Economic Growth and Poverty in Sri Lanka 1977-1996:

A statistical analysis.

M.B. Ranathilaka, and Yoshiharu Shiratake

Summary

Poverty is one of the major problems faced by the developing world today. Therefore alleviation of poverty can be considered as the greatest challenge for these countries. This problem is particularly evident when we consider the very high rates of unemployment and underemployment, as well as the proportion of population living below the poverty line in many countries in Asia, Africa and Latin America. A very high proportion of the population of these countries have been marginalized due to the failure of various developing polices and strategies. This is a rural phenomenon in the developing world where a large majority of the population subsists on agriculture.

Micro and macro level factors have a considerable impact on poverty of the country individually as well as altogether. In that case, most of the studies have revealed that the economic growth of the country is an important tool to eradicate the poverty. Recent studies have examined the impact of the overall economic growth and some sectoral growth to eradicate the poverty. These studies revealed that the some sectoral growth is rather important factor of eradicating poverty in a country than the overall economic growth.

The examination of the relationship between economic growth and poverty in Sri Lanka until 1996 after introducing liberalization economic policy in 1977 is the major objective of this paper. Although economic growth is a crucial determinant for reduction of poverty, its importance depends on several other factors such as prevailing income inequality, ownership of assets and access to opportunities. The econometrics models were used to examine the relationship between growth and poverty with the data, Head Count Index, GDP growth and sectoral growth. The analysis of data using econometric models did not indicate that there was a clear relationship between economic growth and poverty in Sri Lanka within the examined duration. However, one can clearly identified a specific relationship between the sectoral economic growth and poverty. In this analysis, we revealed that most crucial factors are the growth in industrial sector, paddy production sector but the expansion of the service sector has contributed very little to the reduction of poverty.

Keywords: poverty, economic growth, sectoral growth

1. Introduction

Poverty is one of the major problems faced by the developing world today. Therefore alleviation of poverty can be considered as the greatest challenge for these countries (World Bank, 1991; 2000). This problem is particularly evident when we consider the very high rates of unemployment and underemployment, as well as the proportion of population living below the poverty line in many countries in Asia, Africa and Latin America. A very high proportion of the population of these countries have been marginalized due to the failure of various developing polices

and strategies (World Bank, 1991). This is a rural phenomenon in the developing world where a large majority of the population subsists on agriculture.

Although, numbers of poverty alleviation programs has been implemented the world over, their success has been very limited. Despite these programs, poverty has generated crisis situation in almost all these countries. In this context, the most pertinent question that can be raised is, " who are the social groups that enjoy the rewards of economic growth?" This is determined by the relationship between various factors such as economic growth, inequality, and ownership of assets and access to opportunities.

Micro and macro level factors have a considerable impact on poverty of the country individually as well as altogether. In that case, most of the studies have revealed that the economic growth of the country is an important tool to eradicate the poverty (Chatterjee, 1995; Akhtar and Ahmed, 1999; and Amjad and Kemal, 1997; Khan, 1999; Datta, 1996; Athurupane, 1999; Mitra, 1992; wodon, 1998).

Recent studies have examined the impact of the economic growth and sectoral growth to eradicate the poverty. These studies revealed that the sectoral growth is rather important factor of eradicating poverty in a country than the overall economic growth (Chatterjee, 1995; Akhtar and Ahmed, 1999; and Amjad and Kemal, 1997).

The main objective of this study is the examination of the relationship between economic growth and poverty in Sri Lanka during the period of 1977 to 1996. After introducing open economic policy in 1977, the government has desired dramatic economic growth and eradicates poverty distributing gained economic growth within the population who, especially, poor live in rural areas. But from 1983 on going war in the North and East has made a negative impact to national economy and livelihood of the virtuous people in the country. Heavy expenditure on war is hard to bear for a poor country like Sri Lanka. On the other hand, 1971 to 1973 and 1988 to 1990 internal youth unrest also made the above objective worst. According to this situation, it is more important to reveal after 1977, what kind of character had been played by economic growth for eradicate of poverty in Sri Lanka.

2. Behavior of the Poverty

The Sri Lankan poverty statistics, as shown in table 1, do indeed produce contradictory conclusions with regards to the incidence of poverty in the country as well as its trends over the time. The governments, which ruled the country after the independence has been continued free education and free health services. In accordance with this policy, poverty was reduced during the period of 1950-1965, and it decreased even more rapidly during the period of 1965 to 1985 (World Bank, 1995). However, it increased slightly in the period of 1990-1995 (World Bank, 1995).

According to the Head count Index of the year 1973 (Poverty line is 70.00 rupees for one person, weighted in 1973), 27.6 percent of the total population was categorized as poor (See table 01). In the years of 1979 and 1980/81 this amount showed a continued decrease as 22.7 percent and 21.9 percent respectively. However, the percentage of poor people of the total population increased to 30.92 percent in 1985/86 (Poverty line is 791.67 rupees for the one person, weighted in 1995/96). But, it decreased to 19.89 percent in 1990/91. It was 43.0 percent decline with com-

Table 1
Selected Poverty Index from 1973 to 1996

Year	easure	Rural*	Urban*	Estate*	All Island
1973	H	31.6	22.7	8.1	27.6
1979	H	23.8	24.4	8.9	22.7
1981/82	H	23.2	19.6	13.8	21.9
1985/86	H	35.55	18.38	20.53	30.92
	PG	8.90	4.41	3.92	7.62
	P 2	3.24	1.59	1.27	2.76
1990/91	H	21.98	14.97	12.42	19.86
	PG	4.50	3.38	2.11	4.10
	P 2	1.41	1.15	0.61	1.30
1995/96	H	26.95	14.67	24.92	25.17
	PG	5.79	2.95	4.88	5.36
	P 2	1.88	0.91	1.55	1.73

H= Head count index, PG= Poverty Gap Index, P 2 = Square Poverty Gap Index
Sources; data of the years 1973, 1979 and 1983 was collected from Anand and Harris (1985) and data of the years 1985/86, 1990/91 and 1995/96 was collected from Gunewardena (2000).
* In the census 2001, urban sector comprises of all municipal and urban councils' areas. Estate sector is defined as plantations of 20 acres or more in extent upon which there are 10 or more resident laborers. The other areas are treated as rural sector (Source: Census report, 2001, p. ix.).

pared to the 1985/86. However, the percentage of poor people of the total population increased in the year 1995/96 to 25.17 percent. This was a 27.0 percent increase of poverty with compared to the 1990/91.

Today $1/3^{rd}$ of the total population is suffering from poverty in Sri Lanka. Consequently, it can be seen that the policy, which had been implemented by the government, was not very effective to eradicate the poverty of the country (World Bank, 1995).

2. Behavior of Economic Growth

After the independence (in the 1960's) there was not a very clear difference between the Sri Lankan economic growth rates compared to other the East Asian countries. East Asian countries have earned a rapid economic growth in the 80's and 90's but the Sri Lankan economic growth rate had fallen (World Bank, 1995). According to the poverty assessment of World Bank (1995),

Table 2
Behavior of the economic development in the period 1973-1996

Period	1973-79	1980-84	1985-89	1990-96
GDP average growth rate	4.50	4.76	3.42	5.40
GNP average growth rate	4.41	5.36	3.34	5.03
Average Per Capita Income per year	17.45	20.42	9.00	19.77
Agricultural Growth per year	3.67	3.54	1.28	2.24
Industrial Growth per year	3.63	4.96	5.96	8.63
Service sector Growth per year	5.23	6.89	3.22	5.13

Sources; Central Bank Annual Report, 1973-1996

economic policies that were implemented by the government did not affected to the economic growth of the country.

There was 5.3 percent economic growth during the time 1966-1970 (See table 2) but it was affected by the government intervention and international oil crisis, and decreased 2.3 percent during the time 1971-1977 (Central Bank Report, 1998). However, GDP growth rate has been increasing after the open economic policy, which was introduced at a crucial point by the government elected in 1977. GDP growth rate was 5.3 percent in 1977 to 1980 (Sri Lanka central Bank, 1998). It was reduced to 4.76 percent and 3.42 percent in the period of 1980-1984 and 1985-1989 respectively. Effects of the internal civil war in the years 1987, 1988 and 1989 and drought in 1987 reduced the GDP growth rate throughout 1985-1989 (Sri Lanka central Bank, 1998). However, the government managed to maintain 5.4 percent of GDP growth rate from 1990 to 1996. If there had not been an internal civil war, the GDP growth rate could have been maintained over the above rate (Sri Lanka Central Bank, 1998).

3. Making Comparable Poverty Measures

It was difficult to find out poverty measures for the each year from 1977 to 1996. Two continuous poverty measure series can be founded, which were made by using different kind of data for the years from 1973 to 1996 (See table 3). Anand and Harris (1985) measured one of them using the consumer price survey data for the years 1973, 1978/79 and 1981/82. The other series of poverty indices was measured by Gunewardena (2000) depends on the Datt and Gunewardena (1997) poverty line. They used consumer income and expenditure survey data for the year's 1985/86, 1990/91 and 1995/96.

These two series of the poverty measures are initially different in a numbers of points. Anand and Harris made their poverty measures depending on the poverty line, which is a Basic Food requirement of a person. Gunewardena made her poverty measures depending on the poverty line that is Basic Needs of a person. Therefore, these two poverty measure series are different from each other's. As an example, consider the persons A, B, C and D whose income is as below. Here, if a person is poor p=0 and if a person is not poor p=1. In this example Basic food requirement poverty line is 175 rupees and Basic needs poverty line is 200 rupees .

According to the above example, A and D are poor and not poor respectively but B and C's

Table 3
Comparing poverty line

Pearson	Poverty Line	Related Expenditure	Poor or not
A	Food	190	0
	Basic needs	210	0
B	Food	190	0
	Basic needs	195	1
C	Food	170	1
	Basic needs	205	0
D	Food	170	1
	Basic needs	195	1

situation is different with regards to the two kinds of poverty lines. Thus, we cannot compare these two kinds of poverty measures, which represent the poverty of people. Disregarding the above dissimilarities, two poverty series are still different from each other according to the value of the poverty line that they were depend on. Considering the prices of the commodities in 1997 (Datt and Gunewardena 1997), the Basic Food Requirement Poverty Line (BFRPL) calculated by Anand and Harris (1985), is similar to the value of 173 rupees and Datt and Gunewardena (1997) Basic Needs Poverty Line (BNPL) is similar to the value of 200 rupees. Within the context of the above, Gunewardena (2000) BNPL is 15.6% higher than the Anand and Harris (1985) BFRPL. In addition to that, Anand and Harris (1985) BFRPL is 13.5% lower than Gunewardena (2000) BNPL.

$$(200 - 173/200) = 13.5\%$$
$$(200 - 173/173) = 15.6\%$$

To compare these two, Anand and Harris (1985) BFRPL can be increased to 15.6%, where it falls level with Gunewardena (2000) poverty measures. On the other hand, Gunewardena (2000) BNPL can be decreased to 13.5%, where it is fell together with Anand and Harris (1985) poverty measures.

Table 4
Overall poverty of Sri Lanka in according to 1985/86 and 1995/96 consumer survey

	1985/86			1990/91			1995/96		
Price	HI	PG	PGS	HI	PG	PGS	HI	PG	PGS
Rs.633.34	16.69	3.62	1.18	8.82	1.59	0.46	11.66	2.15	0.63
Rs.672.92	20.07	4.48	1.51	11.37	2.09	0.62	14.63	2.79	0.84
Rs.712.50	23.51	5.44	1.88	13.96	2.68	0.81	18.15	3.55	1.09
Rs.752.09	27.10	6.49	2.30	16.86	3.35	1.04	21.65	4.41	1.39
Rs.791.67	30.92	7.62	2.76	19.86	4.10	1.30	25.17	5.36	1.73
Rs.831.25	34.28	8.80	3.27	22.92	4.92	1.60	28.79	6.39	2.11
Rs.870.84	37.77	10.04	3.81	26.16	5.81	1.93	32.47	7.50	2.54
Rs.910.42	40.97	11.31	4.40	29.49	6.77	2.30	35.95	8.66	3.01
Rs.950.00	44.52	12.62	5.02	33.04	7.79	2.71	39.20	9.86	3.52

Sources; Gunewardena, (2000).

Gunewardena (2000) estimated some poverty measures depending on Dutt and Gunewardena (1997) BNPL as shown in table 4. The suitable poverty measures i.e., 13.5% below the original poverty line can be selected from the table 4. On the other hand, the Anand and Harris (1985) poverty measures can be increased by 15.6% as below.

$$= HI + (HI * E * 15.6\%)$$
where,
HI = Head Count Index
E = Poverty Line Elasticity of Head Count Index
Here,

$$E = \frac{\delta HI}{\delta PL} * \frac{PL}{HI}$$

where,

PL = Poverty Line.

Elasticity of Head Count Index can be calculated by following equations.

$$\log HI(t) = \alpha + \beta \log PL(t) \quad (1)$$

where,

$$\beta = \frac{\delta \log HI(t)}{\delta \log PL(t)}$$

where,

$$\beta = \frac{\delta HI}{\delta PL} * \frac{PL}{HI}$$

This concludes that E, Poverty line elasticity of Head Count Index, is equal to β.

Above function is estimated by OLS regression analysis, using the poverty indices that were made by Gunewardena (2000) as in the table 4. The results of the above function are as below,

$$\log HI_{1985\,86} = -14.94 + 2.75 \log PL \quad (2)$$
$$\log HI_{1990\,91} = -21.18 + 3.62 \log PL \quad (3)$$
$$\log HI_{1995\,96} = -19.91 + 3.46 \log PL \quad (4)$$

where,

$\beta_{1985/86} = 2.75$

$\beta_{1990/91} = 3.62$

$\beta_{1995/96} = 3.46$

According to the above results, β values are different from each other. Mean value for β can be calculated by taking the average of above three i.e., 3.28. After increasing 15.6%, the adjusted Anand and Harris poverty measures can be explained as below,

$$HI_{\text{Anand and Harris}}1973 = 27.6 + 27.6 * 3.28 * 0.156 = 41.72$$
$$HI_{\text{Anand and Harris}}1978/79 = 22.7 * 3.28 * 0.156 = 34.32$$
$$HI_{\text{Anand and Harris}}1981/82 = 21.9 + 21.9 * 3.28 * 0.156 = 33.11$$

In table 5, series A consist of Anand and Harris (1985) poverty measures and 15.0% lower

Table 5
Selected Head Count Index from 1973 to 1996

Year	Poverty Index A Series	Poverty Index B Series
1973	27.6	41.72
1978	22.7	34.32
1982	21.9	33.11
1986	20.07	30.92
1991	11.37	19.86
1996	14.63	25.17

Sources; Anand and Haris (1985), Gunewardena (200) and the Author

poverty measures of Gunewardena (2000). Similarly, Gunewardena (2000) and adjusted poverty measures of Anand and Harris (1985) are categorized as series B.

5. Interpolated Poverty Measures (IPL)

Six continuous and trusted poverty indices can be found during the period of 1973 to 1996. By using these indices, the ordinary least squared (OLS) regression function is formulated to take the interpolated values for the missing indices during the above period. The following log econometrics model is used for this purpose.

$$\log P(t) = \alpha + \beta(t) + U(t) \qquad (5)$$

where,

$P(t)$ ＝Head Count Index
t ＝Time
U ＝Error Term

According to the poverty series A and B, the model parameters are illustrated in table 6 and 7. The parameters calculated for the above model are shown as 5A and 5B in Table 6 and 7 respectively. Interpolated poverty indices, which belong to the A and B series', are indicated in the first column of table 8 and 9. In accordance with the results, the above model has not correctly revealed the relationship between independent and dependent variables. Thus, few models are employed to find the best relationship between independent and dependent variables. Dummy variable (*Dum*), Category variables (*Cat*) and square of the time (t^2) were employed as follows to examine the behavior of the actual poverty measures.

$$\log P(t) = \alpha + \beta_1 t + Dat + U(t) \qquad (6)$$
$$\log P(t) = \alpha + \beta_1 t + Cat + U(t) \qquad (7)$$
$$\log P(t) = \alpha + \beta_1 t^2 + U(t) \qquad (8)$$
$$\log P(t) = \alpha + \beta_1 t + \beta_2 t^2 + Dun + U(t) \qquad (9)$$
$$\log P(t) = \alpha + \beta_1 t + \beta_2 t^2 + Cat + U(t) \qquad (10)$$

Results of the above models, using the poverty series A, are indicated in table 6. They are labeled as 6A, 7A, 8A, 9A and 10A. Results of the above models, using the poverty series B are indicated in table 7 and labeled as 6B, 7B, 8B, 9B and 10B. Interpolated poverty indices, which belong to A and B poverty measure series' are indicated in table 8 and 9 respectively. Among these models, models 6 and 7 were statistically significant than the others, which are calculated using Dummy variables and Category variables (See table 6 and 7). The poverty series, which were interpolated by using the models 6 and 7, are employed in further calculations of poverty, GDP growth and sectoral growth.

Table 6
Result of OLS regression for interpolate poverty
Index using by poverty measure series A

5 A	$\log Pt$ =	$3.327 - 0.034\, t$ $(25.042)^{***}\ (-3.739)^{**}$	$R^2 = 0.7776$
6 A	$\log Pt$ =	$3.343 - 0.0268\, t - 0.413\, D$ $(149.797)^{***}\ (-16.018)^{***}\ (11.754)^{***}$	$R^2 = 0.9953$
7 A	$\log Pt$ =	$3.3836 - 0.0381\, t + 0.197\, C$ $(69.597)^{***}\ (-11.231)^{***}\ (5.265)^{***}$	$R^2 = 0.9783$
8 A	$\log Pt$ =	$3.392 - 0.0399\, t + 0.0002\, t\,2$ $(15.675)^{***}\ (-1.021)\ (0.147)$	$R^2 = 0.7796$
9 A	$\log Pt$ =	$3.3276 - 0.0231\, t - 0.000015\, t\,2 - 0.4045\, D$ $(91.299)^{***}\ (-3.4587)^{*}\ (-0.05815)\ (-10.355)^{***}$	$R^2 = 0.7776$
10 A	$\log Pt$ =	$3.371 - 0.035\, t - 0.0002\, t\,2 + 0.1988\, C$ $(41.014)^{***}\ (-2.373)\ (-0.216)\ (4.332)^{**}$	$R^2 = 0.7776$

Notice; figures with in brackets are t statistics, *** is significant at 0.01%., **is significant at 0.05%
and * is significant at 0.10%

Table 7
Result of OLS regression for interpolate poverty
Index using by poverty measure series B

5 B	$\log Pt$ =	$3.743 - 0.027\, t$ $(33.46)^{***}\ (-3.569)^{**}$	$R^2 = 0.7610$
6 B	$\log Pt$ =	$3.721 - 0.021\, t - 0.332\, D$ $(158.69)^{***}\ (-12.199)^{***}\ (-9.435)^{***}$	$R^2 = 0.9922$
7 B	$\log Pt$ =	$3.754 - 0.030\, t + 0.164\, C$ $(90.967)^{***}\ (-10.545)^{***}\ (5.144)^{**}$	$R^2 = 0.9757$
8 B	$\log Pt$ =	$3.799 - 0.0412\, t + 0.0005\, t\,2$ $(21.729)\ (-1.303)\ (0.001)$	$R^2 = 0.7778$
9 B	$\log Pt$ =	$3.747 - 0.0274\, t + 0.0003\, t\,2 - 0.3261\, D$ $(121.198)^{***}\ (-4.866)^{***}\ (1.202)\ (-9.842)^{*}$	$R^2 = 0.9954$
10 B	$\log Pt$ =	$3.782 - 0.037\, t - 0.0003\, t\,2 + 0.160\, C$ $(58.185)^{***}\ (-3.117)^{*}\ (0.599)\ (4.421)^{**}$	$R^2 = 0.9794$

Notice; figures with in brackets are t statistics, *** is significant at 0.01%., **is significant at 0.05%
and * is significant at 0.10%

Table 8
Interpolated poverty Index Series A

year	01	02	03	04	05
1973	28.098	27.543	28.375	27.229	28.108
1974	27.148	26.813	27.314	26.595	27.129
1975	26.229	26.103	26.292	25.968	26.179
1976	25.342	25.411	25.309	25.349	25.256
1977	24.485	24.738	24.367	24.737	24.359
1978	23.567	24.082	23.451	24.133	23.488
1979	22.857	23.444	22.573	23.537	22.643
1980	22.084	22.822	21.729	22.949	21.823
1981	21.337	21.218	20.916	22.369	21.027
1982	20.615	21.629	20.134	21.797	20.256
1983	19.981	21.056	19.381	21.234	19.908
1984	19.244	20.498	18.656	20.679	18.783
1985	18.593	19.954	17.959	20.133	18.080
1986	17.964	19.425	21.057	19.597	21.227
1987	17.356	18.911	16.639	19.068	16.741
1988	16.769	18.409	16.017	18.549	16.103
1989	16.202	17.922	15.418	18.038	15.485
1990	15.654	17.447	14.842	17.536	14.888
1991	15.125	11.370	11.728	11.370	11.730
1992	14.613	16.534	13.752	16.560	13.751
1993	14.119	16.096	13.238	16.056	13.211
1994	13.641	15.669	12.742	15.620	12.689
1995	13.179	15.254	12.166	15.164	12.185
1996	12.734	14.849	14.383	14.716	14.271

able 9
Interpolated poverty Index Series B

year	01	01	03	04	05
1973	41.102	40.429	41.437	41.240	42.306
1974	39.994	39.587	40.197	40.151	40.797
1975	38.971	38.763	38.994	39.109	39.364
1976	37.869	37.954	37.827	38.115	38.002
1977	36.849	37.163	36.659	37.164	36.706
1978	35.857	36.388	35.597	36.255	35.473
1979	34.891	35.629	34.532	35.386	34.301
1980	33.951	34.887	33.498	34.556	33.184
1981	33.037	34.160	32.496	33.761	32.122
1982	32.147	33.448	31.532	33.002	31.109
1983	31.281	32.751	30.579	32.276	30.146
1984	30.438	32.068	29.665	31.581	29.228
1985	29.619	31.399	28.777	30.917	28.353
1986	28.821	30.745	32.881	30.282	32.308
1987	28.040	30.105	27.080	29.676	26.723
1988	27.289	29.477	26.269	29.096	25.965
1989	26.554	28.863	25.484	28.541	25.242
1990	25.839	19.860	24.721	28.011	24.552
1991	25.143	38.557	20.360	19.860	20.352
1992	24.466	27.095	23.264	27.022	23.266
1993	23.807	26.531	22.567	26.560	22.666
1994	23.165	25.978	21.892	26.119	22.548
1995	22.541	25.437	21.237	25.699	21.548
1996	21.934	24.906	24.265	25.298	24.686

6. Examine the Relationships Between Poverty, GDP Growth and Sectoral Growth

Macro economic growth is crucial to the livelihood of the poor in the country. It affects can be seen, in the short term and long term as well as in the micro level and macro level (Khan, 1999; Thorbecke and Hong-Sang, 1996; Chatterjee, 1995). With the help of the following econometric modal, the relationship between the poverty and the GDP growth can be examined. To calculate the above mentioned relationship for the period of 1977 to 1996, poverty measures in the columns 2 and 3 of the tables 8 and 9 can be used with the GDP growth rates in the table 12. It is assumed that the previous year GDP growth rate is affected to the current year poverty reduction.

$$\log P(t) \quad = \alpha + \beta Y(t-1) + U(t) \qquad (11)$$

where,

$P(t)$ = Head Count Index of the tth Year

$Y(t-1)$ = GDPgrowth of the $t-1^{th}$ Year

U = Error Term

The results of the above econometric model calculated by OLS regression analysis are shown in table 10. Poverty Index series are statistically not significant with the overall GDP growth rate of the previous year. Therefore, the analysis of data using the above econometric models does not indicate a clear relationship between economic growth and poverty in Sri Lanka. It reveals that the GDP growth was not affected clearly to eradicate poverty of Sri Lanka in the years from 1973 to 1996. This result is emphasized in the studies done by Therbacke and Hong-

Table 10
Poverty and Economic growth
Dependent variable; Head count Index (A and B poverty measure series)

Dependent variable	Intercept	Component	R^2	F value
logPtDA	3.1769 (20.83716)***	−0.04164 (−1.32703)	0.074113	0.198109
PtDA	23.56904 (8.830764)***	−0.70218 (−1.27709)	0.069017	0.198109
logPtCA	3.06632 (17.72595)***	−0.03285 (−0.92194)	0.037198	0.366561
PtDA	22.00477 (6.853678)***	−0.63067 (−0.98351)	0.039686	0.350693
logPtDB	3.584823 (32.79176)***	−0.03075 (−1.36525)	0.078105	0.185975
PtDB	36.07877 (10.81793)***	−0.94219 (−1.371351)	0.07875	0.184093
logPtCB	3.509055 (25.45644)***	−0.02773 (−0.97667)	0.041557	0.339349
PtCB	33.976656 (8.34412)***	−0.84764 (−1.01048)	0.044354	0.323251

Notice: figures with in brackets are t statistics. D= Dummy variable, C= Category variable, A and B are A and B poverty measure series, **** means significance at 1% level.

Sang (1996) and Khan (1999).

However, resent researches have revealed that the sectoral GDP growth is more significant for eradicate poverty than the overall GDP growth (Chatterjee, 1995; Akhtar and Ahmed, 1999; and Amjad and Kemal, 1997). In this context, following econometric model has been examined to study the relationship between poverty and sectoral growth.

$$P(t) = \alpha + \beta_1 MA(t) + \beta_2 SE(t) + \beta_3 PA(t) + \beta_4 TE(t) + DUM_{80's} + DUM_{90's} + U(t) \qquad (12)$$

where,

$MA(t)$	$=$	Growht of Manufacturing Sector in t^{th} year
$SE(t)$	$=$	Growht of Services Sector in t^{th} year
$PA(t)$	$=$	Growht of Paddy Cultivation Sector in t^{th} year
$TE(t)$	$=$	Growht of Tea Cultivaton Sector in t^{th} year
$DUM_{80's}$	$=$	Dummy Variable for 1980's
$DUM_{90's}$	$=$	Dummy Variable for 1990's

Above model is formulated using the OLS regression analysis. According to the above model, factors as a whole are statistically significance at 5% confidence level and regression coefficient, R^2, is greater than 90% (see table 11). Hence, one can clearly identify a significant relationship between sectoral economic growth and poverty for the period of 1977 to 1996. It reflects that the sectoral GDP growth is significantly affected to eradicate the poverty in Sri Lanka. If we consider each sector individually, they are statistically significant below the 10% confidence level except in Tea sector growth.

Table 11
Poverty and sectoral Economic growth
Dependent variable; Head count Index (A and B poverty measure series)

Dependent Variable	Intersept	Met	Set	Pat	Tet	Dum 80's	Dum 90'	R^2	F
logPtCA	3.1597 (53.34)***	−0.015 (−2.69)**	0.0216 (2.18)**	−0.0026 (−1.888)*	−0.0004 (−0.947)	−0.5583 (−5.411)	−0.5583 (−9.469)	0.902	36.106
PtCA	24.044 (22.22)***	−0.2814 (−2.81)**	0.3745 (2.067)*	−0.0026 (−1.725)*	−0.0112 (−1.342)	−5.6454 (−6.319)***	−10.2004 (−9.47)***	0.905	37.467
logPtDA	3.1776 (44.37)***	−0.0163 (−2.45)**	0.0224 (1.867)*	−0.0047 (−2.78)**	−0.0003 (−0.612)	−0.1914 (−3.238)***	−0.4512 (−6.33)***	0.868	18.650
PtDA	24.3494 (29.77)***	−0.2773 (−3.66)**	0.3455 (2.523)*	−0.0594 (−3.11)**	−0.0103 (−1.647)	−4.2558 (−6.304)***	−8.3346 (−10.3)***	0.926	47.466
logPtCB	3.5753 (75.03)***	−0.0118 (−2.67)**	0.0171 (2.15)**	−0.0021 (−1.912)*	−0.0005 (−1.332)	−0.2123 (−5.397)***	−0.4395 (−9.26)***	0.926	35.557
PtCB	36.1790 (−26.59)***	−0.3548 (2.82)**	0.4767 (2.093)*	−0.0579 (1.812)*	−0.0579 (−1.812)*	−6.9972 (−6.228)***	−12.7794 (−9.44)***	0.931	38.369
logPtDB	3.5924 (89.02)***	−0.0115 (−3.09)***	0.0153 (2.26)**	−0.0029 (−3.1)***	−0.0029 (−1.409)	−0.1508 (−4.527)***	−0.3330 (−8.29)***	0.919	32.168
PtDB	36.6065 (34.74)***	−0.3491 (−3.59)***	0.4341 (2.46)**	−0.0785 (−3.2)***	−0.0179 (−2.216)	−5.1643 (−5.937)***	−10.1876 (−9.72)***	0.940	44.983

Notice: figures with in brackets are t statistics. D= Dummy variable, C= Category variable, A and B are A and B poverty measure series, ***, ** and * means significance at 1% leve l.5% level and 10% level

Table 12
GDP Growth and Sectoral Growth Duration of the Year 1972 to 1996

year	GDP growth	Primary growth	Manufac. Growth	Services growth	Paddy growth	Tea growth
1972	3.2	3.2	3.7	4.8	−6.0	−202.0
1973	3.7	5.5	−2.4	3.1	0.0	−0.1
1974	3.2	2.8	−4.5	6.6	22.1	−3.3
1975	2.8	−0.1	4.6	4.8	−28.0	4.8
1976	3.0	3.9	4.8	1.0	8.5	−7.9
1977	4.2	9.8	−0.1	4.8	34.0	6.1
1978	8.2	6.7	7.8	7.6	12.8	−4.8
1979	6.3	2.3	4.7	7.8	1.4	3.5
1980	5.8	3.3	0.1	8.0	11.3	−7.3
1981	5.8	7.1	5.2	6.4	4.5	9.9
1982	5.1	2.8	4.8	7.0	−3.3	10.5
1983	5.0	5.2	0.1	6.7	15.2	−4.8
1984	5.1	0.0	12.3	7.0	−2.6	16.2
1985	5.0	8.0	5.2	3.9	10.0	2.9
1986	4.3	2.8	8.8	4.3	−2.7	−1.4
1987	1.5	3.8	6.8	2.7	−18.8	0.1
1988	2.7	2.8	4.7	2.2	16.5	6.6
1989	2.3	0.0	4.4	3.2	−16.7	−8.8
1990	6.2	8.5	9.5	4.3	23.0	12.6
1991	4.6	0.1	6.8	6.2	−5.9	3.4
1992	4.3	−0.2	8.8	5.3	−2.1	−25.7
1993	6.9	5.6	10.5	6.3	9.8	29.6
1994	5.6	3.6	9.1	5.2	4.4	4.3
1995	5.5	3.3	9.2	5.0	4.7	1.7
1996	3.8	−3.2	6.5	5.8	−26.7	4.9

Sources; Central Bank Annual Report, 1972−1996

7. Conclusion

The examination of the relationship between economic growth and poverty in Sri Lanka during the period of 1977 to 1996 is the major objective of this paper. Thus, year 1977 open economic policies have been implemented to desired dramatic economic growth and eradicate poverty distributing earned economic growth within the population who, especially, poor live in rural areas. In this context, the study focused on the most important factors that have contributed to the reduction of poverty during this period and their relevance. Although economic growth is a crucial determinant in the reduction of poverty, its importance depends on several other factors such as the prevailing income inequality, ownership of assets and access to opportunities. The analysis of data using econometric models does not indicate that there is a clear relationship between economic growth and poverty in Sri Lanka. However, one can clearly identify a specific relationship between sectoral economic growth and poverty. In these regards, the most crucial factors are the growth in industrial sector and paddy production sector. On the other hand, the expansion of the service sector has contributed very little to the reduction of poverty.

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スリランカにおける経済成長
－1977年から1996年までの統計分析－

マリカ　バダゲ　ラナティラカ・白武　義治
（農業経済学分野）
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摘　　　要

　開発途上国が当面している現代の主要な問題の一つは貧困である．従って，貧困を軽減する
ことは，開発途上国にとって最も重大な挑戦として捉えることができる．この貧困問題の重大
さは，アジア，アフリカ，ラテンアメリカ等の多くの国々における極めて貧困な層の人口割合
と，非雇用人口や潜在的雇用人口の高い割合を検討するとき明白である．この貧困問題は，こ
れらの国々の大多数の人達が，これまでの多様な開発政策や施策の対象外におかれてきたとい
う失政に基づくものであった．このことは，大多数の人が農業部門で生活している開発途上国
における農村の典型的な現象である．

　当該国の貧困に対しミクロ的かつマクロ的な要因が全体的にあるいは個別的にかなり大きな
影響を与えている．従来，多くの研究は，当該国の経済成長がその貧困を根絶する重要な手段
であると明示してきた．最近の研究では，その貧困を根絶するために，経済全体の成長と経済
一部門の成長の影響について検討してきた．これら最近の研究は，経済全体の成長よりも経済
一部門の成長が，当該国の貧困根絶に重要な要因となっていることを示している．

　本研究では，スリランカにおける自由経済政策を導入した1977年以降1996年までの経済成長
と貧困問題との関係解明を主要課題とした．経済全体の成長は貧困を削減する上で重大な事項
であるけれども，経済成長に伴う所得の不平等分配や資産所有の偏在と機会不均等などいくつ
か他の要因も併せて検討すべき重要性を有していると思われる．そこで，ヘッド・カウント・
インデックス，GDP 成長や経済部門成長などのデータにより計量経済統計モデルを作成し，
経済成長と貧困の関係を分析した．その計量経済統計モデルによるデータ分析は，その検討し
た期間〔1977年—1996年〕で，スリランカの経済成長と貧困の間に明確な関連を示さなかった．
しかし，ある経済部門の成長と貧困の間には特定の関係があることを明確にした．本研究は，
貧困を削減する最も重大な要因が一産業部門の成長や農業部門の成長であること，しかしサー
ビス部門の成長は貧困の減少に余り関係ないことを明らかにした．