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Trade Liberalization, SME Development and Poverty in Pakistan

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"Trade liberalization is generally strongly positive contributor to poverty alleviation, it allows people to exploit the productive potential, assist economic growth, curtail arbitrary policy interventions and helps to insulate against shocks"[1]

Abstract
Trade liberalization, it is believed has a significant impact on poverty alleviation. Evidence exists both in favor and against the stated postulate. In order to first understand the relationship between trade liberalization and poverty, if any, and then to study the relationship between small firms in an economy and its impact on poverty, this paper makes an attempt using variables such as headcount poverty ratio, trade openness index, GDP growth and small scale manufacturing growth rate to analyze these relationships. The paper specifically studies the impact of trade liberalization on poverty in Pakistan. The role of SMEs in poverty alleviation is also discussed in the Paper. It concludes that trade liberalization indeed has a positive impact on poverty. Furthermore, it concludes that the growth of small scale manufacturing units has a larger impact on poverty alleviation during trade liberalization era as compared to large scale manufacturing units.

I - Introduction

Trade liberalization is increasingly advocated as a policy for poor countries to promote economic growth and to reduce poverty. In general, trade liberalization is expected to increase economic growth by increasing production of those commodities in which the country has a comparative advantage and in which the employment of abundant factors, such as unskilled labor, can boost the average income of the poor. Although trade liberalization does not have any direct impact on poverty, it is expected to accelerate economic growth, thereby benefiting the poor. In developing countries, people belonging to the lower strata of the economic spectrum are in one way or the other involved with micro, small or medium enterprises. Estimates show that SMEs constitute around 95 to 99 percent of the total manufacturing establishments in developing countries which in turn absorb more than 80% of total unskilled manufacturing labor force.

SME led economic growth supported by trade liberalization has done miracles in East Asian nations such as Japan, China, Thailand and Taiwan. In Pakistan too, SMEs play an important role in economic development but there is a need to gauge and understand the degree to which trade liberalization has had an effect on SME development in Pakistan. For this purpose, this paper looks at the following questions:

How does trade liberalization affect the growth of local SMEs in Pakistan in pre and post liberalized era?

Has the growth of SMEs alleviated poverty in Pakistan?

[1] WTO Secretariat Study by Dan Ben.David and L.Alan Winter.

II - Literature Review

Bourguignon,de Melo and Suwa (1989) state that trade openness helps the poor in low income countries as it encourages labor intensive export industries (mainly small scale units). Hussain (2000) argues that despite an impressive historical record of Pakistan in accelerating growth, reducing poverty and liberalization of the economy, the immediate impact of globalization on Pakistan's economy has been disappointing. He presents systematic relationships in his study to elaborate the channels through which trade liberalization affects economic growth and poverty. He concludes that Pakistan should concentrate on improved economic governance, investment in human development, removing bureaucratic impediments, unshackling the entrepreneurial energies of the private sector and maintaining a transparent, predictable policy environment to drive the gains from international labor flow and technological change. The empirical study conducted by Bannisth .J. and Thugee.K. (2001) suggests that trade reforms have a positive impact on employment and income for the poor, who are employed in SMEs. They also find that to achieve higher economic growth and poverty reduction, trade reforms should be broad based, allowed for adjustments and complimented by implementation of social safety nets. It has also been suggested that the linkage between trade liberalization and poverty is complex and involves an intricate empirical investigation to determine the role of SMEs. Dollar and Kraay (2001), while studying the affect of globalization on inequality and poverty, identified among others, India, Pakistan and Indonesia and observed a significant increase in their trade and reduction in tariff due to globalization after the 1980s. The study focused on in-country variation and cross country regression and concluded that change in trade volume had a positive impact on economic growth which in turn proportionately increased income and hence reduced poverty.

Berry (2002) suggests that the increasing prevalence of flexibility and specialization of SMEs has persuaded many business analysts to believe in SMEs' strategic role in the industrial structure of any developing nation. However, he notes that SMEs are also quite vulnerable to external shocks due to global competition resulting from liberalization of trade. There is a reasonable assurance that given favorable policy environment, SMEs can successfully compete in the global market. Mathur.K (2002) studied the impact of trade liberalization on the poor through its impact on price and income in fourteen Asian countries including Pakistan. He used the simple OLS estimation and concludes that there exists no significant relationship between; i) change in inequality and poverty, ii) economic inequality and economic growth rates & trade openness. Some guidelines and necessary complementary policies such as macro and micro economic stability, a competitive exchange rate, flexible labor market and competent product market etc. are also discussed in this study. Mujeri.M and Khondker.B (2002) analyzed the impact of trade liberalization on poverty in Bangladesh using the CGE model. They concluded that, contrary to an increase in the income of semi-skilled labor and professionals during periods of

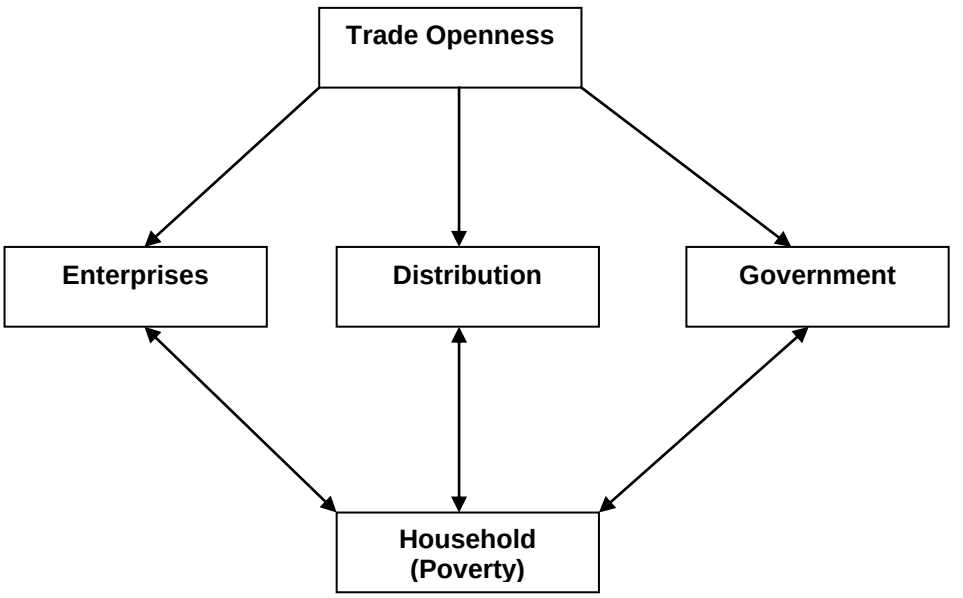
reform, the income of unskilled labor decreased. Round and Whalley.J.(2002) studied the link between globalization and poverty in four Asian countries, India, Pakistan, Srilanka and Bangladesh. They concluded that during the 'earning period' of trade liberalization, Pakistan and Bangladesh initially experienced a decline in absolute poverty and relatively constant inequality, followed by rising absolute and relative poverty later on.

III - Linkages between Trade Liberalization and Poverty:
A Theoretical Framework

There are many theories that advocate a strong relationship between trade liberalization and poverty. Traditional Heckscher-Ohlin theory of trade states that under certain assumptions, countries will export goods that employ their most abundant factor. Thus, if developing countries are characterized as 'labor-abundant' and developed countries as 'capital-abundant', then trade liberalization should encourage a shift of resources towards the production of labor-intensive exports by developing countries; such as exports from SME sector. This in turn should increase the demand for labor, generate growth and reduce poverty.

The relationship between trade liberalization and poverty has also been analyzed by McCulloch and Winter.L.A (2001). They presented a framework to analyze the linkages between trade reforms at micro level and poverty at the household level. This framework is flexible enough to adapt different contexts and provides a tool for assessing pro-poor policy intervention.

Fig: 1 Channels of Trade Openness and Poverty



They start from the premise that trade liberalization is beneficial for the poor; but there are winners and losers. Therefore, the aim of trade reforms and complementary poverty policies should be to minimize the adverse impact on poor who are the most vulnerable to trade shocks. Fig.1 identifies three key channels through which trade policy affects households or individuals.

1. ***Distribution:*** It is based on the change in border prices transmitted in terms of their affects on wholesale and retail prices, which in turn affect household purchases and consumption.
2. ***Enterprises:*** Enterprises are defined as large, medium and small scale enterprises. It is expected that trade openness brings change in their overall growth through profitability, production and employment.
3. ***Government:*** It is based on the fact that trade reforms affect the government's revenue and consequently, the government's spending on poverty related programs.

Household is an economic category that describes urban as well as rural household. The framework elaborates the responsiveness of households to the price shocks through different channels.

Although McCullach et al (2001) included economic growth and adjustment cost in their model, the above mentioned channels are not taken into account while developing the framework of this paper. This paper only concentrates on the role of enterprises (small scale and large scale enterprises)[2] in chanelizing benefits of liberalization to the poor, while the other two channels, i.e. government and distribution are kept constant.

The subsequent section provides a brief description of trade liberalization efforts in Pakistan.

IV - Trade Openness, SME Development and Poverty in Pakistan
An Historical Overview

Pakistan initiated trade liberalization efforts in 1980's, through which a series of Structural Adjustment Programs (SAP) were implemented by the government. Trade liberalization started by removing quantitative constraints and providing protection through tariff. In 1987-88, quota restraints on import of consumer goods were completely removed. According to the implementation of SAP, the adjustment period is divided into two parts; the period before SAP is called pre-adjustment period and period after 1988-89 is called post adjustment period.

[2] According to the FBS statistics around 99% of total enterprises are Small Scale Enterprises employing 0-10 employees in Pakistan. Given the data constraints this paper only covers small scale enterprises. For details see "***State of Data Availability on SMEs and Its Implications for Policy Formulation and Measuring SMEs' Contribution to GDP***" SMEDA Research Journal Vol:1, Issue:1)

a) Trade labialization Efforts and Poverty

Pakistan liberalized its trade regime in late 80's with the view to create an efficient and competitive manufacturing industry through easy access to raw material, intermediate goods and machinery. For the purpose, in 1980's quota restrictions were removed and there were only a few items in the list, most of which were restricted on the grounds of religion, public health, environmental concern and national security consideration. 91 new items were removed from the negative list in 1982-83 out of which 17 were placed on the list of items importable by the public sector and 39 items were made fully importable. In 1983-84, 724 items were further removed from the negative list. As of 2009-10, there are only 39 items (4-digit HS code) on negative list and import of 12 products is restricted for health and safety reasons.[3] Furthermore, various initiatives have been taken to rationalize tariff slabs. The maximum tariff rate was brought down from 225% in 1987-88 to 100% in 1990-91. The maximum tariff rate (except automobiles) was further brought down to 70% in 1994-95 and to 35% in 1998-99. At present, the maximum tariff rate has declined to 25% except on luxury items and automobiles.[4] Raw material and machinery used in local industries including textile and other prominent SME sector are zero rated. Tariff rationalization since 1987-88 resulted in decline in tariff rate on all categories of imports. Tariff rate on final import of capital and consumer goods decreased during the adjustment period and the total tariff averages also decreased.

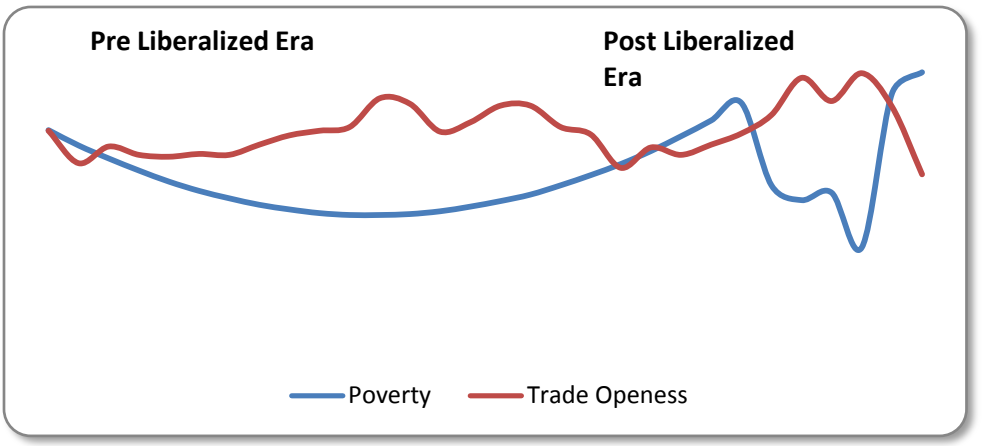
In addition to this, various export promotion measures were taken during post adjustment period. Policies for export promotion emphasized the need to diversify the export base, stimulate high value added exports, improving the quality of exports, developing backward linkage industries and undertaking vigorous marketing efforts. Major export promotion measures included establishment of exports processing zones (EPZ), duty drawback schemes, providing R&D support, freight and international certification subsidies, promotion and participation of local SMEs in foreign trade fairs, export rebates and simplification of export procedures. During the last several years Pakistan has taken a number of measures to reduce anti-export bias and improve its policies and governance towards promotion of exports.[5]

Despite substantial reduction in tariff and non-tariff barriers in Pakistan, the degree of trade openness measured in terms of trade as the percentage of GDP (X+M)/GDP (see annex:1) remained limited and showed a declining trend after the liberalization program as seen in the graph (see fig:2). The trade openness ratio was 29.85% in 1980-81, which remained almost constant in 2003-04 (29.5%). In post-liberalized regime, despite the intensive removal of quotas and tariffs, trade openness ratio showed fluctuations and decreased in 2009-10. A sharp increase in poverty ratio is visible in 2008-09 and 2009-10, which is mainly

[3] Import Policy Order, Federal Board of Revenue, Government of Pakistan
[4] Customs Tariff: Federal Board of Revenue, GoP: http://www.fbr.gov.pk/newcu/TARIFF/Tarrif.asp
[5] Trade Development Authority of Pakistan (TDAP) - http://www.tdap.gov.pk/trade-policy-initiatives.php

due to high dependence on foreign assistance, adverse law & order situation, lack of good governance, Pakistan's intensive participation in war on terror and macroeconomic instability.

Fig: 2 Trade Openness and Poverty in Pakistan



Source: Economic Survey of Pakistan: various Issues

b) GDP Growth, SME Development and Poverty[6]

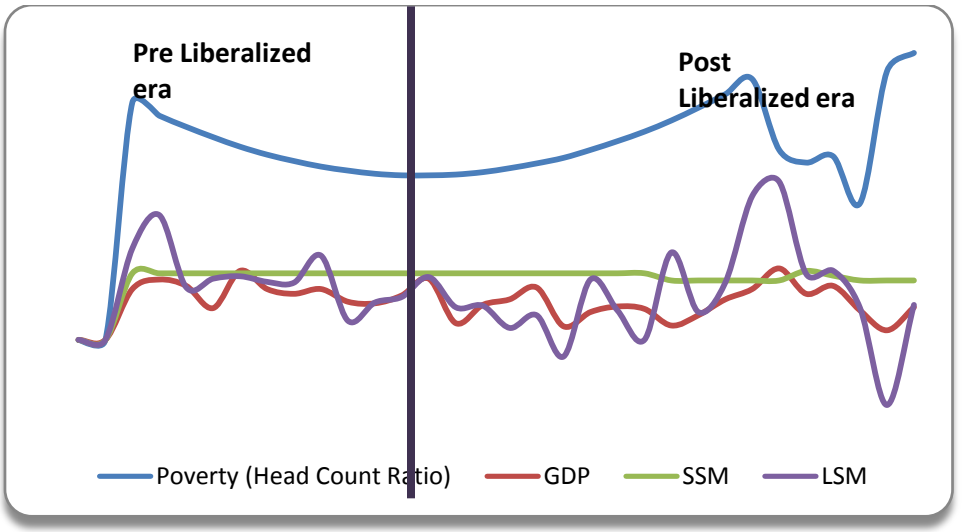
Impact of intensive trade openness efforts is also evident on other macro economic variables. During pre-liberalized era (fig:3) Pakistan's GDP grew significantly in the early years of 80s. It increased from 6.4% in 1980-81 to 8.7% in 1984-85 and 6.4% in 1987-88. Large scale manufacturing sector grew to 15.7% in 1981-82. However, Small scale manufacturing units showed stable growth rate at 8.4% throughout the period. CPI inflation rate decreased from 13.1% in 1980-81 to 3.6% in 1986-87. Per capita income growth rate also increased from 2.2% in 1980-81 to 6.2% in 1982-83 and then became 1.6% in 1986-87. Therefore, due to stable growth of GDP and manufacturing sector, total poverty decreased gradually.

However, in post adjustment era which started from 1988 onwards, Pakistan's GDP growth rate declined from an average 6.1% in the 80s to 4.6% in 90s and became 4.1% in 2000s. Similarly, the performance of large scale manufacturing sector also remained low and declined from 10.6% in 1987-88 to 3.7% in 1998-99 and -8.4% in 2008-09. CPI inflation rate also remained high in the range between 10% and 13% for most of the years of trade reforms. Import of low priced products from China, Thailand and Taiwan was a great challenge for the

[6] See Annex: 2 for detail data

domestic manufacturing industry. Despite external shocks and tough competition faced by small units in Pakistan, they outperformed large scale industries. The

Fig:3 Poverty and Economic Growth



Source: Economic Survey of Pakistan: various issues

average growth rate of small scale manufacturing units remained at 8% throughout the post liberalized period. As a result, poverty decreased from 30.9% in 2003-04 to 17.2% in 2007-08.

V - Data and Methodology

Data

The analysis of this study is based on the estimates of absolute poverty measures as Head Count Poverty ratio[7]. Trade liberalization is measured by calculated trade openness ratio[8]. Although there are a number of ways to measure trade liberalization, trade openness ratio is a method widely used by researchers. Data on exports, imports and GDP is taken from Pakistan Economic Survey and Trade Openness Index is calculated as (X+M)/GDP. Per capita income growth rate is calculated at constant prices of 1980-81. CPI inflation rate is calculated in constant form. The total data time span is thirty years i.e. 1980-2010.

[7] Various poverty measures are given as Annex 3
[8] Various methods to measure trade openness are given as Annex 4

Methodology

Ordinary Least Square (OLS) technique has been used to run the regressions. To provide a complete picture of the impact of trade liberalization on SME development and poverty, three models have been estimated by regressing total poverty on different combinations of trade openness index, GDP growth rate, growth rate of Small Scale Manufacturing Units, growth rate of Large Scale Manufacturing Units, per capita income and inflation (see Annex 5). The regression models are developed on the same line of model developed in PIDE research paper "Impact of Trade Reforms on Poverty" by Qadir Usman, Kemal.A, Mohsin.H (2000) and Mathur (2001). The specification of regression models is given as follows.

Model 1:

$$Y = \alpha + \beta 1\ X1 + \beta 2\ X2$$

Where

Y = Poverty
X1 = trade openness
X2 = GDP growth

This model examines the impact of trade liberalization on poverty and also includes economic growth as determined by GDP growth among the exogenous variables. Theoretically, it is believed that trade liberalization accelerates economic growth and reduces poverty.

Model 2:

$$Y = \alpha + \beta 1\ X1 + \beta 2\ X2 + \beta 3\ X3$$

Where

Y = Poverty
X1 = trade openness
X2 = growth rate of Small scale manufacturing units
X3= growth rate of large scale manufacturing units

This model examines the impact of trade liberalization on poverty with special reference to small and large scale manufacturing units' growth trends. This model also highlights the role of small manufacturing units in alleviating poverty in Pakistan during trade liberalization era.

Model 3:

$$Y = \alpha + \beta 1\ X1 + \beta 2\ X2 + \beta 3\ X3 + \beta 4\ X4$$

Where

Y = Poverty
X1 = trade openness
X2= Growth rate of small scale manufacturing units
X3 = per capita income growth rate
X4 = CPI inflation.

This model examines the impact of trade liberalization on poverty and also incorporates per capita income growth and CPI inflation rate in the exogenous variables. Contrary to the perception that per capita income grows faster under trade liberalization, simultaneously increasing CPI inflation offsets the increase in per capita income.

Over all goodness of fit of the models and the explanatory power of the variables are represented by R^2 and the significance of model is checked by looking at the values of F-statistics.

Empirical Findings and Results

The statistical analysis of trade openness (TO) and poverty (POV) in Pakistan has shown a great level of interdependence between these two variables and also between poverty and other variables like GDP growth (GDPG), Small Scale Manufacturing units growth (SMG), Large Scale Manufacturing Units Growth (LMG), Inflation (CPI) and Per capita Income Growth (PCG). The regression analysis of poverty and trade openness for Pakistan is as follows:

Regression Model 1:

The estimated model is shown as:

POV = 50.794 -0.499 (TO) -0.179 (GDPG) Eq. (1)

In this model total poverty is regressed on trade openness and GDP growth rate. As indicated by the coefficient of trade openness, trade liberalization decreased poverty during adjustment period. The GDP growth rate has statistically significant negative co-efficient which shows that GDP growth has a negative relationship with poverty. R^2 = 0.26% indicates that explanatory variables define 26% variation in the dependent variable. We test the hypothesis at 0.05 level of significance, the value of F- statistics is greater than the F table value as 4.91 >3.34, showing that the over all model is significant hence it may be concluded that trade liberalization has had a significant impact upon poverty in Pakistan.

Regression Model 2:

The relationship between trade openness, growth rate of small scale manufacturing units and large scale manufacturing units is as follows.

POV= 96.0 -0.477 (TO) -0.544 (SMG) -0.064 (LMG) Eq. (2)

Slope coefficients of trade openness and small scale manufacturing units growth rate and large scale manufacturing units growth rates are negative and statistically significant. The estimates coefficient of trade openness is -0.47 which shows that increase in trade liberalization decreased poverty during adjustment period. The co-efficient of Small Scale Manufacturing units -0.54 shows that increase in growth of small industry played an important role to alleviate poverty in Pakistan during adjustment period and the negative slope of large scale manufacturing units growth shows the negative relationship between poverty and large scale industrial development. However, statistical analysis suggests that the impact of small scale manufacturing units growth is larger on poverty as compared with large scale industrial growth. R^2 is 0.52% which shows that explanatory variables define 52% variation in dependent variable. We test the hypothesis at 0.05 level of significance, the value of F- statistics is greater than the F table value as 9.65 >2.98 ,it shows that the over all model is significant.

Regression Model 3:

The model is estimated as:

POV = 96.412 -0.595 (TO) - 0.712 (SMG) - 0.036 (PCG) +0.281 (CPI) Eq; (3)

Intercept and slope coefficient of trade openness, Small scale growth rate and per capita income are negative and shows negative association with the dependent variable. During trade liberation era, small scale manufacturing units flourished and per capita income also increased. Therefore, poverty has reduced during this period.

CPI inflation has statistically significant slope coefficient which shows that poverty increases due to the increase in CPI inflation. . R^2 is 0.58 which shows that explanatory variables define 58% variation in dependent variable. We test the hypothesis at 0.05 level of significance, the value of F- statistics is greater than the F table value as 8.731>2.78 ,it shows that the over all model is significant.. The value of Durbin Watson shows the absence of auto correlation.

VII - Conclusion

The primary objective of this study is to explore the impact of trade liberalization on poverty in Pakistan with special focus on SMEs. The theoretical analysis of trade openness and poverty suggests that trade liberalization accelerates economic growth, increases employment of abundant factor especially un-skilled

and semi-skilled labor and increases real income. Consequently, trade liberalization maximizes the welfare of any country and decreases poverty.

The results obtained from the empirical analysis show that poverty decreased in the adjustment period due to the stable growth of small scale manufacturing units, GDP growth rate and growth of large scale enterprises. The impact of small scale manufacturing growth is larger than the large scale manufacturing units. However, there are many other factors which can off set the impressive growth of manufacturing establishments such as, high interest rates, inflation, political turmoil, macro economic instability etc. Therefore, depending only on the growth of manufacturing establishments cannot be singled out, as social, economic and legal institutional development are equally important to channelize the benefits of trade openness in developing countries.

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Annex 1

Trade Openness Ratio in Pakistan (in percentage)

YEARS	EXPORTS/GDP	IMPORTS/GDP	(X+M)/GDP
1980-81	10.5	19.3	29.8
1981-82	8	18.3	26.3
1982-83	9.4	18.7	28.1
1983-84	8.9	18.3	27.2
1984-85	8	19	27
1985-86	9.6	17.7	27.3
1986-87	11.1	16.1	27.2
1987-88	11.6	16.7	28.3
1988-89	11.7	17.6	29.3
1989-90	12.4	17.4	29.8
1990-91	13.5	16.7	30.2
1991-92	14.2	19.1	33.3
1992-93	13.3	19.4	32.7
1993-94	13.1	16.6	29.7
1994-95	13.5	17.2	30.7
1995-96	13.8	18.7	32.5
1996-97	13.4	19.1	32.5
1997-98	13.9	16.3	30.2
1998-99	13.3	16.1	29.4
1999-00	11.7	14.1	25.8
2000-01	12.9	15.1	28
2001-02	12.8	14.4	27.2
2002-03	13.5	14.8	28.3
2003-04	12.5	15.9	29.5
2004-05	13	18.5	31.5
2005-06	13	22.5	35.5
2006-07	11.8	21.2	33
2007-08	11.6	24.4	36
2008-09	10.9	21.5	32.4

Annex 2

Annual Growth Rates

Years	Poverty (Head Count Ratio)	GDP	Small Scale	Large-Scale Manu	Per Capita	CPI Inflation
1980-81	29.86	6.4	8.4	11.5	2.20	13.9
1981-82	28.2	7.6	8.4	15.7	2.90	11.1
1982-83	26.8	6.8	8.4	6.6	6.20	4.7
1983-84	25.5	4	8.4	7.7	1.20	7.3
1984-85	24.3	8.7	8.4	8	3.00	5.7
1985-86	23.3	6.4	8.4	7.3	2.50	4.4
1986-87	22.5	5.8	8.4	7.2	1.60	3.6
1987-88	21.8	6.4	8.4	10.6	1.60	6.3
1988-89	21.3	4.8	8.4	2.4	1.40	10.4
1989-90	20.9	4.6	8.4	4.7	1.60	6
1990-91	20.7	5.6	8.4	5.4	4.60	12.7
1991-92	20.7	7.7	8.4	7.9	4.10	10.6
1992-93	20.8	2.1	8.4	4.1	-0.80	9.8
1993-94	21.1	4.4	8.4	4.3	0.90	11.3
1994-95	21.6	5.1	8.4	1.5	3.00	13
1995-96	22.2	6.6	8.4	3.1	1.50	10.8
1996-97	22.9	1.7	8.4	-2.1	-1.60	11.8
1997-98	23.9	3.5	8.4	7.6	-1.40	7.8
1998-99	25.0	4.2	8.4	3.7	0.40	5.7
1999-00	26.2	3.9	8.4	0	2.70	3.6
2000-01	27.6	1.8	7.5	11	0.30	4.4
2001-02	29.2	3.1	7.5	3.5	2.40	3.5
2002-03	30.9	5.1	7.5	7.2	5.70	3.1
2003-04	32.8	6.4	7.5	18.1	3.00	4.6
2004-05	23.9	9	7.5	19.9	6.70	9.3
2005-06	22.3	5.8	8.7	8.3	0.04	7.9
2006-07	23.1	6.8	8.1	8.7	0.05	7.8
2007-08	17.2	3.7	7.5	4	0.02	12
2008-09	33.8	1.2	7.5	-8.2	0.00	20.8

Annex 3

Measures of Poverty

Head and Count Ratio:
This approach is also called the poverty indices or poverty ratio. It is the proportion of income of individual whose income and expenditure falls below the poverty threshold, among the total population. The measure may be based on either the national poverty line or international poverty line set as $ 1 or $2 per day.

Mathematically it is expressed as:

HCR=m/n
Where m= number of poor
n= total population

Poverty Gap Index
The Poverty Gap index based upon the proportionate consumption or income shortfall of all the poor from the poverty line. It over comes some of the shortfall of HCR. Mathematically it is defined as.

$$PGI = 1/n \sum_{i=1}^{m} \frac{z-yi}{z}$$

Where N= total population
Z= poverty line
M= number of poor
Yi=consumption or income of the poor

Poverty gap index satisfy the monotonic axiom but do not satisfy the transfer axiom.

To solve this problem Sen (1976) derived an index based on the weighted sum of poverty gap. With a rank ordered weighted pattern so that the poorest among poor get highest rank while the richest poor get the lowest weight.

The Lorenz Cure and Gini Coefficient
It represents the relationship between the cumulative proportion of income and cumulative proportion of population in income distribution, beginning with the lowest income group. If there is perfect income equality the Lorenz cure will be of 45-degree line. Gini coefficient is another commonly used measure of income inequality, it is the area between the Lorenz curve and the 45-degree line .It is expressed as the area under the 45 degree line. The value of gini coefficient ranging between 0 to1. 0 shows perfect equality while 1 shows inequality. Higher value of gini coefficient shows higher inequality. Lower the value of gini coefficient shows the equitable distribution of income.

Annex 4

Measures of Trade Liberalization

Measures	**Definition**
Trade Dependency Ratio	The ratio of exports and imports to GDP.
Growth Rate of Exports	The growth rate of exports over the specific period.
Tariff Averages	A simple or trade-weighted average of tariff levels
Collected Tariff Ratios	The ratio of tariff revenues to import
Coverage of Quantitative Restriction	The percentage of goods covered by quantitative Restriction
Heritage Foundation Index	An index of the trade policy that classified Countries into categories according to the level of Tariffs.
IMF Index of TradeRestrictiveness	A composition index of restriction on a scale of 0to 10
Trade Bias Index	The extent to which policy increases the ratio of importable goods prices relative to exportable goods prices compared to the same ratio in world market
The World Bank'sIndex	An index that classifies countries into four outward orientation categories depending on their perceived degree of openness
Sachs and Warner Index	A composite index that uses several trade-related Indicators : tariff, quotas coverage, black market premia, social organization and the existence of export marketing board
Leamer's Openness Index	An index that estimate the difference between actualtrade flows and those that would be expected from a theoretical trade model

Source: MchChlloch (2000)

Annex 5

Description of Statistical Analysis

Regression Model 1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.517a	0.267	0.212	3.95431		

a. Predictors: (Constant), Growth rate, Trade Openness

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	153.624	2	76.812	4.912	.015a
	Residual	422.187	27	15.637		
	Total	575.811	29			

a. Predictors: (Constant), Growth rate, Trade Openness

b. Dependent Variable: Head Count ratio

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	50.794	8.308		6.114	0
	Trade Openness	-0.802	0.266	-0.499	-3.02	0.005
	Growth rate	-0.396	0.366	-0.179	-1.08	0.288

a. Dependent Variable: Head Count ratio

Regression Model 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.726a	0.527	0.472	3.23662		

a. Predictors: (Constant), TO, SMG, LMG

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	303.442	3	101.147	9.655	.000a
	Residual	272.368	26	10.476		
	Total	575.811	29			

a. Predictors: (Constant), TO, SMG, LMG

b. Dependent Variable: POV: Head Count ratio

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	96	13.695		7.01	0
	TO	-0.766	0.219	-0.477	-3.5	0.002
	SMG	-5.877	1.467	-0.544	-4.01	0
	LMG	-0.051	0.109	-0.064	-0.47	0.643

a. Dependent Variable: POV: Head Count ratio

Regression Model 3

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.763a	0.583	0.516	3.09979		

a. Predictors: (Constant), inflation, growth rate small, per capita income, Trade Openness

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	335.593	4	83.898	8.731	.000a
	Residual	240.217	25	9.609		
	Total	575.811	29			

a. Predictors: (Constant), TO, SMG, PCG, CPI

b. Dependent Variable: POV: Head Count ratio

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	96.412	13.285		7.257	0
	TO	-0.956	0.234	-0.595	-4.08	0
	SMG	-5.622	1.428	-0.712	-3.94	0.001
	PCG	0.078	0.29	-0.036	-0.268	0.791
	CPI	0.309	0.163	0.281	1.891	0.07

a. Dependent Variable: Head Count ratio