argument against the subsidy put forward in the fifties and sixties was that it contributed to worsen the adverse balance of payments by sustaining demand for imports.

For a long period of time the Sri Lanka consumer in practice has been paying a higher price for locally produced rice than for imported rice. This has been so throughout except in 1967/68 and in 1974. In table 4 the basis of conversion of sterling values to rupees has been the official rate of exchange. The application of a different rate, say the current FEEC rate of 65 per cent gives a different result and this is also shown in table 4. The same table shows the changes in the guaranteed price for paddy which was for the first time raised from Rs. 9 per bushel in 1950/51 to Rs. 12 in 1951/52. The latter price remained unchanged until 1966/67 when it was raised to Rs. 14 per bushel. The pricing policy on locally produced rice seems to have been guided largely by public finance rather than income, employment and foreign exchange considerations. Since imported rice was available throughout from 1956 to 1965 at less than £ 40 per ton there was no motivation to increase the profitability of locally grown rice. From the point of view of rupee funds it was more advantageous for the government to import rice for distribution on the subsidised ration because of the lower price and correspondingly the rupee subsidy was lower. In a situation when successive budgets from the mid-fifties have had progressively increasing deficits, this was a major consideration. The choice was between subsidising the consumer or the producer more heavily and the former was preferred because the

consumer subsidy was politically significant and even the farmers benefitted because they themselves were entitled to the subsidised rice ration. On the other hand, if the government had paid a higher guaranteed price for locally produced paddy it would in fact have meant a higher overall rupee subsidy because this would have been in addition to the consumer subsidy. Foreign exchange savings and raising rural incomes by increasing domestic rice production seems to have been a major consideration only after 1965 when greater attention was focussed on domestic agriculture. The increase in the guaranteed price from Rs. 12 to Rs. 14 in 1967 and even further to Rs. 18 per bushel in 1973 reflects the new emphasis given to self sufficiency in rice.

Table 4

Average Price of Imported Rice and G. P. S. Price of Paddy

Year	G. P. S. price (Rs)	Imported* rice C & F (Rs)	Imported rice per ton (Sterling)	Price of imported* rice at FEEC rate 65%[1] (Rs)
1949/50	8·00	7·74	40·60	12·77
1950/51	9·00	8·15	42·70	18·45
1951/52	12·00	11·24	58·80	18·55
1952/53	12·00	10·95	57·40	18·07
1953/54	12·00	9·40	49·70	15·51
1954/55	12·00	7·99	42·00	13·18
1955/56	12·00	7·45	39·20	12·29
1956/57	12·00	6·78	35·70	11·19
1957/58	12·00	6·84	35·70	11·29
1958/59	12·00	6·72	35·00	11·09
1959/60	12·00	6·57	34·30	10·84
1960/61	12·00	6·43	33·60	10·61
1961/62	12·00	6·75	35·70	11·14
1962/63	12·00	7·00	36·40	11·55
1963/64	12·00	7·30	38·50	12·05
1964/65	12·00	7·61	39·90	12·56
1965/66	12·00	7·68	40·60	12·67
1966/67	14·00	9·15	48·30	15·10
1967/68	14·00	14·32	70·00	23·63
1968/69	14·00	11·58	56·70	19·11
1969/70	14·00	9·58	46·90	15·81
1970/71	14·00	8·04	39·20	13·27
1971/72	14·00	7·77	35·70	12·82
1973	18·00	14·35	63·70	23 68
1974 Jan. to June	30·00	40·10	179·90	66·17
July to Dec.	33·00		179·90	66·17

* Equivalent price per bushel

Source: Central Bank

1. Economists who are obsessed with the overvaluation of the rupee might agree that this is a more appropriate cost of imported rice at least from 1960 if not earlier.

One of the major costs of the subsidy on imported rice has been that it did not provide the local producer with sufficient incentives to increase his output. In relation to the prevailing cost of production in the latter sixties of about Rs. 11 per bushel as reported by the Central Bank survey on the cost of production of paddy the producer margins were very low and unattractive throughout the sixties. Recent experience shows that the farmers have been highly responsive to increases in the guaranteed price. Had the policy of offering a higher guaranteed price for locally produced rice been put into effect at least in the early sixties domestic production would certainly have responded to the higher prices. For a long period in the sixties and seventies it is well-known that the open market price for locally grown paddy was higher than the guaranteed price; reflecting that the latter was not an economic price. The policy of keeping the local producer price at Rs. 12 from 1951 to 1967 in effect gave a preferential advantage to the foreign rice producer whether he was in Burma, Thailand or Pakistan. This has had fairly important implications for economic growth in general, employment, income distribution, savings and the balance of payments problems as seen today. From a foreign exchange standpoint due to the low world market price for rice in the fifties and early sixties the yearly imports which averaged about 400,000 tons did not cost the country very much in foreign exchange, the total expenditure averaged Rs. 250 million per year. In the present context where the world prices have more than quadrupled the cost of importing even 200,000 tons taxes the foreign exchange resources of the country very heavily. In 1974, 293,000 tons of rice were imported at a cost of Rs. 720 million. The country would have faced a considerably less difficult economic climate today had the policy of achieving self sufficiency in rice production through price and other incentives been vigorously pushed 15 years earlier. On the other hand, despite the unattractive price of Rs. 12, the farmer received indirect subsidies. To compensate for a low profit margin, the rice farmer was provided with fertiliser at subsidised prices and other essential inputs such as water free of irrigation rates. Equally important is the fact that the rice farmer does not pay income tax even though many farmers by virtue of their income levels are eligible to pay taxes.

Table 5

Rice Production and Imports

Year	Local production (000 tons)	Quantity imported (000 tons)	Value of imports (Rs. mn)	Total requirements (000 tons)	Imports as a percentage of total requirements
1950	314	490	278	804	60·95
1951	314	395	236	710	55·77
1952	413	399	329	812	49·14
1953	313	404	324	717	56·35
1954	444	396	273	840	47·14
1955	510	379	222	889	42·63
1956	393	484	264	877	55·19
1957	447	515	255	962	53·53
1958	523	475	238	998	47·60
1959	521	574	283	1095	52·42
1960	615	520	242	1135	45·81
1961	617	462	217	1079	42·82
1962	687	404	195	1091	37·03
1963	702	397	192	1099	36·12
1964	722	648	326	1370	47·30
1965	518	276	144	794	34·76
1966	654	682	367	1336	51·05
1967	785	349	211	1134	30·78
1968	923	364	341	1287	28·28
1969	941	304	257	1245	24·42
1970	1098	472	318	1570	30·06
1971	951	290	195	1241	23·37
1972	899	294	161	1193	24·64
1973	899	335	270	1234	27·15
1974	1097	293	720	1390	21·08

Sources: Customs, Sri Lanka
Dept. of Census & Statistics

As the price relationships stand today, there is a disparity between the earnings of the foreign rice farmer and the local rice farmer despite the increase in the guaranteed price for paddy to Rupees 33 a bushel in March 1974. This is because the world market price of rice was in the region of £ 179 per ton in 1974 whereas the price three years ago in 1971/72 was about £ 35. As table 4 shows the 500 per cent increase in the world market price of rice tends to give the foreign farmer a higher price than the local farmer. At the world market price of £ 179 per ton at which Sri Lanka made purchases in 1974 a bushel of paddy works out to about Rs. 40 at the official rate of exchange. In order to eliminate this disparity should the local price be raised even further? Since the increase in the world market price to the present levels is

probably a very temporary feature readjustments of prices would take place with better harvests and increasing supplies in the producing countries. If the world market price of rice drops to £ 50 or £ 60 per ton, the price of a bushel of paddy, if imported, would be anything between Rs. 9·50 and Rs. 12·50 per bushel, which will in that event leave a difference of as much as Rs. 20·50 between the guaranteed and the import price. In this context this would amount to a collosal subsidy to the local producer even though his cost of production is much higher. It should be borne in mind that in the local social and political context price reductions are not easy to effect, just as much as it is difficult to take back what has already been given. A further increase in the guaranteed price, if it is at all necessary, should depend on changes in the price of essential inputs such as fertiliser and insecticides. As an alternative it may be economically prudent to subsidise fertiliser than to increase the guaranteed price. There are indications that the cost of production of paddy has risen to high levels in several paddy producing areas mainly with the escalation in the price of fertiliser with the reduced level of subsidy on the latter and on account of higher wages.

The depressive effect of the pricing policy on locally grown rice in the past and the lack of adequate incentives has had its repercussions on a number of other variables. Rice farming is the mainstay of the entire rural economy where more than one third of the population is directly dependent on this. Although seasonal, it is also the most labour intensive rural crop and the level of employment and income in the rural sector is closely linked to prosperity in rice farming. The fact that even farmers have been entitled to free rice has made the farming population and the country as a whole very lethargic and this has precluded the emergence of correct attitudes to development and national problems. A sense of urgency in the development effort has been lacking. There has been no incentive to increase production of rice and other crops because the threat of starvation has been non existent in the country. If rice cultivation is made profitable, recent experience shows that more people will take to it and it will also stem the flow of people from the rural areas to the towns. In fact, with the present islandwide shortage and the increasing profitability of cultivating rice a great many people are going back to paddy farming from the urban areas because this has proved far more profitable than other forms of economic activity. At present, the most critical hindrance

to this has been the shortage of water and as far as the maximum utli-lisation of paddy lands is concerned water appears to be the most crucial input. If water is availabe for both cultivati on seasons the other significant inputs such as fertiliser could be taken as marginal items in a strategy designed to ensure the maxmium cultivation of paddy land. Inputs such as fertiliser have no significance in the absence of the key input which is water.

Linked to the policy of subsidies on consumption has been fiscal policies which have been applied to the plantation industries with a view to getting maximum revenue. In consequence some sectors of the plantation economy notably tea and rubber have been heavily taxed, These two industries have had a considerable capacity to absorb these taxes in the past but at certain costs to the industry. Even today while domestic agriculture as a whole enjoys eomprehent-sive subsidies and other benefits the tea industry for instance, has on the other hand, been made to provide the bulk of the financial resources. Today the tea industry pays taxes direct and indirect amounting to about Rs. 1,000 million which represents about 25 per cent of the total revenue. The tea industry is entitled to a subsidy only for replanting, fertiliser and packaging material. Even so it gets back only a small fraction of what it gives the state as revenue. Looking at the problem in a much wider perspective it would appear, therefore, that wh le government has given considerable priority to developing agriculture, different sets of policies seem to apply to domestic and plantation agriculture within this general framework. If the balance of payments, import capacity, productivity and an increase in the rate of growth are significant objectives in development policy this implies a rapid rate of development in the plantation industry through appropriate incentives because the latter is the principal source of revenue and foreign exchange. Without an aggressive policy of investment and development for the plantation industry sooner or later the main source of revenue which sustains social welfare may rapidly dry up.

Expenditure on Free Education

Table 1 gives details of the expenditure that has been incurred by the government on the free education scheme from the early fifties. At the outset from a budgetary standpoint free education was not a very costly item because there were only a relatively few government schools providing facilities under this scheme. The primary effect of

the scheme was to draw in a great many new students into the existing schools. As admissions increased steps were taken to increase the facilities in primary and secondary schools in all parts of the Island. Table 6 shows the increasing number of school going students from 1950 onwards. In twenty years the number of students attending schools has doubled, while the number of students as a percentage of the population has stabilised around 22 per cent between 1959 and 1970 and fell slightly thereafter. An important feature was that free education for the first time, opened up education for the large mass of people in the rural areas. After 1960 the bulk of the entrants to the universities were from schools in the rural areas and there was increasing pressure to gain admission to the universities as reflected by the numbers who were sitting for the qualifying exsms. In keeping with this need two old pirivenas were given university status at end of 1959 thereby sharply increasing the number of places in the universities. Thus the number of students attending universities rose from 2,950 in 1958 to 4,723 is 1960. In twenty years i. e. from 1950 to 1970 the number of students in universities have increased sixfold from 2,036 to 12,647. However, in the period 1965 to 1968 the numbers were higher when the average was about 14,500.

The rapid rate of increase in the number of school going pupils since the introduction of free education in 1946 is an index of the rate at which free educational facilities have been extended and also explains the marked increase in expenditure on education. Table I shows that recurrent expenditure on education has risen progressively from Rs. 85 million in 1949/50 to Rs. 579·3 million in 1974. The sharp increase in expenditure after 1956/57 reflects the sudden entry of greater numbers into the education stream as a result of the population increase that took place soon after the war. Thereafter in the sixties with the take over of nearly all the the fee-levying schools by the government, there was a further increase in government expendituce on education. The sharpest increase in expenditure has taken place after 1970/71 reflecting the larger number of students who are now continuing their education upto the G.C.E. (ordinary level), the higher salaries for teaching staff and the enhanced cost of equipment and materials.

Table 6

The Student Population

	No. of school going students	Mid year population	School going students as percentage of population	No. of students in universities	Nos. sitting for S.S.C / G.C.E. (O) Level
1950	1,349,345	7,678,000	17·27	2,036	43,528
1951	1,410,514	7,876,000	17·91	2,210	46,692
1952	1,476,146	8,074,000	18·28	2,232	11,216
1953	1,548,198	8,290,000	18·68	2,392	19,196
1954	1,593,881	8,520,000	18·71	2,434	119,156
1955	1,637,108	8,723,000	18·77	2,431	136,544
1956	1,693,879	8,929,000	18·97	2,534	115,832
1957	1,833,164	9,165,000	20·00	2,718	155,427
1958	1,886,138	9,388,000	20·09	2,950	143,882
1959	2,098,941	9,625,000	21·81	4,010	183,349
1960	2,192,379	9,896,000	22·15	4,723	174,084
1961	2,330,234	10,168,000	22·92	5,872	209,501
1962	2,368,951	10,443,000	22·68	6,270	251,859
1963	2,482,613	10,646,000	23·32	7,492	276,896
1964	2,540,913	10,903,000	23·30	9,989	319,632
1965	2,556,191	11,164,000	22·90	14,367	233,106
1966	2,565,891	11,439,000	22·43	15,096	299,879
1967	2,588,502	11,703,000	22·12	14,512	314,890
1968	2,633,637	11,992,000	21·96	15,743	281,125
1969	2,673,099	12,252,000	21·82	11,910	293,600
1970	2,716,187	12,514,000	21·71	12,647	316,330
1971	2,717,719	12,768,000	21·29	11,813	354,574
1972	2,549,807	13,020,000	19·58	12,047	374,113
1973	2,597,970	13,249,000	19·60	12,052	419,054
1974	2,523,572	13,393,000	18·84	12,100	5 0,676

Source: Ministry of Education

Free education is the second highest item of subsidised expenditue of goverment. If the present policy is continued, the expenditure on education could eventually exceed the outlay on the food subsidy that is being currently incurred. In ten years, that is between 1963/64 and 1974 the recurrent expenditure alone on education has doubled, not taking into account the capital expenditure. On this basis the the education vote could reach the staggering figure of Rs. 1,000 million before 1985. The increase in per capita expenditure in the last decade is very significant and it reflects the high cost of the educational meterials and the increases in the salaries and other emoluments of the teaching staff.

The benefits of the free education scheme are most difficult to quantify but there is no doubt that the scheme has made a substaintial contribution to the development effort. It has in some ways either directly or indirectly contributed towards increasing productivity in various sectors of the economy. The primary social benefit of the scheme is that it has provided equal opportunities of having an education to all persons irrespective of income level and social standing. As a result people from the rural areas and the under-privileged have had the opportunity of having access to all jobs that are available in the country. In the earlier period due to the high cost of education the poorer sections of the community could not afford an education which would qualify them for employment. The full impact of this scheme was seen after 1960 when students from rural areas for the first time sat for public examinations and were provided with avenues to the highest posts in the government and administrative services in the country. At the same time, they had the necessary qualifications to take up positions in public sector undertakings and in private firms. The social impact of this has been more widspread than is generally believed. Very often the earnings of those who had access to jobs supported other members of their family who would not have been so well off had free education not given an opportunity for at least one member of a household to seek a position with a steady income. At the same time, free education has contributed to a more equitable distribution of income both in thc urban and rural areas because a wider segment of the population has had access to jobs with higher income levels. Had there been no free education the high wages and salaries would still have continued to be the preserve mainly of those who could afford to pay for a secondary and higher education.

A less favourable effect of free edecation has been the influx of educated young people from the rural areas to the towns. This is largely because most of the white collar jobs were available in the towns and urban areas. Very little information has been collected on rural urban migration in the fifties and sixties but the pressure on the amenities in the urban centres particularly, housing and accomodation during this period is an index of migration. This was most marked throughout the sixties and created significant social and economic problems both in the villages and the towns. The social problems centered round the question of adjustment to the new

environment and the lack of amenities in the urban areas which would be within the means of the migrant. At the same time, there was some element of neglect of economic activity in the rural areas because people who had a secondary or higher education were reluctant to go back to the villages and a great many looked down upon traditional economic activities in the villages especiaily agriculture and other forms of manual work. At one time it was feared that students who were from peasant families would not go back to the traditional pursuits with the new orientation they had received from education. As unemployment increased and white collar jobs were hard to find a reversal of these attitudes seemed to have emerged gradually in the seventies. With the emphasis on agriculture, incentives have been provided to the young educated people from the rural areas to make agriculture a socially desirable and worthwhile kind of economic activity. In the seventies, with the shift in the terms of trade to the rural sector, there has been clear evidence that a reverse flow from the urban areas to the rural sector has begun. This is also associated with the sharp decline in job opportunities in the cities, the lack of accommodation and the high cost of living. The present policy designed to provide better educational facilities in the rural sector especially better schools, equipment and teachers, has also favoured the trend for students from the rural areas to remain in the villages without migrating to the towns.

Another favourable effect of the free education scheme has been that since the fifties Sri Lanka has not had a shortage of manpower with the educational background and intelligence required for the assimilation of technical skills. This is because the country has had an increasing supply of educated people from different disciplines from the early fifties. Although the kind of education provided upto recent times in the schools and universities has not been technologically oriented nor geared to be of service to an economy which is making efforts to diversify and accelerate the pace of development, yet general education has laid the foundations for the creation of cadres with technological and managerial skills which are so essential, for new industry and services When more than 2,000 small and large industrial units were set up in the period 1960 to 1965 the manpower necessary to run these industries was readily available and educated youth were easily able to acquire the basic skills in as short a time as possible. At least in some ways free education has

contributed to drawing skilled manpower from a much wider section of the population and has also provided an expanding base for the diffusion of the technological and mangement skills which are the basic ingredients of a programme of industrial development and economic diversification.

Apart from the economic and social benefits, what is of greatest significance today has been the problems that have been created by universal free education. The magnitude of these problems could increase several-fold in the immediate future. The unemployment problem has a very close link with free education on the one hand, and the type of training that free education has provided in the past. The data in the table below classifies the unemployed according to their educational level.

Table 7

Involuntarily Unemployed by Educational Level-All Island

Educational level	As a % of population in educational group		As a % of work force in educational group	
	1963	1973	1963	1973
No Schooling (illiterate)	1·3	1·4	6·3	8·4
No Schooling (literate)	2·9	3·6	5·7	6·8
Primary	3·2	4·8	10·5	14·1
Secondary	8·3	15·2	23·0	37·1
Passed G. C. E./S. S. C.	22·2	37·9	39·3	47·4
Passed Adv. L/H. S. C.		32·7		44·4
Passed Degree		14·6		16·2

Source: Survey of Sri Lanka's Consumer Finances, 1973.

It also shows that more than 60 per cent of the unemployed have had a secondary education and that between 1963 and 1973 the proportion of unemployed with a post secondary education as a percentage of the population in the respective educational groups has increased substantially. The same is applicable to the unemployed educated expressed as a percentage of the work force. Unemployment is lowest among those who have had no schooling presumably because they are prepared to take any job and they have no preconceived notions about job preferences.

Table 8

Unemployed by Age Groups & Educational Status – Sri Lanka 1973

	Age Groups	Illiterate	Literate below primary	Primary	Middle	Secondary	Degree	Total	Total of unemployed males and females
Male	15 – 19	6,517	6,155	10,862	29,811	6,659	—	60,004	
	20 – 24	2,956	13,915	24,838	104,657	68,882	1,801	217,049	
	25 – 29	1,456	1,773	13,055	24,993	26,268	4,077	71,622	
	30 – 34	2,423	307	4,698	6,504	6,161	—	20,093	
	35 – 39	1,543	542	2,990	—	1,418	—	6,493	
	40 – 44	—	—	1,117	1,796	—	—	2,913	
	45 – 49	981	1,864	—	5,493	—	—	8,338	
	50 – 54	1,000	—	—	2,084	—	—	3,084	
	55 – 59	1,010	—	1,341	—	—	—	2,351	
Total		17,886	24,556	58,901	175,338	109,388	5,878	391,947	
Female	15 – 19	7,966	7,966	9,897	27,035	7,845	—	60,709	
	20 – 24	5,465	23,039	25,301	88,942	73,560	1,218	217,525	
	25 – 29	3,412	5,716	13,694	19,945	25,040	2,738	70,545	
	30 – 34	6,011	1,192	4,349	4,819	5,427	—	21,798	
	35 – 39	4,065	1,866	2,559	—	1,055	—	9,545	
	40 – 44	—	—	779	1,119	—	—	1,898	
	45 – 49	2,496	6,074	—	3,194	—	—	11,764	
	50 – 54	2,528	—	—	1,119	—	—	4,647	
	55 – 59	2,148	—	1,493	—	—	—	3,641	
Total		34,091	45,853	58,072	146,173	112,927	3,956	401,072	793,019

Note: Based on 1971 Census data and unemployment rates from the ILO Survey on Labour Force Participation Rates 1973.

Table 8 gives the distribution of the unemployed by age group, educational status and by sex. The most noteworthy feature is that unemployment among females is higher than among males: there are 401,072 females seeking work as against 391,947 males. The latter is largely due to the fact that some job opportunities are not always open to females and employers often prefer males to females especially where heavy manual work is involved. For both males and females unemployment is highest for those who have received a middle and secondary education. In the case of those who have received a middle education, there were 321,511 unemployed and in respect of those who had received a secondary education 222,315 were unemployed. The total number of males and females unemployed with a middle and secondary education was 543,826 which is about 67 per cent of the total unemployed. What is even more significant is that for both males and females unemployment is concentrated in the age groups 20–24 and 25–29. In the age group 20–24, there were 173,539 males with a middle and secondary education seeking employment while the number of females was 162,502. In relation to the total number unemployed, those with less than primary education and those who fall into the category of illiterate persons were relatively few in numbers. Among males and females there were 51,977 illiterate persons (6·5 per cent) seeking employment and in the category literate with a below primary education there were 70,409 (8·7 per cent) seeking work. The data in table 8 points to the fact that in future years increasing numbers who would be seeking employment would be those with a middle and secondary education; this would be true of both males and females. Furthermore, the numbers in the latter categories would increase progressively from the present level of about 67 per cent of the total unemployed population as more and more sit for the final secondary school examinations. With regard to graduates, more male graduates were seeking work than females. This was largely due to the fact that in absolute terms the number of male graduates have exceeded females. In 1973, 9,834 graduates were seeking employment of whom 5,878 were males and 3,956 females. If the total number of graduates in the country is taken at about 40,000 this represents about 25 per cent of the total graduate population in the country.

It is not difficult to indicate that had there been no free education the numbers who are now in the labour market or those who are seeking work in the immediate future would be less than half of what it is today. In earlier periods very often young people with little or no education did not make it a point to actively seek work or on the other hand, were willing to do whatever work that was available. With free education ideas have changed considerably and those who have left schools with the G.C.E. (O/L) or left the university with a degree are invariably active seekers in the labour market and they have clear notions about the type of work they are willing to do.

In the late forties unemployment in terms of the modern difinition did not exist because there were very few who were seeking work actively although there were a substantial number who were unemployed. Even today those with a very limited education sometimes do not seek work; they prefer to depend on the family, while the converse is true of those who have had an education. The greatest pressure for jobs comes from people who have had a formal education. An indication of this problem and the magnitude which it might assume in the near future is reflected in numbers who are now sitting for the G.C.E. (O/L) examination. In 1950 only 43,526 sat for the S.S.C. examination by 1960 the numbers sitting for the G.C.E. (ordinary level) had risen by more than four times to 174,084. Recent records show that about half a million are now sitting for this examination every year. About 90 per cent of those who have been successful in this examination would come on to the labour market every year. Of the balance, about 5,000 may go in for higher education because the latter depends on number of vacancies in the universities. Apart from this number, school dropouts, (there is no estimate available of their number) will also be seeking some sort of work. Since approximately 4 per cent of the population would be appearing for this exam each year, in another ten years the number of candidates sitting for this examination may reach one million. While formal educational qualifications are essential from a personal and economic standpoint,in terms of the current level of investment, the economy does not seem to have the capacity to absorb the very large numbers that are coming onto the labour market from the schools and universities. The country already had a backlog in 1973 of some 793,000 persons who were unemployed and to this figure a minimum of 150,000 must be added annually out of those who sit for the G.C.E. (O/L) examination who are unlikly to find

employment. This is on the assumption that approximately 200,000 persons are able to get jobs every year or totally withdraw from the labour market, become self employed, or proceed to higher education If the rate at which employment is created does not double in the next five years the country should have at least 2 million persons unemployed at the end of the next decade of whom more than 75 per cent would have had a secondary education.

A factor that has increased the demand for jobs is the participation of women in the labour force, When people had to pay for their education the number of women who sought a secondary and higher education was very limited. With the opening of all vocations to both males and females greater numbers of females have sought an education. Although comparable data for earlier years is not available the Central Bank Labour Force Participation Rate Survey 1973 gives comprehensive data on the participation of women in the workforce. The survey data shows a very high rate of participation in economic activity by women with a secondary and higher education particularly in the age groups 18 to 30 and it is also in these age groups that unemployment among them is highest. In the rural sector the education of women is looked at from an economic standpoint because there is the belief that education has a monetary value and that one could enter the market for employment only by having a secondary or higher education. Because of these considerations a large number of rural children entered schools in the fifties and sixties and females in particular, proceeded with their education beyond the secondary level. Most rural parents also held the view that on account of the large size of their families at least one should receive a higher education and become the principal income earner to support the rest of the family. The trend towards increasing participation of women in employment is continuing rapidly and this is reflected in that the ratio of females to males in most university campuses is about equal. Data on unemployment shows that 45 per cent of those who are seeking work are females. In 1973 of a total of 793,000 unemployed persons 346,000 were females. If a policy of rationalisation of employment opportunities is applied the question arises whether in a family where there is more than one income earner should females also be given the opportunity of getting employment? In most cases it would appear that women seek jobs largely on a temporary basis with

a view to supplementing family income and they are generally not in the labour market for all time and would prefer to withdraw after their earnings are adequate to support their families.

The financial and economic implications of free education in the future could assume serious dimensions purely from a budgetary standpoint in view of the large numbers that are seeking higher education. At current rates of population growth budgetary expenditure on education will reach staggering levels before the end of the next decade. This level of expenditure must be considered from the point of view of the diminishing avenues of revenue and a slow rate of economic growth and the likely increase in the per capita cost of education which will result from higher salaries for teachers in the future and the high prices for food, clothing and building materials which are likely to prevail in the years ahead. It would appear that a point may come when the country would not be able to shoulder these heavy expenditures. Modifications may have to be made in the scheme with a view to containing expenditure at a level which budgetary resources may ultimately be able to bear. This might mean that free education eventually may have to be limited to a certain age group, may be up to a point on the secondary education scale and higher education would be on the basis of merit and be based on a system of scholarships. On a rough estimate, assuming that the student population will grow at the current rate and reach 3·2 million in 1985 and assuming that per capita current outlays will be the same the cost of the education vote would rise to about Rs. 1000 million at the end of the next ten years. This may mean that while education remains subsidised some part of this cost may have to be transferred on to those who are receiving an education. Expansion in the school going population would also include not only a higher recurrent expenditure but also an increase in capital expenditure, school buildings, equipment and more teachers. Also with the increasingly vocationally oriented curriculum the cost of education per capita would go up. The latter would also be associated with the increasing popularisation of science subjects, as against arts subjects. In the past, with the emphasis on the studies in arts subjects, the capital cost of education has been kept to a minimum. With more development oriented studies the cost of education is likely to rise sharply. At the same time, the cost of training teachers in these subjects will also be much higher than in studies in arts.

Expenditure on Medical Care

Of the total expenditure on the major welfare services the amount spent by the government on free health services has been the lowest. Today it is about one third of the outlay on free or subsidised rice and about half the expenditure on education. With the levying of fees from those who pay income tax and others on certain medical services, it is likely that the cost of medical care would not increase appreciably despite the increase in population. The expenditure on health services rose from Rs. 50·2 million in the financial year 1949/50 to Rs. 104 million in 1956/57 and to Rs. 210 million in 1968/69. In 1974 the amount spent was Rs. 288·9 million. Thus, between the financial year 1959/60 and 1974, in approximately 15 years, the cost of the health services has doubled. This rate of increase is less than the rate of increase in expenditure on subsidised rice and on free education.

From a purely social standpoint, in relation to other welfare expenditures the greatest justification seems to be for free health services because one of the first priorities of the state should be the eradication of disease and to ensure a healthy population. Unlike the other two items, expenditure on medical care is purely on a needs basis and for most individuals it does not represent a recurrent item of expenditure. It is, indeed, an important fact that free medical care has contributed appreciably to the decline in the death rate from the early forties. The death rate has declined from the 21·5 per thousand in 1945 to 12·4 per thousand in 1950, to 8·6 per thousand in 1960 and to 7·7 in 1973. This shows that in less than thirty years the death rate has been reduced to about one third of the level in 1945. Today Sri Lanka is privileged to have probably one of the lowest death rates among the developing countries of the world. Similarly, the infant mortality rate has fallen from 263 per thousand in 1935 to 140 per thousand in 1950, and to 46 per thousand in 1973. Although a direct relationship cannot be established between the decline in the infant mortality rate and improved health services, yet the statistics show that the very sharp fall in infant mortality has occured from the time the free health services were introduced.

Apart from contributing significantly to the fall in the death rate and infant mortality rate, the data from successive censuses show that improved medical care has contributed at least in part to an increase in longevity among males and females in the Island. For both

males and females the expectation of life has also increased appreciably. In 1946 the expectation of life for males was only 43·9 years, by 1953 it had risen to 61·9 years and in 1967 was 64·8 years. The corresponding figures for females was 41·6 years, 60·6 years and 66·9 years respectively. All this shows that the return on the investment in medical care seems to be more than commensurate to the outlay.

Free medical care has contributed to the expansion and the availability of medical services in all districts in the Island. Along with free education it has contributed to the devlopment of a medical school that has maintained high standards and has provided the basis for the advancement of medical education and research. In Sri Lanka the ratio of doctors per thousand of population is more favourable than in other developing countries. It has also provided extensive employment opportunities for officers both in the specialist grades and other staff who work in the clinics and hospitals. Unlike in the case of subsidised rice and free education, free medical care in the context of the modifications that were introduced after 1971 is not likely to impose a strain on the country's finances and in terms of investment in human resources likely to produce the greatest benefits to the nation as a whole.

Some Other Consumer Subsidies

With regard to the other consumer subsidies that have been provided over long period, the two important ones are the services of the Ceylon Government Railway and the Ceylon Transport Board, the nationalised bus service. The latter has operated an extensive transportation network throughout the Island since the nationalisation of bus services in 1958. Table 9 gives the losses incurred by the Ceylon Government Railway and the Ceylon Transport Board which represent the concealed subsidy on these services to the public. The overall loss incurred by the C.G.R. in 1952 was Rs. 22·5 million in twenty years, that is by 1972 the loss had risen to Rs. 61·6 million. The Ceylon Government Railway has had a long history of running at a loss and one has to go back several decades to find a period when the service was operated at a profit. Present indications are that the C.G.R. will continue to run at a loss for a long time to come. This has been largely attributed not so much to the decline in the volume of traffic, but to the extremely heavy overheads which the railway services have had to bear right throughout. In this respect the superannuation bill of employees of the railway constitutes a heavy

recurring item of expenditure. In addition, some of the services now maintained by the railway are not very lucrative such as the Kelani Valley narrow gauge and Batticaloa Trincomalee light railway on account of the low volume of passengers and goods traffic. These services are being maintained primarily on account of their importanee as a channels of communication between the different parts of the Island.

Table 9

Financial Results of the Operations of the Ceylon Government Railway and the Ceylon Transport Board

Rs. Million

	C. G. R.	C. T. B.	Total Loss C. G. R. and C. T. B.
1950	—	—	—
1951	—	—	—
1952	- 22·564	—	—
1953	- 15·897	—	—
1954	- 17·741	—	—
1955	- 19 850	—	—
1956	- 24·924	—	—
1957	- 39·706	—	—
1958	- 40·099	- 3·651	- 43·751
1959	- 43 049	- 12·746	- 55·795
1960	- 44·783	- 9·695	- 54 478
1961	- 44 127	- 3·145	- 47·272
1962	- 41·226	+ 3 994	- 37·232
1963	- 38·774	+ 4·884	- 33·890
1964	- 47·743	+ 13·615	- 34·129
1965 (9 months)	—	+ 0·243	n. a.
1965/66	- 50·244	+ 2·820	- 47·424
1966/67	- 46·164	+ 1·447	- 44·717
1967/68	- 47·666	- 7·196	- 54·862
1968/69	- 57·438	- 14·046	- 71·484
1969/70	- 55·122	- 49 074	- 104·195
1970/71	- 57·438	- 56·000	- 113·433
1971	- 61·907	—	n. a.
1972	- 61·694	- 36·839	- 98·533
1973	- 56·164	- 33·838	- 90·002

Annual Reports—C. T. B.
Administrative Reports—C. G R

With regard to the Ceylon Transport Board, the increase in fares took place only after 1970. Since 1958. for more than ten years fares have remained more or less stable at the rates charged by the private bus operators in the period prior to nationalisation. In terms of the income and other taxes paid by private bus operators there is evidence that the latter ran the services at a profit, despite the fact that often more than one operator ran buses on a route in competition with others. Although the C.T.B. made losses in the four years immediately after nationalisation, after 1962 the services were run at a profit for a short period until 1966/67. In this latter period the number of employees did not exceeded 32,000 and the number of employees per operational bus was less than 7·37.

It is evident that the losses of the C.T.B. are not entirely due to the fact that fares have not been increased since the transport services were nationalised but to other factors. Profitability of the C.T.B. largely depends on the progressive increase in the operational fleet and the reduction of the number of employees. Whereas the number of operational buses has increased over the years from 3,276 in 1958 to 5,925 in 1972 and decreased to 4302 in 1974, the staff employed by the Board has increased considerably more than in proportion. In 1958 the number of employees per operational bus was 4·67 and this was more or less the ratio which was maintained by private operators. In 1965 the number of employees per operational bus was 6·93, in 1968/69, 7·50, in 1970/71, 8·21, in 1972, 9·11 and in 1974, 12·3. The total number of employees rose from 15,326 in 1958 to 28,841 in 1965 to 44,103 in 1969/70 and to 52,802 in 1974. The high cost of operation of the C.T.B. has largely been due to the excessive numbers that have been given employment. Employment does not seem to be related to meet the requirements of the service. The latter primarily explains recurring losses and a workforce that does not have an optimum quantum of work could seriously affect the efficiency and morale of the organisation.

Despite these issues the availability of cheap transport services throughout the years have greatly contributed to relieve the congestion in the urban areas. The losses that have been incurred by the C.T.B. represent only financial losses and social gains cannot be expressed in purely accounting terms. The very large number of people who come daily to work in the cities, particularly to Colombo reflects the

low cost, frequency and availability of transport services. A large number of commuters come from distances upto 16 and 20 miles and it is actually the low cost of transportation until recently which has helped the dispersion of the population into satellite towns and suburbs. It has considerably facilitated the decentralisation of industry by providing relatively cheap transportation to and from the the rural areas. Cheap bus fares have provided substantial external economies to industrialists and enterpreneurs which have served as an incentive to enterpreneurs to locate their industries away from the towns. In addition, since the end of the fifties, it has contributed to open up large areas of land which have been brought under cultivation, particularly paddy and other crops. It has also contributed directly to improve the channels of communication between the rural areas and the main administrative centres the latter in turn has facilitated the improvement of the quality of health, educational and administrative services which have been available to the rural sector.

Conclusion

The time has now come for Sri Lanka to make a choice between increasing welfare expenditure and accelerating economic growth. The impact of welfare expenditure has been far reaching and it has undoubtedly contributed greatly to the well being of the population. But in view of a host of other problems which are now emerging in a very significant way such as unemployment, a fall in real per capita income, a decline in productivity in the plantations and state run enterprises and creeping inflation the resources must be found to step up the rate of investment and such resources would be readily available if welfare expenditure is curtailed. In fact, the latter is the key solution to all problems which are facing the country today. What is most desirable is a ceiling on total social service expenditure so that there could be an assurance that the funds diverted annually to the capital budget could be progressively increased. As for subsidised foodstuffs, mainly free rice there is a social and economic justification to provide a subsidy on the basis of genuine need only to the unemployed and those who are destitute. Unless the world market price of rice falls to the levels prevailing in the early sixties even at a price of around £ 75 or £ 90 per ton, the likely price at which the world market price of rice will settle down in the future the rupee subsidy would be substantial. Furthermore, if the country becomes self-sufficient in rice and if the entire quantity of rice

distributed on the ration on the present basis has to be procured locally at the current guaranteed price, the consumer subsidy notwithstanding the subsidy to the producer, would still present a major budgetary problem to the administration. Education is another area of welfare expenditure which has to be reviewed very early in view of the anticipated progressive increase in the magnitude of expenditure. This expenditure will be more difficult to contain than the funds that are spent every year on subsidised rice because in addition to recurrent expenditure capital expenditure will be a major item in the government budget as increasing provision will have to be made for more schools and universities. One favourable feature is that the element of subsidy in several other areas such as transporation has been largely eliminated by increasing fares and by appropriate pricing policies. In the latter context if the public is expected to pay the real cost of service, it is equally important that on the one hand, the state run enterprise provide an equally good service and on the other, endeavour to keep recurrent expenditure particularly the wage bill and overhead costs at the lowest possible level and eliminate waste and malpractices so that the costs of inefficiently run public services do not become a financial burden on the people of this country.

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