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*Imran Ashraf Toor and
Muhammad Sabihuddin Butt*
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Pakistan

*J D Agarwal, Aman Agarwal and
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Self-Assessment Governance and
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Pakistan's Foreign Sector

Umer Khalid & Lubna Shahnaz
Socio Economic Conditions of
Child Labourers In Pakistan:
Evidence from the Labour Force
Survey

*Kalim Hyder and Qazi Masood
Ahmed*
Why Private Investment In Pakistan
Has Collapsed
And How It Can Be Restored

Karamat Ali and Rana Ejaz Ali Khan
Simultaneous Decision Making of
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In Pakistani Urban Households

*Nawazish Mirza and Daniel Danny
Simatupang*
Comparative Systematic Risk
Analysis: Evidence on the Banking
Sector in the United States, Western
Europe and South East Asia

*Book Reviews:
Rukhsana Shah*
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Nina Gera
Pakistan Human Condition Report
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Contents

Vol. 9, 2004

Health Demand and Outcomes in Pakistan <i>Imran Ashraf Toor and Muhammad Sabibuddin Butt</i>	1
Financing of Growth Through Self-Assessment Governance and Total Quality Growth Model <i>J D Agarwal, Aman Agarwal and Yamini Agarwal</i>	27
Macroeconomic Impacts of Monetary Variables on Pakistan's Foreign Sector <i>M. Aslam Chaudhary and Ghulam Shabbir</i>	63
Socio Economic Conditions of Child Labourers In Pakistan: Evidence from the Labour Force Survey <i>Umer Khalid & Lubna Shahmaz</i>	85
Why Private Investment In Pakistan Has Collapsed And How Can It Can Be Restored <i>Kalim Hyder and Qazi Masood Ahmed</i>	107
Simultaneous Decision Making of Child Schooling and Child Labour In Pakistani Urban Households <i>Karamat Ali and Rana Ejaz Ali Khan</i>	127
Comparative Systematic Risk Analysis: Evidence on the Banking Sector in the United States, Western Europe and South East Asia <i>Nawazish Mirza and Daniel Danny Simatupang</i>	149
Book Reviews:	
The South Asian Challenge <i>Rukhsana Shah</i>	175
Pakistan Human Condition Report 2003 <i>Nina Gera</i>	179

Health Demand and Outcomes in Pakistan

Imran Ashraf Toor and Muhammad Sabihuddin Butt*

Abstract

For the provision of better social services, the health sector has been an important part of national strategy for reducing poverty and income disparities among different income groups in Pakistan. The distribution of access to and use of health among households has been a long-standing concern among policy makers. In this study, government health expenditure is treated as a fixed factor that influences household health behaviour, conditional on such factors as household income, education, and family size. The results of the study suggest that government health expenditure is associated with higher use of both preventive and curative health services by children. The results also indicate that increased government expenditure is actually associated with lower use of health services by the children of the poor, although this negative association is generally weak. However, if increased government spending improves health care opportunities for the nonpoor more than for the poor, the total effect of government spending on the health outcomes of the poor could be less even though they have a higher marginal product of health care inputs.

I. Introduction

Investments in human capital are often highlighted as major contributors to the increased productivity of the country. It is now an opportune time to evaluate the contribution. This service has contributed to the goal of promoting growth and equity for two reasons. First, the guiding policy framework of the past two decades, offering a natural point for reevaluation. Second, the Government of Pakistan is currently reevaluating the relative roles of the government and the private sector in providing a wide range of infrastructure and social services. The distribution of access to and use of health among households has been a long-standing concern among

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economists. Relatively few studies have looked at the incidence of public expenditure on social services in developing countries. Important exceptions are the studies by Meerman (1979) for Malaysia and Selowsky (1979) for Colombia, which adopted the benefit-incidence methodology to calculate the benefits of social sector spending. In the benefit-incidence approach, estimated government unit subsidies for specific social services (for example health facilities) are attributed to households depending on their rates of use of these facilities.

Behrman and Deolalikar (1987) used panel data on rural South Indian households utilising a much wider and probably more reliable set of health status indicators. They estimate health and nutrient consumption status relations which allow for differing price and income responses by different household members (namely, adult males, adult females, male children, and female children) and which control for individual-specific fixed effects.¹ Behrman and Wolfe (1987) find that without the deviation control, mother's schooling apparently has widespread positive health and nutrition effects. But once there is a control for unobserved family-origin endowments, the impact of maternal schooling on female health, child health and infant mortality is not significant. Their results thus raise doubts about standard estimates without control for unobserved mother's childhood-family background characteristics that claim to find strong positive health effects of women's schooling. However, they find neither a significant income effect nor significant differences in price or income responses across household members.²

Folbre, (1984a 1984b), developed reduced-form demand relations for health inputs and outcomes as dependent on prices, income, and various individual and household characteristic.³ Such relations are consistent with constrained maximisation of a unified preference function or with the bargaining framework. In either case, preferences are defined over the health status of individuals, and the constraints typically include a budget or income constraint and biological health production function for each individual. The state of health technology (embodied in, say, the education of the health care provider at home — typically, the mother), and on various environmental influences.⁴ Unlike Akin *et al.*, (1987), find significant effects

¹ Behrman and Deolalikar (1987) estimated joint reduced-form equation.

² Behrman and Wolfe (1987) (1987) estimated interfamilial deviation estimates for health and nutrition demand relations for the Nicaraguan sample.

³ Folbre (1984a, 1984b, 1986), Manser and Brown (1980), and McElroy and Horney (1981).

⁴ Such as the availability of clean drinking water; See Behrman and Deolalikar (1987) for a generic household model of health determination in a developing country context.

of a number of dimensions of prices - i.e. distance and quality measures. They do not explore, however, whether there are price effects on health status as opposed to the demand for health inputs.

The reduced-form regression strategy avoids many of the weaknesses of the benefit-incidence approach discussed earlier. First, the reduced-form approach let us work with direct measures of health status, such as incidence of morbidity, which arguably is a better indicator of consumer welfare and benefits than the use of health services. Second, since per capita government health expenditure reflects both the quantity as well as the quality of health services, the reduced-form approach permits variations in service quality to have an impact on health services use and on health outcomes. Third, the reduced-form approach allows for a private sector response to public health expenditure. Since the provision of private health services is not included as an explanatory variable in the individual behavioural equations, the estimated government expenditure effects include the indirect effect that social spending has on health outcomes and service use through stimulating the supply of private health services in an area. Finally, the approach adopted here allows us to control for household socioeconomic variables that are important determinants of health use and health status.

The intrahousehold allocation process results in a system of reduced-form individual demand equations for health status, as well as derived demand equations for medical care and other health-related inputs. These reduced-form equations have as their arguments all prices (including the prices of food and medical care), household income, personal characteristics of household members, and relevant family- and community-specific variables. Within this very general framework, the public provision of medical care and other health goods (for example, clean drinking water and sanitation) as reflected in government health expenditure, can have important reduced-form effects on the health outcomes of individuals and on their demand for medical care. High per capita government health expenditure in a region may be associated with greater availability of health facilities and health services per capita.

Of course, one major reason for being concerned with the determinants of health is to provide a better basis for policy formation. What are the implications of the growing collection of empirical work on health for policy? Can the apparent greater price and income responsiveness of poorer members of society be utilised in more effective policies? What would be the distributional and health impact of increasing user charges or

of new insurance schemes on different types of health inputs in a specific context?

With respect to the determination of health expenditures, major questions remain unsolved. What are the nature of the biological processes involved, the extent of substitutabilities and complementarities in the health production process, the nature of lags, and the role of nutrition? How important is women's education in determining health? Is its often significant role in standard estimates reflective of increased productivity in using given health-related inputs, or is it primarily proxying for unobserved individual and household endowments as suggested by the one available adult-sibling deviation study? Are education and public health measures substituted broadly, as Rosenzweig and Schultz suggest for their Colombian study?⁵

The objective of the study is to evaluate the distributional benefit of government health expenditure in Pakistan using the reduced-form demand approach. Government health expenditure is treated as a fixed factor that influences household health behaviour, conditional on such factors as household income, education, and family size. The following questions are addressed. Is per capita government health expenditure associated with measures of use as well as with direct measures of health outcomes and status, after controlling for the socioeconomic factors that normally influence use and outcomes? Does the impact of government health expenditure on health services use and health outcomes differ significantly across economic groups?

II. Theoretical Underpinning

The study focuses on the reduced-form demand relations for health inputs and outcomes as dependent on prices, income, and various individual and household characteristics. Such relations are consistent with constrained maximisation of a unified preference function or with the bargaining framework emphasised by Folbre (1984a, 1984b, 1986), Menser and Brown (1980), and McElroy and Horney (1981)⁶. In either case, preferences are defined over the health status of individuals, and the constraints typically include a budget or income constraint and biological health production

⁵ Rosenzweig and Schultz (1982a)

⁶ Available data generally do not permit testing a bargaining model with a fixed structure against the maximisation of common preferences. Rosenzweig and Schultz (1982a, 1982b) and McElroy and Horney (1981) among others, have argued that differential effects on human capital outcomes of unearned income accruing to husbands and wives provide support for the bargaining model.

functions for each individual that characterise the 'production' of health from food, nutrition, and health care inputs, conditional on the health endowments of that individual, on the state of health technology (embodied in, say, the education of the health care provider at home – typically, the mother), and on various environmental influences (such as the availability of clean drinking water; see Behrman and Deolalikar (1987) for a generic household model of health determination in a developing-country context). The intrahousehold allocation process results in a system of reduced-form individual demand equations for health status, as well as derived demand equations for medical care and other health-related inputs. These reduced-form equations have as their arguments all prices (including the prices of food and medical care), household income, personal characteristics of household members, and relevant family- and community-specific variables.

Government health expenditure affects health services use and health status identically across all individuals. This may be an overly restrictive assumption for a number of reasons. First, access to government health facilities may be unequal across economic groups. For example, urban dwellers may have disproportionately greater access to better-quality health care than rural households. To the extent that urban households are typically more affluent than rural households, the urban bias in government health expenditure could translate into larger health benefits for richer relative to poorer households. Because more than 65 percent of Pakistan lives in rural areas, an overwhelming section of medical personnel and health facilities are located only in cities. For example, 85 per cent of all practicing doctors work in the cities, which comes to a doctor-population ratio of 1:1801. The rural doctor-population ratio happens to be a pathetic 1:25829. Similarly, only 23 per cent of the hospitals in the country are located in rural areas and only 8,574 hospital beds (18 per cent of total) are available to a population of 80 million (Zaidi 2000). Second, there could be behavioural differences among individuals belonging to different income groups that might lead them to respond differently to identical levels of availability, quality, and price of health services. For instance, there is growing evidence to suggest that the price elasticity of demand for medical care is larger for the poor than for the nonpoor (Gertler and van der Gaag 1990). If this is indeed the case, an equivalent reduction in the price of medical care (induced, say, by an improved supply of public and private health services) would increase the poor's use of health services more than the nonpoor's. Third, identical use of health services (of the same quality) could be associated with different health outcomes due to biological differences across individuals. For instance, a diminishing marginal product of health care and other health inputs would imply that innately healthier individuals would benefit proportionately less from the same amount and

quality of health care than would less healthy individuals. If health outcomes and incomes were positively associated with each other, one would then observe larger health gains for the poor from identical provision of health services.

To illustrate these effects, assume that individual health outcomes (H) are "produced" with only two inputs, government health services (M) and private health services (P):

$$(1) \quad H = H(M, P); H' > 0 \text{ and } H'' < 0$$

The impact of aggregate government health spending (G) on the health outcomes of the i th economic group is then given by:

$$(2) \quad MH_i / MG = [(MH_i / MM_i)(MM_i / MG)]$$

A priori, both MH_i / MM_i (the marginal product of public medical care) are likely to be greater for low-income than for high-income groups, since the former typically consume lower quantities of medical care. However, the total impact of aggregate government spending on the health outcomes of the i th economic group also depends on how aggregate government spending influences the supply of public medical services. If an additional rupee of government health spending increases access to medical care for the nonpoor much more than for the poor, MH_i / MG could be greater for the nonpoor than for the poor.

III. Empirical Model

This study focuses on the demand for health status and the derived demand for health-related inputs for children under five years of age. Since differences across economic groups are an important concern of the chapter, the parameters of the demand relations are allowed to depend (log-linearly) on household expenditure per capita. The equations [derived by Deolalikar (1995)] to be estimated are:

$$(3) \quad H_{ij} = a_1(Y) + a_2(Y)X_{ij} + a_3(Y)Z_{ij} + a_4(Y)G_j + \mu_{ij}$$

$$a_k = a_{k1} + a_{k2}Y, k = 1, \dots, 4,$$

where

i = indexes the individual child;

j = indexes the province of residence;

H = vector of health care inputs and health outcomes;

Y = log household monthly expenditure per capita;

X = vector of individual characteristics (age and sex);

Z = vector of household characteristics, including Y ;

G = log government health expenditure per capita; and

μ = stochastic disturbance term.

It is important to note that since the relations in equation 3 are of the reduced form, all dependent variables – whether health inputs or health outcomes – have the same set of explanatory variables. Also, since an individual's health status is a cumulative outcome of health care and other (nutritional) inputs over a number of years, the analysis implicitly assumes that the explanatory variables reflect medium- or long-run living standards of households and communities and not just living standards in the year of the survey. This, in turn implies that the explanatory variables, including provincial government health expenditures per capita, have been stable over time. The vector of health care inputs (H) includes both curative care (whether any treatment and whether treatment from a modern health care provider – physician or paramedic – was sought for an illness during the time of interview) and preventive care (whether the child has been immunised against DPT, measles or polio). Since all these variables are dichotomous in nature, the corresponding equations are estimated by the maximum likelihood logit method.

The individual child characteristics (X) that are included in the health demand relations are sex, age (in months), and age squared. The vector of household characteristics (Z) includes household size, urban/rural status of residence, age of the household head, schooling of the child's mother and of the household head, and the natural log of household per capita monthly expenditure. The coefficient $a_4(Y)$ in relation 3 represents the marginal effect of log government health expenditure on health services use and on health outcomes, controlling for observed household and individual characteristics such as age, education, and household per capita expenditure. In practice, however, when the government increases social spending, there is typically no control for other effects. For policy purposes, it may be useful to know how increased social spending affects poor

households, whatever their characteristics. For this reason, we also estimate an ultimate reduced-form version of relation 3 in which the only regressor is log per capita government health expenditure. The coefficient of this model indicates the impact of government health expenditure without controlling for any household or individual characteristics.

- **Variables Specification**

Any Immunisation: Immunisation is a method of making a child immune to disease by injecting certain substances into the body, which stimulate the production of disease-fighting antibodies. Commonly, immunisation for children comprises a series of vaccinations e.g., BCG (anti-TB); DPT (anti-diphtheria/whooping cough/tetanus), anti-polio (drops), given orally not by injection; anti-measles, administered at specific intervals. Children reported as having received at least one immunisation during the survey period.

Reported Episodes: Diarrhea: It is when the stool is like a liquid and the number of stools is more than the usual (generally 3 or more). Dysentery or any other disease is not included in this section, although loose, frequent stools may be reported.. If stools are bloody and contain mucous, assume that the child has dysentery rather than diarrhea. In the light of this definition, record the response. The reference period for the occurrence of diarrhea is last 30 days from the date of the interview.

Duration of Reported Episodes: Number of days are reported of those children who suffered from diarrhea of age 5 years and under. The number of days the child has had diarrhea during the last 30 days. If the child had more than one episode of diarrhea during the last 30 days, sum up the total number of days of all episodes.

Any Treatment: To consult means being examined by a doctor, nurse, pharmacist, LHW, faith health/other health practitioner (hakeem, homeopath, etc.). To diagnose the illness (diarrhea) of the person who is suffering and to prescribe treatment.

Modern Treatment: The variable comprises children getting medical treatment for diarrheal disease from government dispensary/ government hospital, basic health unit, rural health centre, MCH centre, private doctor, and private hospital.

Child Age: This variable reports the age of child. The maximum age of the child which is used in this study is 5 years.

Whether Male: To capture the gender effect, we use male as a dummy variable in this study. If the child is a male then we use one otherwise zero.

Age of Household Head: This variable consists of the age of the household head. It is included to capture the cohort effect of the family head.

Schooling years of household head: To capture the effect of educational level of the household head on the child's health status.

Schooling years of mother: The completed years of education of mother is included in the set of explanatory variables. According to the previous studies, children whose mothers have higher education levels are more likely to avail of health facilities. Thomas (1990) demonstrates that education primarily affects access to information. In this study, an attempt is made to understand better the role of maternal education by introducing the interactions between education and community services to capture the substitutability or complementarity between provision of public services and mother's education.

Whether urban residence: The sample size of the PIHS 1996-97 was fixed at a level high enough to allow estimates to be obtained for regions (urban/rural). To capture the effect of recurrent government health expenditure on their people. The data of this variable is taken from Provincial Annual Budget Reports.

Per capita recurrent government health expenditure in province of residence: Every year the government allocates health expenditure to provide health facilities at their residence. Four provinces have different allocations for this purpose. This variable is used to capture the effect of recurrent government health expenditure on their people. The data of this variable is taken from Provincial Annual Budget Reports.

Household per capita monthly expenditure: In order to assess the extent to which poorer and richer households have benefited from improved service access and welfare, data is needed on household consumption or income. In this study, per capita monthly expenditures have been used to divide households.

Household size: Household members are all such persons or group of persons in a household who normally live and eat together and consider the living quarter/space occupied by them as their usual place of residence. Such

persons may be related or unrelated to each other. All such persons who normally live and eat in the household and are present at the time of enumeration and those who are temporarily absent for reasons such as, visiting, traveling in connection with business, attending schools/colleges/ other educational institutions etc., are treated as household members.

IV. Data Source

The data for this article was taken from Pakistan Integrated Household Survey 1996-97 (PIHS). In this survey, a two-stage random sampling strategy was adopted for data collection. At the first sampling stage, a number for clusters or Primary Sampling Units (PSUs) were selected from different parts of the country. Enumerators then compiled lists of all households residing in the selected PSUs. At the second sampling stage, these lists were subsequently used to select a fixed number of households from each PSU for interviews using a systematic sampling procedure with a random start. This two-stage sampling strategy was used in order to reduce survey costs, and to improve the efficiency of the sample. The number of PSUs to be drawn from each strata in the first stage was fixed so as to ensure that there were enough observations to allow representative statistics to be derived for each main strata of interest.

In each of the selected PSUs, a fixed number of households were selected at random (12 in each urban PSU, 16 in each rural PSU), and a detailed household questionnaire was administered to each of them. In addition, in each rural PSU, a community questionnaire was also completed which gathered information on the quality of infrastructure, the provision of services, and consumer prices prevailing in the community. The sample size for the 1996-97 PIHS was 12,381 households and 84,762 individuals, approximately 60 percent of which was rural. These covered all four provinces Punjab, Sindh, NWFP and Balochistan.

At the individual and household level, the PIHS collects information on a wide range of topics using an integrated questionnaire. The household questionnaire comprises a number of different modules, each of which looks at a particular aspect of household behaviour or welfare. Data collected under Round II included educational attainment and health status of all household members. In addition, information was also sought on the maternity history and family planning practices of all eligible household members. Finally, data was also collected on the household's consumption of goods and services in the last fortnight/month/year, as well as on housing conditions and access to basic services and amenities such as school, water and health center.

V. Differences in health inputs and health outcomes across income groups

Table 1 and 2 report the mean levels of health care inputs and health outcomes for the entire sample as well as for three expenditure classes (low, middle, and high) separately. The low-expenditure class includes children whose household per capita expenditure falls below Rs. 500. This cut off point corresponds closely to commonly used *Pakistan Integrated Household Survey 1996-97*. The middle-expenditure group includes children having household per capita expenditure between Rs. 500 to Rs. 1000. All other observations fall in the high-expenditure class. Table-1 and Table-2 show the descriptive statistics of the different income groups.

Table1: Descriptive Statistics for Sample of Children Under Five Year

Variables	All Households		Low Expenditure Households	
	Mean	Standard Dev.	Mean	Standard Dev.
Any Treatment (0,1)	0.96	0.21	0.94	0.24
Modern Treatment (0,1)	0.74	0.44	0.66	0.47
Any Immunisation (0,1)	0.79	0.41	0.77	0.42
Reported Episodes (#)	0.15	0.36	0.15	0.36
Duration of Reported Episodes (#)	6.86	5.25	7.93	5.66
Child Age (Months)	35.07	19.23	35.45	19.49
Child Age Square (Months)	1599.20	1346.39	1636.45	1366.36
Whether Male (0,1)	0.500	0.50	0.51	0.50
Age of Household Head (Year)	38.06	8.83	39.156	9.14
Schooling Years of Household Head (Year)	4.45	5.06	2.72	3.97
Schooling Years of Mother (Year)	1.54	3.45	0.69	2.22
Whether Urban Residence (0,1)	0.36	0.48	0.29	0.45
Per capita Recurrent Government Health Expenditure in Province of Residence (Rs.)	102.92	22.37	95.94	20.34706
Household Per Capita Monthly Expenditure (Rs.)	695.51	472.29	405.40	9
Household Size (#)	8.19	3.36	8.95	63.89
Total Observations (N)	8385		2492	2.935

Source: *Pakistan Integrated Household Survey 1996-97*

Table 2: Descriptive Statistics for Sample of Children Under Five Year

Variables	Middle Expenditure Households		High Expenditure Households	
	Mean	Standard Dev.	Mean	Standard Dev.
Any Treatment (0,1)	0.96	0.19	0.96	0.19
Modern Treatment (0,1)	0.75	0.44	0.88	0.32
Any Immunisation (0,1)	0.79	0.41	0.86	0.35
Reported Episodes (#)	0.15	0.36	0.14	0.35
Duration of Reported Episodes (#)	6.49	5.06	5.87	4.60
Child Age (Months)	35.14	19.09	33.68	19.21
Child Age Square (Months)	1599.1	1338.69	1502.97	1330.16
Whether Male (0,1)	3	0.50	0.51	0.50
Age of Household Head (Year)	0.50	8.77	36.51	7.98
Schooling Years of Household Head (Year)	37.80	4.91	8.56	5.83
Schooling Years of Mother (Year)	4.52	3.26	4.24	5.21
Whether Urban Residence (0,1)	1.45	0.48	0.53	0.50
Per Capita Recurrent Government Health Expenditure in Province of Residence (Rs.)	0.36	22.60	106.45	22.16
Household Per Capita Monthly Expenditure (Rs.)	105.75	124.82	1559.03	943.45
Household Size (#)	673.84	3.289	7.48	4.306
Total Observations (N)	7.953		961	
	4932			

Source: *Pakistan Integrated Household Survey 1996-97*

- **Demand for Curative Health Care**

Table 3 and Table 4 show logistic model estimates of both the probability of seeking any treatment for an illness episode reported during the reference period and the probability of seeking treatment from a modern (as opposed to a traditional) provider. Since Likelihood Ratio (LR) tests could not reject the hypothesis of coefficients being independent of household expenditure per capita for both equations, the estimated coefficients are not allowed to vary by per capita expenditure. Indeed, government health expenditure per capita in the province of residence has a significant effect on the probability of seeking any treatment but it has a negative sign. This trend shows that increment in government health expenditure will reduce the probability of seeking any treatment. People will divert to modern treatment. However, a number of other variables also do influence treatment probabilities. These include child age square, and urban residence (with positive effects), and child age (negative effect). The household expenditure elasticity of any treatment is estimated to be 0.14 (see Table-8), while the elasticity of treatment from a modern provider is 0.25. Controlling for other factors, urban residence increases the probability

of treatment for an illness episode by about 0.76 and the probability of a modern treatment by 0.87. Surprisingly, boys have a significantly lower (by about 0.19) probability of receiving treatment for an illness than girls. Indeed, a joint test of significance indicates that the three variables are jointly significant at the 5 percent level.

The reduced-form estimates of the curative care equations differ substantially from the estimates of the full model. In particular, per capita government health expenditure in the province of residence is observed to have a strong negative effect on any treatment. It has a positive impact at higher levels on modern treatment probabilities. This means that the provision of the government health facilities are used more for modern health treatment in Pakistan. People are usually referred to government hospitals, government dispensaries and others government facilities. This means that government health spending is associated with the use of curative health services primarily via other control variables. When evaluated at the sample mean level of household expenditure per capita, the elasticity of any treatment with respect to per capita government health expenditure is estimated to be only 0.013. However, it varies from 0.012 at a household per capita monthly expenditure level of Rs. 500 to 0.013 at a per capita monthly expenditure of Rs. 1000 and above for the any treatment equation. The elasticity of modern treatment equation is higher (0.44 at sample mean) than that of any treatment equation. It varies from 0.453 to 0.433 for the same monthly expenditure for modern treatment. The high elasticity has low income group, which shows that poor people usually use more government health facilities as compared to rich people. According to this analysis, rich people preferred private health facilities for modern treatment, which also verify the findings of the previous studies related to developing countries.

- **Demand for Preventive Health Care**

Table-5 shows logistic estimates of the probability of a child being immunised against BCG, DPT, measles, or polio. In this case, a LR test significantly rejected the hypothesis of coefficients being independent of log household expenditure per capita. The association between per capita government health expenditure and the probability of child immunisation is observed to depend significantly on per capita household monthly expenditure. The estimated elasticity of child immunisation with respect to per capita recurrent government health expenditure in province of residence is negative (-0.45) (see Table-8) at the sample mean but varies negligibly with household expenditure per capita. The variables 'whether male', 'whether urban residence' and 'per capita household monthly expenditure'

have significant and positive signs. The above mentioned variables elucidate that immunisation coverage is not only a gender issue in Pakistan, but is also a regional and poverty issue. So the government should allocate more funds for the provision of immunisation of most vulnerable population groups, particularly for rural poor masses. Indeed, the estimated elasticity is slightly negative (although not significantly different from zero) for households having per capita monthly expenditures under Rs.1000 but it is as large as -0.47 for households spending Rs.500 per capita per month. The association between use of preventive health services (child immunisation) and per capita recurrent government health expenditure is generally stronger than that between use of curative services and government health spending, presumably because preventive health services, unlike curative services, are typically provided free of charge in Pakistan. However, the finding that there is a positive association between child immunisation rates and government health expenditure is stronger for affluent than for poor households suggests that public preventive health programmes in Pakistan are poorly targeted towards the poor.

The ultimate reduced-form estimates, also shown in Table-5, are similar in sign, although not in magnitude, to the estimate discussed above. The elasticity of child immunisation with respect to per capita government health expenditure is estimated to be -0.069 in the reduced-form model (as opposed to -0.446 in the full model). This elasticity ranges from -0.066 for children whose families earn Rs.500 per capita per month to -0.072 for those whose families earn Rs. 1000 and above per capita per month.

- **Child Health Outcomes**

As noted earlier, an important advantage of the reduced-form estimation strategy adopted here is that it is possible to estimate directly the marginal benefits of government spending in terms of health outcomes of different economic groups. Two variables in the *Pakistan Integrated Household Survey 1996-97* can be used as proxies for child health outcomes: the probability of an illness episode during the month preceding the survey and the duration of an illness. Unfortunately, the morbidity measures are self-reported. The analysis of self-reported morbidity measures confounds the effects of exogenous variables on true morbidity with those on reporting of morbidity. However, it is often the case that reporting bias is systematically related to variables such as parental education and household expenditure. Although there is control for these variables in the health outcome equations, the bias in the estimated effect of government health expenditure on reported health status is unlikely to be completely eliminated, since individuals living in areas well served by health facilities and well endowed

with health infrastructure may recognise ill health more accurately, and respond to it with more prompt treatment, than individuals residing in poorly served areas.

The reported duration of an illness and conditions of illness already being reported are likely to be less contaminated by respondent bias. The perception of an illness is likely to vary among persons of different educational status, expenditure backgrounds and among persons residing in urban and rural areas who used different health services provided by the government. Our aim is to explore how best to respond to the public health outcomes through improved access and acceptability of services. This exercise reveals a great deal of inter-country variability and many failures particularly in the provision of health services in the rural areas. Therefore, the reported length of an illness is a useful additional measure for analysing health status. For the purpose of analysis, we use an illness episode in the relevant reference period which is estimated as a dichotomous variable. We assume if a child is ill then we denoted a value of one (1) and if the child is not ill then denoted zero (0). We estimate the relations for the probability of an illness episode during the month preceding the survey by the maximum likelihood logistic method. The illness days are reported of those children who suffered from diarrhea at age 5 years and under and the number of days the child has had diarrhea during the last 30 days. If the child had more than one episode of diarrhea during the last 30 days, sum up the total number of days of all episodes. In the second model illness duration being reported is estimated by Ordinary Least Squares (Table-6).

A log likelihood Ratio test could not reject the hypothesis that the coefficients of the illness equation were independent of log household expenditure per capita. The estimates indicate that government health expenditure has a significant positive association with reported morbidity (with an elasticity of morbidity with respect to 'per capita recurrent government health expenditure in province of residence' of 0.39). However, per capita household expenditure has a negative and significant coefficient, which shows a negative association with reported morbidity, most likely reflecting the fact that the reported morbidity is more in poor than in rich households. Counterintuitive results in the illness episode equation include the nonsignificance of urban residence variable, which shows that there is no difference between urban and rural areas for reported illness episode. Other surprising variable is 'mother's schooling' which shows a significant and positive coefficient. This variable is negatively significant in the equation 'duration of illness' which shows that proper care of the educated mother of her child reduces the duration of the morbidity. The non-significance of the 'schooling years of household head' variable is most likely due to the fact that

educated household heads have a greater propensity to report minor illnesses of their children. But since these households with educated household heads are likely to experience lower levels of actual morbidity among their children, the net effect of schooling of head of household on reported illness incidence is not significantly different from zero.

An F-test also failed to reject the hypothesis that the coefficients of the duration of illness equation are independent of household per capita expenditure (Table-7). Government health expenditure per capita has a strong negative association with illness duration, such that a 6 percent increase in government health spending is associated with a reduction in illness duration of a day. Children in households with better educated mothers tend to have illness episodes of shorter duration, as do boys (relative to girls). Log household per capita monthly expenditure also has a negative sign but it has insignificant coefficient.

**Table 3: Probability of Seeking Any Treatment for Illness
for Children under Five Year in Pakistan
(Using Logit Model)**

Independent Variables	Full Model		Reduced Form Model	
	Paramete	t-ratio	Parameters	t-ratio
Intercept	6.226	1.52	7.204	2.40
Child Age	-0.084	-2.31**		
Child Age Square	0.001	2.36**		
Whether Male	0.190	0.69		
Age of Head of Household	-0.023	-1.51		
Schooling Years of Head of Household	0.013	0.34		
Schooling Years of Mother	-0.029	-0.54		
Whether Urban Residence	0.762	2.29**		
Log household Per Capita Monthly	0.488	1.23		
Household Size	-0.018	-0.42		
Per Capita Government Health Expenditure in Province of Residence	-1.243	1.82***	-0.888	-1.38
Log likelihood ratio		-219.77		-228.78
Number of observations		1274.00		1274.00
LR statistic (10 df)		19.92		1.90
Probability (LR stat)		0.03		
Mean of dependent variable		0.96		0.96

* significant at 1 %

** significant at 5%

***significant 10%

**Table 4: Probability of Seeking Modern Treatment for Illness
for Children under Five Year in Pakistan
(Using Logit Model)**

Independent Variables	Full Model		Reduced Form Model	
	Parameters	t-ratio	Parameters	t-ratio
Intercept	-8.085	-4.07	-2.928	-2.04
Child Age	-0.038	-2.48*		
Child Age Square	0.001	2.59*		
Whether Male	0.088	0.66		
Age of Head of Household	-0.011	-1.48		
Schooling Years of Head of Household	0.019	1.08		
Schooling Years of Mother	0.029	1.12		
Whether Urban Residence	0.875	5.63*		
Log of Household Per Capita Monthly Expenditure	0.902	4.69*		
Household Size	0.044	1.92**		
Per Capita Recurrent Government Health Expenditure in Province of Residence	0.251	0.75	0.856	0.31
Log likelihood ratio		-684.48		-731.15
Number of observations		1274.00		1274.00
LR statistic (10 df)		101.05		7.72
Probability (LR stat)		0.000		
Mean of dependent variable		0.74		0.74

* significant at 1%

** significant at 5%

***significant at 10%

**Table 5: Probability of Having Received Any Immunisation
(Children under Five Years in Pakistan)
(Using Logit Model)**

Independent Variables	Full Model		Reduced Form Model	
	Parameters	t-ratio	Parameters	t-ratio
Intercept	3.330	3.92	5.345	8.90
Child Age	0.083	14.33*		
Child Age Square	-0.001	-10.84*		
Whether Male	0.097	1.72***		
Age of Head of Household	-0.011	-3.18*		
Schooling Years of Head of Household	0.055	7.23*		
Schooling Years of Mother	0.040	3.09*		
Whether Urban Residence	0.736	10.75*		
Log of Household Per Capita Monthly Expenditure	0.177	2.22**		
Household Size	0.012	1.31		
Log Per Capita Recurrent Government Health Expenditure in Province of Residence	-1.113	-7.76*	-0.866	-6.69*
Log Likelihood Ratio		-3886.08		-4245.57
Number of Observations		8365.00		8365.00
LR Statistic (10 df)		763.27		44.29
Probability (LR stat)		0.000		
Mean of Dependent Variable		0.79		0.79

* significant at 1%

** significant at 5%

*** significant at 10%

**Table 6: Probability of Reported Illness Episode:
Children Under Five Years, in Pakistan
(Using Logit Model)**

Independent Variables	Full Model		Reduced Form Model	
	Parameters	t-ratio	Parameters	t-ratio
Intercept	-2.6984	-2.93	-3.6689	-5.40
Child Age	0.0117	1.80***		
Child Age Square	-0.0005	-5.11*		
Whether Male	0.1268	2.05**		
Age of Head of Household	0.0083	2.26**		
Schooling Years of Head of Household	0.0038	0.50		
Schooling Years of Mother	0.0425	3.99*		
Whether Urban Residence	-0.0663	-0.97		
Log of Household Per Capita Monthly Expenditure	-0.1887	-2.26**		
Household Size	-0.0131	-1.29		
Log Per Capita Recurrent Government Health Expenditure in Province of Residence	0.5742	3.68*	0.4220	2.88*
Log Likelihood Ratio		-3459.54		-3568.38
Number of Observations		8385.00		8385.00
LR Statistics (10 df)		225.88		8.21
Probability (LR stat)		0.0000		
Mean of Dependent Variable		0.15		0.15

* significant at 1%

** significant at 5%

***significant at 10%

Table 7: Duration of Illness: Children Under Five Years in Pakistan
(Using Ordinary Least Square Model)

Independent Variables	Full Model		Reduced Form Model	
	Parameters	t-ratio	Parameters	t-ratio
Intercept	30.688	7.44	25.530	7.94
Child Age	-0.078	-2.39**		
Child Age Square	0.001	1.92***		
Whether Male	-0.704	-2.46**		
Age of Head of Household	0.008	0.45		
Schooling Years of Head of Household	-0.024	-0.65		
Schooling Years of Mother	-0.166	-3.33*		
Whether Urban Residence	-0.068	-0.22		
Log of Household Per Capita Monthly Expenditure	-0.508	-1.41		
Household Size	0.050	1.07		
Log Per Capita Recurrent Government Health Expenditure in Province of Residence	-3.891	-5.41*	-4.035	5.82*
Log Likelihood Ratio		-3877.99		-3901.88
F-Statistic		8.31		33.82
Number of Observations		1274.00		1274.00
Mean of Dependent Variable		6.85		6.85

* significant at 1%

** significant at 5%

***significant at 10%

Table 8: Elasticity of Health Care Use and Outcome Variables With Respect to Government Recurrent Health Expenditure Per Capita (Children Under Five Years in Pakistan: 1996–97)

Dependent Variable and Model	At Sample Mean	Low Income Group	Middle Income Group	High Income Group
• Probability of Any Treatment for Illness				
Full Model	-0.141	-0.130	-0.145	-0.147
Reduced form	-0.013	-0.012	-0.013	-0.013
• Probability of Modern Treatment for Illness				
Full Model	0.251	0.251	0.251	0.251
Reduced form	0.440	0.453	0.436	0.433
• Probability of Illness Episode				
Full Model	0.393	0.398	0.391	0.390
Reduced form	0.382	0.383	0.382	0.381
• Probability of Any Immunisation				
Full Model	-0.446	-0.467	-0.438	-0.434
Reduced form	-0.069	-0.066	-0.071	-0.072
• Probability of Any Illness				
Full Model	-0.568	-0.568	-0.568	-0.568
Reduced form	-0.589	-0.589	-0.589	-0.589

Sources: Table No. 3 to 7

VI. Conclusion and Policy Implications

There are two major findings of this study. First, the evidence clearly suggests that at the margin, government health expenditures are associated with higher use of both preventive and curative health services by children (the estimates of the reduced-form as opposed to the full models are the ones used in the policy discussion here). However, only households with per capita monthly expenditures of Rs.500 and above appear to realise the beneficial marginal effect of government health expenditure on the health services use of their children (Table-5). Although these households constitute a majority of the sample, the findings imply that the poor in Pakistan do not benefit from government health expenditures. Indeed, the evidence indicates that increased government expenditure is actually associated with lower use of health services by the children of the poor, although this negative association is generally weak.

Second, the findings with respect to the marginal effect of government health spending on health outcomes are less clear. Government health spending is associated with a reduction in both the incidence and duration of reported morbidity. Since households residing in communities where government health spending is greater and public health infrastructure is better are more likely to report their children's morbidity, the association between government expenditure and true (as opposed to self-reported) child morbidity is likely to be even more negative. In addition, unlike the case with use of health services, the evidence points to government expenditure benefiting (in terms of lowering child morbidity) the poor more than the nonpoor. However, the difference between the marginal effects of spending on the poor and the nonpoor is relatively small.

Thus, with the sole exception of reported morbidity, all the evidence points to the children of high-expenditure households benefiting more (in terms of the marginal effects on both health use and health outcomes) from government health spending than the children of low-expenditure households. Even in the case of reported morbidity, the greater benefit derived by the poor relative to the nonpoor from government health spending is quite small. What could account for the poor benefiting less from government health expenditure than the nonpoor? The earlier discussion of analytical issues suggests that the marginal effect of government spending on the health outcomes of the poor depends on four factors: (a) the extent to which government spending improves access to publicly provided health services for the poor (MM/MG in relation 3), (b) the effect of increased spending on access to private health services for the poor, (c) the marginal product of government health services for the poor (MH/MG) and (d) the marginal product of private health services for the poor. Since the poor consume less of both public and private medical care than the nonpoor, *a priori* one would expect that the public and private health inputs have larger marginal effects on their health outcomes. However, if increased government spending improves health care opportunities for the nonpoor more than for the poor, the total effect of government spending on the health outcomes of the poor could be smaller even though they have a higher marginal product of health care inputs.

The progress in the expansion of health facilities and health manpower remained sluggish for many years because of the low priority given to the health sector, which led to an extremely inadequate distribution of health facilities in both urban and rural areas. More than four-fifths of the health budget in Pakistan gets allocated to urban-based curative health facilities at the expense of rural health programmes. An important reason for a lack of trained medical manpower in rural areas is

lack of facilities. Even if some well-intentioned doctors want to serve in rural areas, the abysmal conditions force them to change their mind (Zaidi 2000). In urban areas, these health facilities are largely restricted to use by the upper sections of society and are beyond the reach of those living in slums and *katchi abadis*. Pakistan has undergone a very fast rate of urbanisation at around 4.8 per cent per annum (*Pakistan Census Report* 1998), largely due to migration from rural areas. Thus, slums and *katchi abadis* constitute a large section — around 40 per cent nationwide — of the urban populace. Health centres and other medical facilities are virtually non-existent in these settlements.

Economic growth accompanied by macroeconomic stability remains critical for Pakistan to reduce poverty. At the household level, growth serves to reduce poverty and better enables households to secure proper nutrition and health care. At the macro level, growth generates greater resources which can finance improved coverage and quality of health and other services. Growth itself will depend on many factors including the investment climate and increased opportunities for trade access to developed markets but also, a healthy, better educated and more productive labour force. To increase access to basic health services particularly emphasis on females for rural and semi-urban populations, there is an excellent example in the Rural Social Development Programme which was envisaged as one of the European Union's Poverty Reduction initiatives in Pakistan. The findings of our study also justify this approach particularly for Pakistan and other developing countries.

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Financing of Growth Through Self-Assessment Governance and Total Quality Growth Model¹

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- b. “Management Education: Steps for 2010”, 123 India.com, Bombay, Sep 2002, (*invited paper*)
- c. “Governance Growth Model for Management Education: Steps for 2010”, IIF Newsletter IIF Newsletter, Vol XVI No 8 & 9 (August - September 2002) issue.
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- f. Invited as special chapter for a book on Knowledge Management & Growth to be authored Prof. D. N. Mithani, University Utara Malaysia, Malaysia.
- g. 13th World Congress on Total Quality “Delivering Business Transformations through Quality Approaches” Coauthored with Yamini Agarwal (Delhi School of Economics, India), 14-16th February 2003 at Hotel Maurya Maratha Sheraton, Mumbai, INDIA.

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Introduction

A great deal of attention has been paid to global economic issues in the last decade. This has been a natural byproduct of the increasing interdependencies of all national economies and the growth in entrepreneurship and a competitive environment. This has accentuated in recent years due to the emergence of several developing countries as global economic forces, the reorganisation of the production process, change in nature and location of development and finance. One can clearly observe this with the economic growth and self sufficiency attained by India, China and the quick re-emergence from crisis of the ASEAN countries.

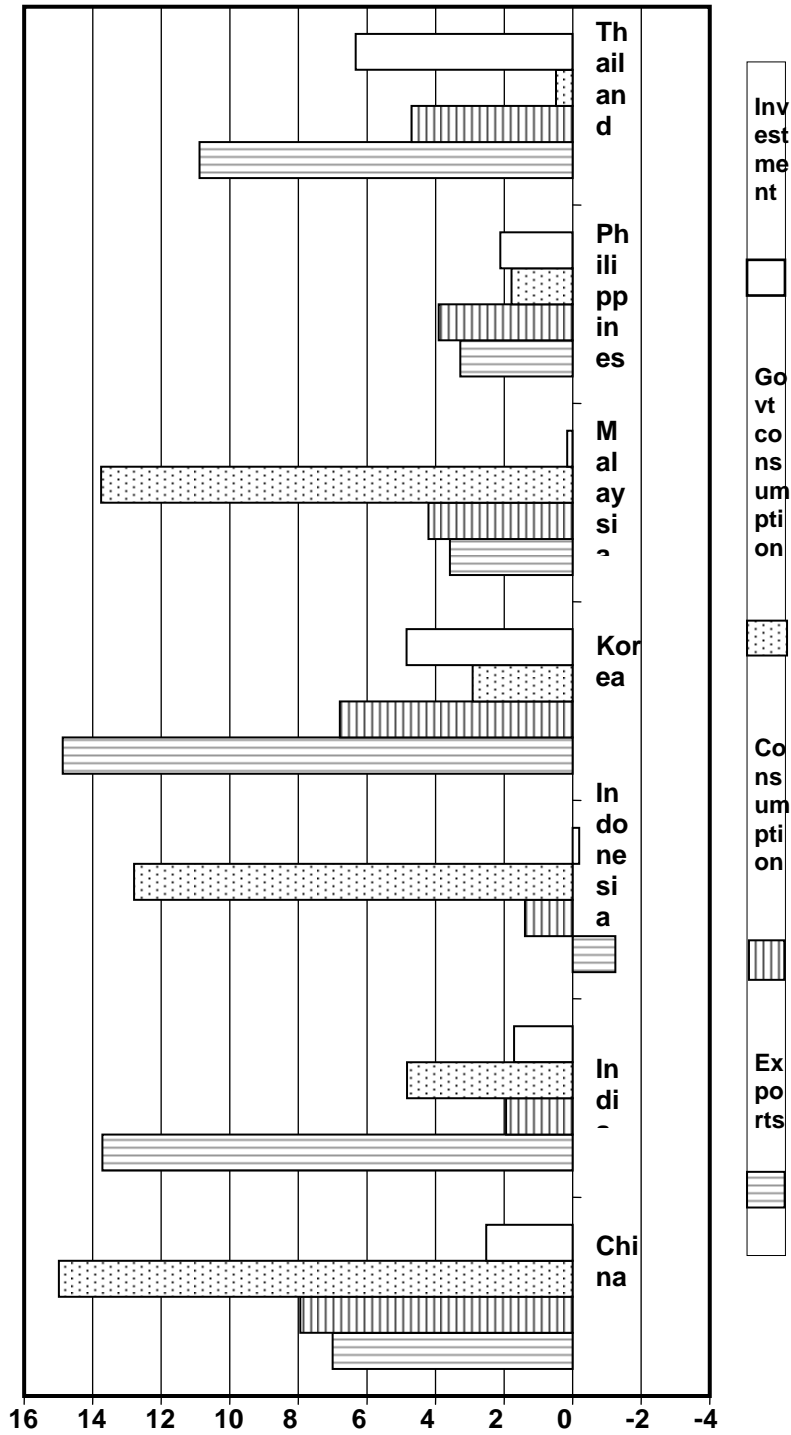
The last decade has witnessed varied economic performance worldwide. Looking at Asia, we find that growth rates in India and China have held up well since the mid 1990s, a number of East and Southeast Asian economies were hit hard by the financial crisis, with severe GDP contractions in 1997-98 (see Figure 1). These were Thailand, Indonesia, Korea, Malaysia and the Philippines. A general rebound in growth since 1999-2000 has been observed (see Figure 2; Table I). Though growth has been volatile in comparison with the pre-crisis period followed by weakening in 2001 and strengthening in 2002 in Asia. The recovery as said before has been by a resurgence of exports, extensive inflows from the rest of the world into Asia, emergence of services sector, exchange rate adjustments and increase in government expenditures.

Table I: The share of demand components in GDP
(% of GDP)

COUNTRY	Govt.	Govt.	Govt.	Net	Net	Net	Invest.	Invest.	Invest.
	Consumption (1)	Consumption (2)	Consumption Change (2-1)	exports (3)	exports (4)	exports Change (4-3)	(5)	(6)	Change (6-5)
	1995	2001		1995	2001		1995	2001	2001- 1995
PRC	11.4	13.2	1.8	1.7	2.2	0.5	34.7	37.3	2.6
India	10.8	12.8	2.0	-1.2		1.2	24.4	21.7	-2.7
Indonesia	7.8	7.4	-0.4	-1.3	8.5	9.8	28.4	20.9	-7.6
Korea	9.7	10.4	0.7	-1.5	2.3	3.8	36.7	27.0	-9.7
Malaysia	12.4	12.6	0.2	-3.9	18.4	22.3	43.6	24.9	-18.7
Philippines	11.4	12.1	0.7	-7.8	-3.1	4.7	22.2	19.6	-2.6
Thailand	9.9	11.6	1.7	-6.7	6.5	13.3	41.1	23.0	-18.1
Vietnam	8.2	6.3	-1.9	-9.1	-3.3	5.8	24.7	28.9	4.1

Source: International Monetary Fund: IFS

Figure 2: Growth rate of the aggregate demand components
(Annual average % change in 2002)



Education, good governance and quality consciousness facilitate growth and development of corporations and society. Proper education and not just literacy need to be provided to the internal and external stakeholders of an organisation to achieve the desired governance and total quality growth factors, which in turn lead to organisational goal fulfillment. Knowledge either imported or home spun has signalled new challenges and improved the quality of life. A serious emphasis has been put forward since the new economic order set up in 1991 to redefine goals, objectives and have an application oriented institutional set up to bring about economic growth, development and nourishment. A huge amount of private equity and initiative has taken place over the last decade to bring about sustained economic development in the absence of an appropriate institutional setup in areas which were opened up in the last decade. This has led effectively to produce competent human capital for national development, since the latter without the former is such as life without oxygen.

Quality in today's globalised *Gurukul* is termed as adhering to international norms and practices. It is viewed as the responsibility of the government, professional bodies, accrediting agencies, associations and chambers, industry and society at large. Focus of Total Quality has been tuned towards maintenance of the highest standards for thoroughness, innovation, and attention to detail so as to evolve a reputation for reliability and prompt and friendly customer service. Total Quality Management now is the structured system for satisfying internal and external customers and suppliers by integrating the business environment, continuous improvement, and breakthroughs with development, improvement, and maintenance cycles while changing organisational culture. It is such as building a house with perfection. When all elements in TQM are well placed, it would generate a well-built house with a strong, solid, cohesive foundation. (See Figure 3)

One of the multi-layered approaches to bring in quality assurance has been by adopting a phased plan. The four stage phased plan is

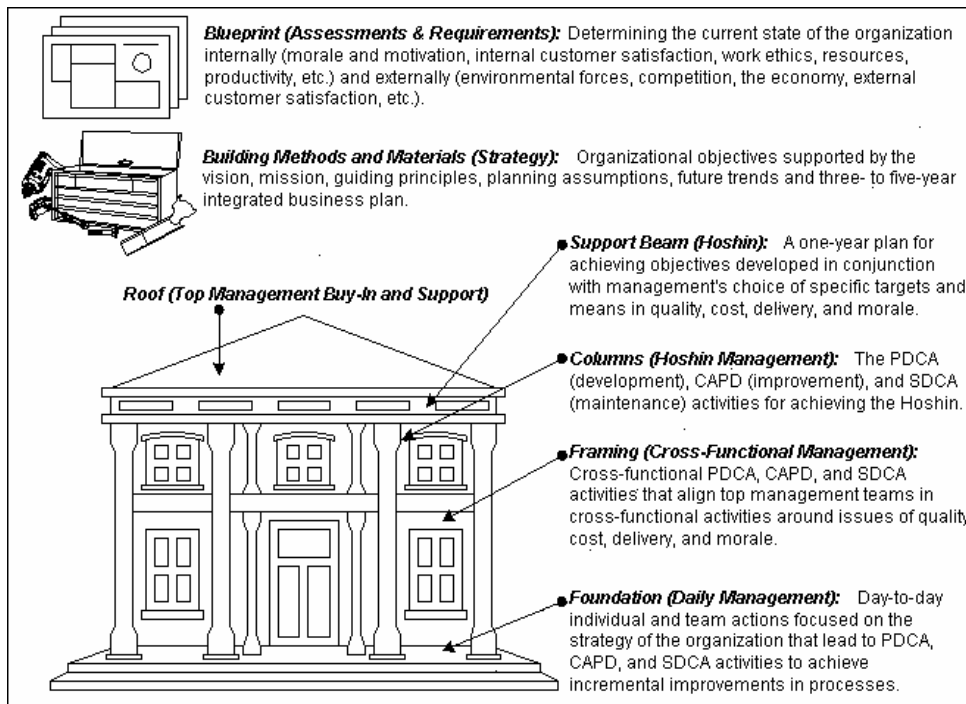
1. SWOT Analysis of institutions²
2. Self-Study, Assessment and Accreditation of institutions³

² An extensive analysis on the Strengths, Weaknesses, Opportunities and Threats before an educational institution and setup. The understanding of strengths and weaknesses helps formulate capacity-building. This self-assessment approach of an educational institutional setup enables appropriate diagnosis and measures the control over the assessment.

³ The second stage in this is to conduct self-evaluation process, assess or engage an external institution to evaluate the performance or competence of the institution. This is also done through ratings, rankings or accrediting bodies at national and international

3. Remedial measures in the case of weak and less privileged institutions⁴
4. Implementation of quality sustenance activities in accredited institutions⁵

Figure 3: Total Quality Management



Source: Hoshin Kanri, Integrated Quality Dynamics, Inc.

New global standards of governance are emerging. Customers are demanding better performance on the part of the corporates and their governments. They are increasingly aware of the costs of poor management and corruption. These developments have led to new interest in measuring the performance of corporations, institutions, and governments. This may be

levels. This process enhances the insight on the strengths, weaknesses and opportunities before an institution. It also gives a new sense of direction., promoting inter and intra institutional interactions and directions to the institution under evaluation.

⁴ It is for the betterment of any setup, that there is natural, equal and sustained growth. But nature plays its own role. Differentiation is the rule of nature and the survival of the fittest is the game.

⁵ This enables the bringing in of quality promotion, develop a network to promote educational enrichment and maintain collaboration for growth and exchange.

done by international agencies, credit rating organisations or self-assessing models, which use indicators of governance, institutional quality and corporate governance ratings. The model given in the paper highlights and brings forth some of the relevant factors that touch upon some of these sensitive issues, and which many times companies are not willing to disclose or open up. However, it is difficult to hide one's face from the mirror. Hence a self-evaluating and assessing mechanism/model is the need of the hour, which is the purpose in this paper. We have also highlighted the position of the Education Sector along with case study of an institution, which has emerged as a leader using the model.

Quality and Governance in the Education Sector

In India, the emphasis of quality assurance has resulted in an all round concern, as can be seen from the decision of the Ministry of Human Resource Development (MHRD) and AICTE functioning. The MHRD has announced the calendar year 2002 as the "Year of Quality of Higher Education" (Pillai and Ponmudiraj). This is expected to bring forth quality initiatives and the needed stimulus in the government supported educational setup. Some of the questions we need to pose are –

- What policies foster knowledge enrichment?
- What policies enhance a country's learning synergy?
- What policies improve the effectiveness of communication and effective utilisation of resources (finance, infrastructure & human capital)?

UGC and MHRD have been trying to develop and seek answers to some of these pertinent question. A series of steps have also been initiated. However, growth and qualitative education is not being achieved. The issues relating to faculty, research and quality education constitute the core of an educational process. The competence and dedication of teachers, their constant upgradation, the pedagogy, the level and quality of inputs, performance levels are some of the basic determinants of a good education setup. Hence, there has been a greater emphasis to bring in self-sustained institutions and organisations in the new economic order.

The MHRD, UGC & the AICTE have done a formidable task since 1993 by approving a large number of institutions in the areas of engineering, management, pharmacy etc. to fill-in the wide gap which existed between demand and supply of technical education in the country. In the process these institutions have also become a target of criticism in some quarters for not maintaining the desired quality of education. Whenever such a formidable task is undertaken there can always be some

mistakes which may evoke some criticism. In this regard UGC and AICTE should have taken the necessary steps to build up its image through transparency, accountability and by holding seminars so that excessive criticism could have been avoided.

When the Indian economy moved from a controlled regulated economy system in 1991, licensing shifted from Udyog Bhawan (Industry) to education in Indra Gandhi Indoor Stadium(AICTE) and lately also to UGC to attain Deemed University status. All types of people jumped to take advantage of this opportunity i.e. licensing process. AICTE was converted into a licensing authority in the 90 instead of becoming a regulatory authority as was foreseen to be its prime role. Emergence of technical Universities and AICTEs insisting on simultaneous affiliation with some university for technical institutes although thought to cure the ills and maintain quality education, instead brought massive corruption at the University level –which was largely free from the corruption. What we need is to have effective, efficient and a flexibly dynamic diversified system, well-knit into the global framework to transform management/technical education fulfilling societal and national needs.

There has been a phenomenal increase in the number of universities and colleges under the governmental and private educational setup in the country in the last one decade.

	1949-51	1996	Current
Universities	28	224	278
Colleges	695	8613	11,000
Student Enrollment	2.5lakhs	over 70 lakhs	7.5 million
Teacher	12,000	3 lakhs	3.42 lakhs

Note: Data is for the colleges and universities under UGC

Source: Venkatasubramanian K, 2002, Financing of Higher Education, *The Hindu*, February 19, 2002

Although the statistical growth in number seems to have been a phenomenal growth, the educational infrastructure and institutions do not cater to the growing need of over 10 million people enrolling annually (including those in private institutions). Educational institutions in almost all spheres are required to meet the growing demand. Management has come up as one of the most demanding subjects, which has seen the highest growth after engineering and medicine at the post-graduate level. With this India stands to be the second largest higher educational setup after the US, with a difference of demand for education being domestic.

Self-Assessment Economic Governance & Total Quality Growth Model :

1. Corporations

The model for economic governance and total quality self-assesses and induces growth within an organisational setup. It enables one to ascertain the weak points, streamline resource allocation and develop the organisation in totality. This model is a self-assessing model, which enables the management of the company to judge its position based on their own perceptions and positioning in a dynamic ever-changing environment. It can be applied to all different kinds of organisations and need not be restricted to any certain category. In the model, we have identified eight factors to self evaluate and govern. Seven out of these eight are based on surveys and research. The seven basic components which an organisation needs to focus on for economic growth, governance and total quality factor are – Vision, Leadership, Finance, Human Resource, Work Environment (Technical Resources, Equipment & Infrastructure), Research & Innovation and Market Acceptability. We have left one of the options as open for the management to choose and determine based on the need and focus of operation. All organisations irrespective of nature of work and structure are influenced by the environment where they need to demonstrate flexibility, dynamism and empathy, while remaining true to the core values.

Vision

It is vital to give necessary direction to any organisation and its stakeholders. It enables bringing in clarity and focus to the organisational functioning in today's challenging and uncertain environment. Be it at the national or an organisational level, its importance is well recognised and the vision is formulated mostly at their inception stages.

The vision should have components such as - What the organisation wants to be, not what it is; What are the future products or services concepts, not specific products and services?; What is the future market area, such as global/international?; Should the statement be in line of stakeholders expectations?

The mission should have components such as - how to achieve the vision within a certain time frame?; What and how have the activities to be initiated to achieve the corporate vision?;

Both the vision and mission statements must fulfill these components - Should the statement be in line with stakeholders expectations?; Should the statement be a simple statement?; Is the statement understandable from top management to line workers, including the public, customers, and suppliers (stakeholders)?

Leadership

The correct direction can only be fulfilled, if the right people to direct it are there. Leaders bring the vision into reality with their dedication and commitment. They may be chairman, directors or heads of departments; they all play a leadership role to bring in solidarity and fulfillment of organisational goals. Leadership needs to be dynamically changing but consistent. It ought to meet the needs and objectives of an organisational goal providing it with necessary factors of growth and development. "Positive or Negative" leaders credibility, thinking and attitude has a direct correlation with institutional positioning in the society.

Finance

This is one of the most vital components to meet operational and growth needs of any organisation. In India, most organisations follow a conservative style in use of finance and tend not to optimise this scarce resource. Finance energises life. It is "THE" factor, which ensures the existence of an organisation. Be it "for" profit or "not-for" profit organisation, all need it as their life-blood. Right and optimal utilisation of this resource has made Reliance, Infosys, Wipro, GE and others and has been the cause of disappearance of Enron, Arthur Anderson, Home trade and others.

Human Resource (Management & Labour/General Staff)

It is important that an organisation invests in human capital. The two components - management and labour/general staff form the basic part of these. They over time yield rich returns in terms of brand equity, market acceptability and laying down strong foundations. Continuous Training is a vital component for development and growth of this resource. It keeps one updated with what is happening around the globe in their respective areas. Enrichment of this resource pays in the long run for all organisations. The smooth functioning of any organisation is determined by satisfied and motivated faculty and administrative human resources it possesses. In an increasingly diversified competitive inter-

dependent institution and corporate world there is a need for educators with leadership in executive roles.

Work Environment (Technical Resource, Equipment & Infrastructure)

To lay a strong foundation for the stakeholders of an organisation it is essential for the management to provide a proper healthy work atmosphere. Technical resources and facilities such as the latest equipment, computer based networks and requisite physical infrastructure provide the base for productivity. Though these may not pay an institution in its development immediately, but do act as a multiplying factor for growth in the long run. Also an institution must adhere to strict norms, standards and evaluation system and upgrade its resources from time to time to bring in good corporate governance. This not only enriches the organisation, where the human resources enriched would perform, but also develop an institution in totality.

Research & Innovation

Research has been the stepping-stone for organisations of the next generation. Hundreds of companies have innovated and researched products; services and models, which fill in gaps and accelerate growth. Innovation and Research act as catalysts to achieve growth and development in an organisation. Take any top company today, they have used these in some way or the other.

Market Acceptability (Customers, Shareholders, Industry & Government)

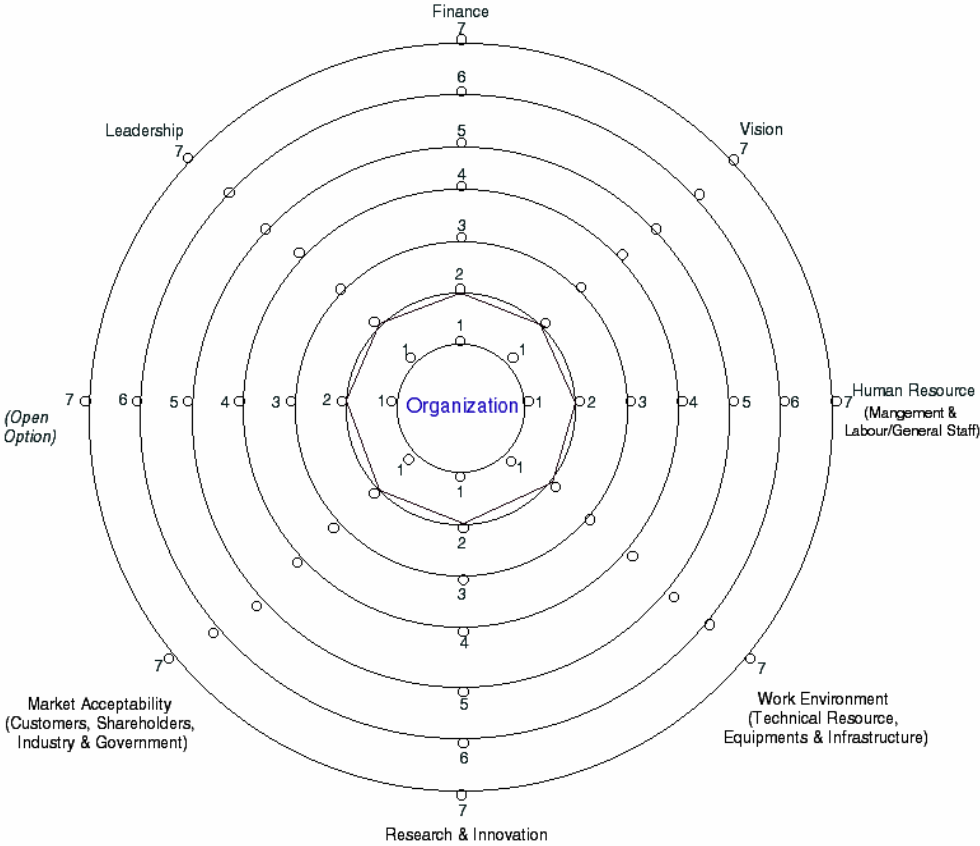
This is one factor which is given the most relevance by almost all institutions globally. All resources and facilities are for the service of this Most Important Person – MIP (the customer). The customer is the best ambassador of an institution. If the service provided to the customer is in tune with the needs and demands, then the acceptability of the institutions is promising. Industry and Government play a vital role in merging and facilitating customer orientation and growth of the organisation. As Dhirubhai Ambani said “*Government is the most important environment of the business*”. Shareholders act as a major contributor in understanding the market sentiments and acceptability of a company.

Open Option

In the model, we have left one of the options as open. This is to facilitate any factor, which an institution or its functionaries think as a relevant variable to be included in the model. This can take a position such as International Reach, Legal Environment, Global Competition, Market Competition, Government Restrictions or any other.

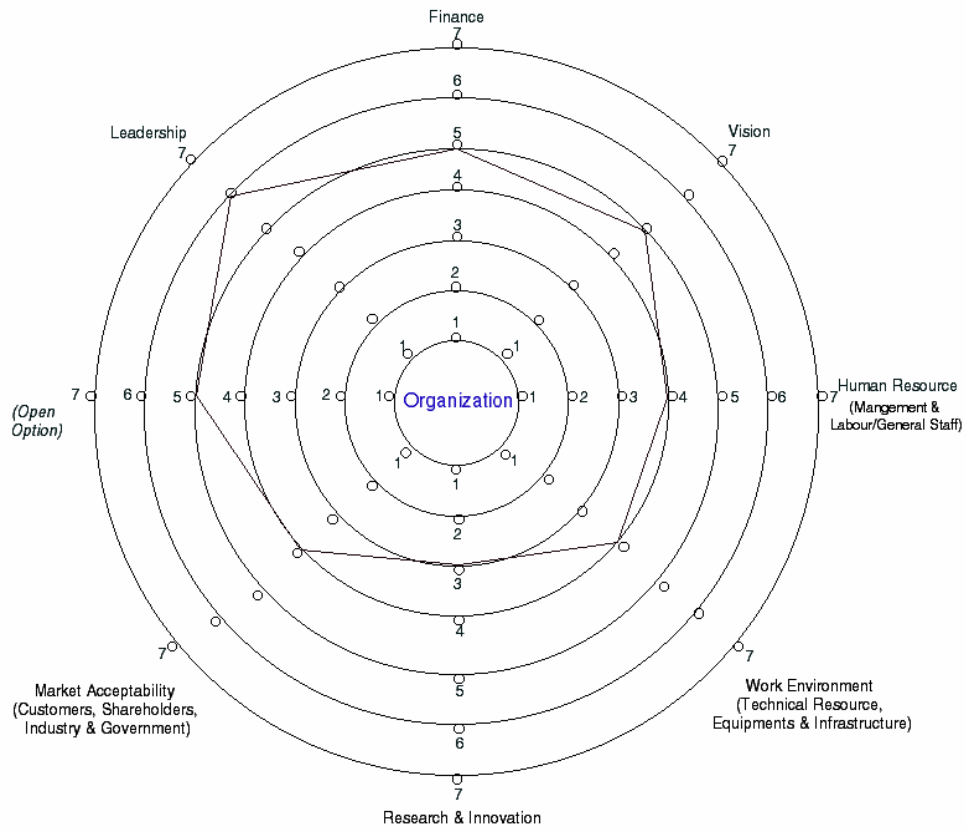
To make the model functional, one needs to sketch out straight lines joining the points on various spheres encircling the corporation (see Figure 7). Each sphere shows a higher level of achievement and satisfaction. Each level has been numbered from 1 to 7, showing the various degrees of achievement and satisfaction. These points link each factor and form a polygon. The uniformity and wideness of the polygon is the desired targeted (see Figure 4, 5 and 6). The larger and the more uniform the polygon, shows that governance is uniform and growth oriented. This also enables an institution to judge its strengths and weakness, wherever the company is on a lower scale. The analysis can be perception or statistical based, depending on the institutional analysis, scale and accuracy the management would such as to bring forth.

Fig. 4: Minimized



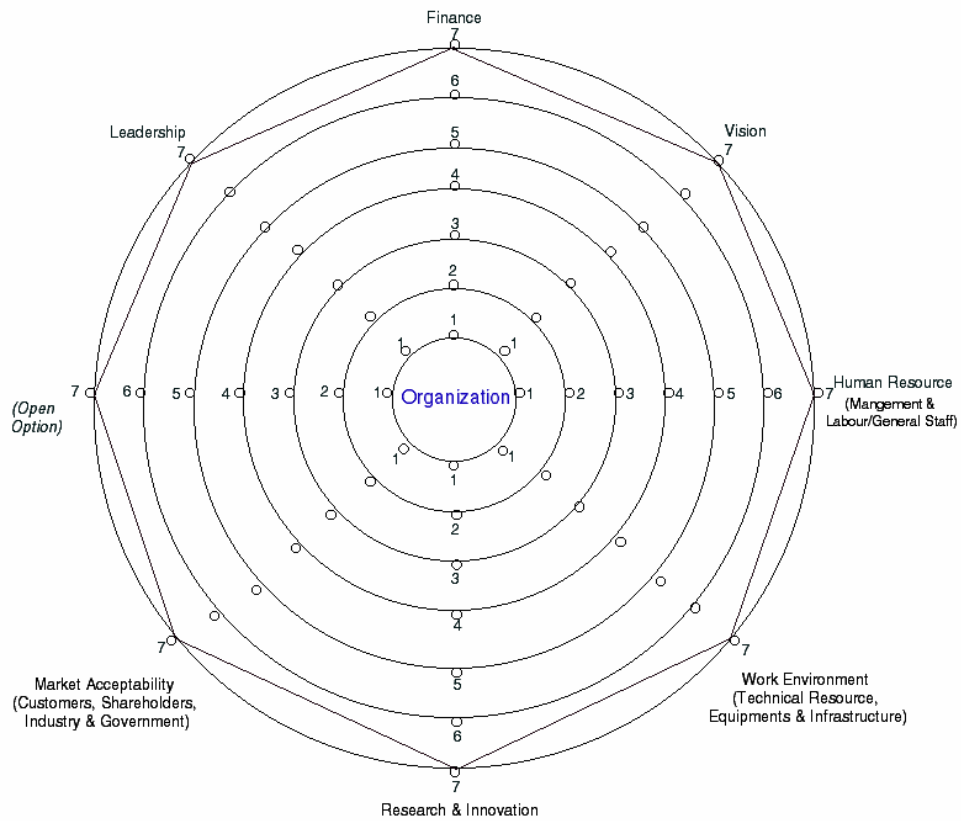
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Adjunct Professor of Finance, Indian Institute of Finance, Delhi, INDIA &
Director, IIF Business School, Delhi, INDIA

Fig. 5: Normal Scenario



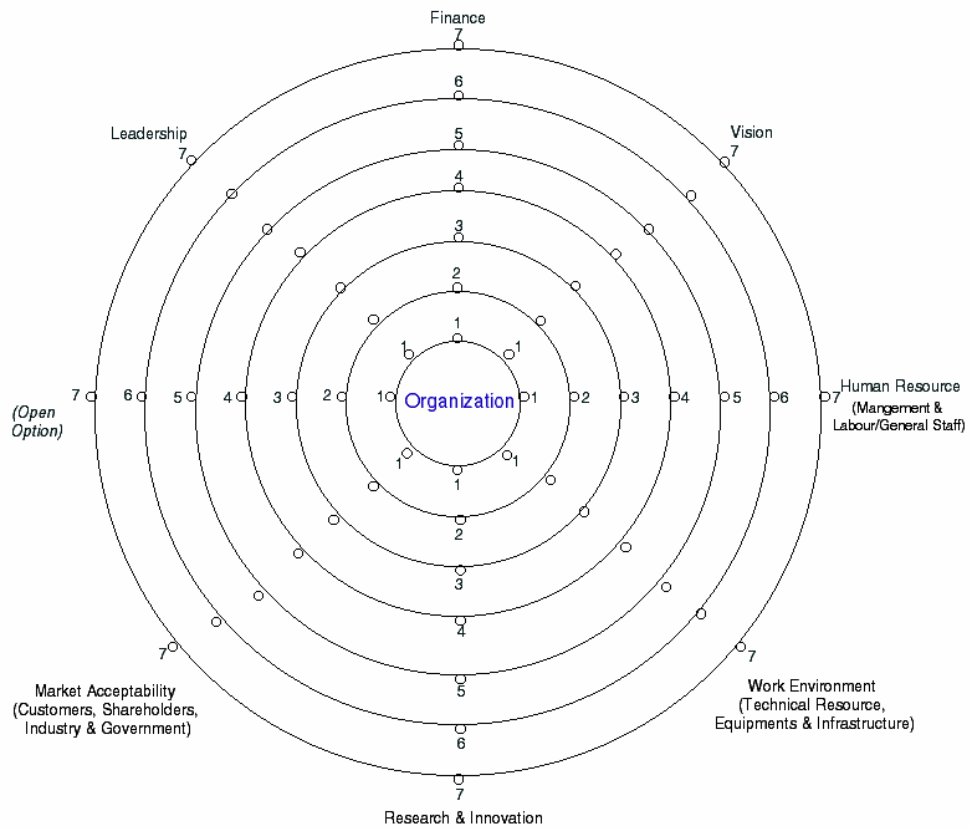
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Director, IIF Business School, Delhi, INDIA

Fig. 6: Optimized (Desired)



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Director, IIF Business School, Delhi, INDIA

Figure 7: Economic Governance & Total Quality Growth Model



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 Adjunct Professor of Finance, Indian Institute of Finance, Delhi, INDIA &
 Director, IIF Business School, Delhi, INDIA

2. Educational Institutions

This model for economic governance and total quality empowers an educational institution to self-assess and induce growth within its system. This model is a self assessing model, which enables an institution judge its position based on its own perceptions and position in the society. This also takes into account the environmental factors surrounding an institution. If need be, it can be replicated and used for each functional head in an institution. As in the above case seven out of eight factors/components are pre-determined. These are – Vision, Leadership, Finance, Human Resource, Academic Facilities, Academic Structure and Market Acceptability. One of the options is left open for an educational institution to choose and determine based on their need and focus of operation. The mantra for today's institutional environment is to demonstrate flexibility, dynamism and empathy, while remaining true to the core value's of an institution.

Vision

It is vital to give necessary direction to any organisation and its stakeholders. It enables the bringing in of clarity and focus to the organisational functioning in today's challenging and uncertain environment. Be it at the national or organisational level, its importance is well recognised and the vision is formulated mostly at their inception stages.

Leadership

The correct direction can only be fulfilled if the right people to direct it are there. Leaders bring the vision into reality. They may be chairman, directors or heads of departments; all play a leadership role to bring in solidarity and fulfillment of organisational goals. Leadership needs to be dynamically changing but consistent. It ought to meet the needs and objective of an organisational goal providing it with necessary factors of growth and development. "Positive or Negative" leaders credibility, thinking and attitude has a direct correlation with institutional positioning in the society.

Finance

It is a vital component to meet operational and growth needs of any organisation. Although not much is referred to and made use of by educational institutions. The finances which most educational institutions (in particular management schools) depend upon as a source are the fee of programmes offered and grants from government or

educational foundations. However, there are various different sources at the disposal of an educational institution. Some of the prominent ones are providing consultancy, conducting MDPs, having an Industry link for R&D, Alumni and organising events (academic and social). These are possible with the rich resource of human capital and facilities at the disposal of the educational institution.

Human Resource (Faculty & Administration)

It is important that an institution invests in human capital. The two components- faculty and administration form the basic part of these. Over time they yield rich returns in terms of brand equity, market acceptability and laying down strong foundations. Research is a vital component for development and growth of faculty. It keeps one updated with what is happening around the globe in their respective fields. Today classroom teaching has to be based on the domestic and international scenario in every subject. The approach has to be a case study and research based approach, with examples, presentations, projects, video presentations, teleconferencing and group/individual involvement.

The smooth functioning of any organisation is determined by satisfied and motivated faculty and administrative human resources it possesses. In an increasingly diversified competitive inter-dependent institution and corporate world there is a need for educators with leadership in executive roles.

Academic Facilities (Library, Computer & Infrastructure)

This factor is an essential component for laying a strong foundation for the stakeholders of an educational institution – students, faculty, staff and others. Academic facilities such as the library, computer network and requisite infrastructure provide the foundation for growth and enriching the society with rich human resources. Though these may not pay an institution in its development immediately, they do act as a multiplying factor for growth in the long run.

Academic Structure (Upgrade, Standards & Evaluation)

An institution must adhere to strict norms, standards of education, evaluation system and upgrade its programmes and resources from time to time. This not only enriches the society, where the human resource enriched would contribute, but also develop an institution in totality.

Market Acceptability (Student, Faculty & Industry)

This is one factor which is given the most relevance by almost all management institutions globally. All the institutional resources and facilities are for the development of the most important person – MIP (the student) as the student today is the tomorrow of a nation and a progressive society. The student is the ambassador of an institution. If the enrichment provided to the student is in tune with industry needs and demands, then the development of the nation and the educational institutions are promising. The faculty plays a vital role in merging the two components. In the long run the faculty itself becomes a major consistent player for market acceptability, with the research work and knowledge they impart.

Open Option

In the model, we have left one of the options as open. This is to facilitate any factor which an institution or its functionaries think as a relevant variable to be included in the model. This can take a position such as International Acceptability/Reach, Legal Environment, Global Competition, Market Competition, Government Restrictions or any other.

To make this model function one needs to sketch straight lines joining the points on various spheres encircling the educational institutions (see Figure 11). Each sphere shows a higher level of achievement and satisfaction level. Each level has been numbered from 1 to 7, showing the various degrees of achievement and satisfaction. These points link each factor and form a polygon. The uniformity and wideness of the polygon is the desired targeted (see Figure 8, 9 and 10). The larger and the more uniform the polygon, shows that the governance is uniform and growth oriented. This also enables an institution to judge its strengths and weaknesses, wherever the institutions is on a lower scale. The analysis can be perception or statistical based, depending on the institutional analysis scale and accuracy they would such as to bring forth.

Fig. 8: Minimized

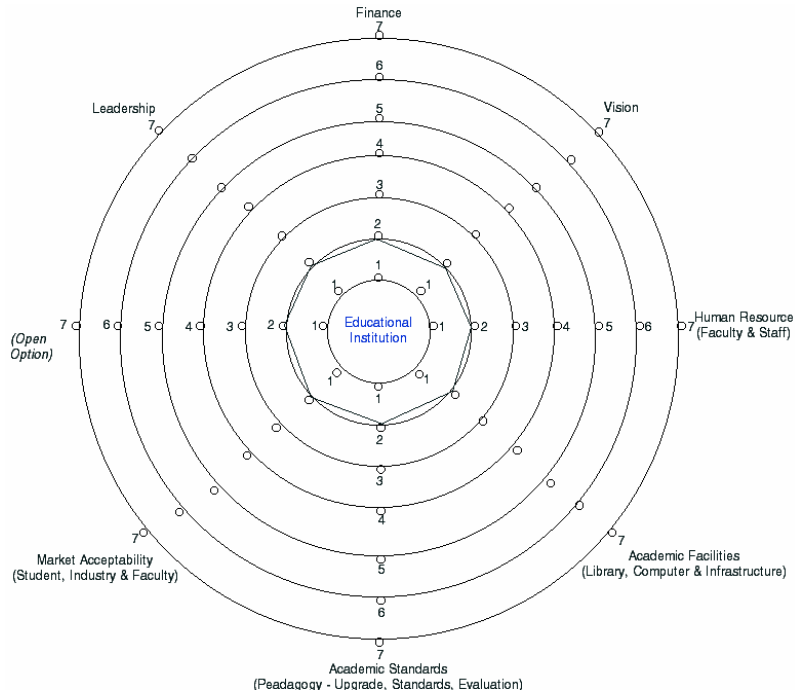


Fig. 9: Normal Scenario

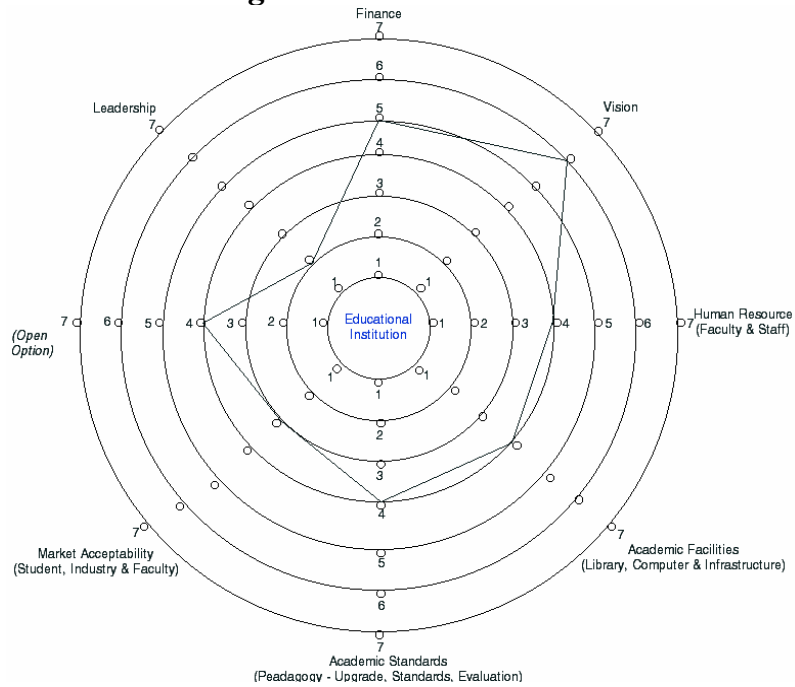


Fig. 10: Optimized (Desired)

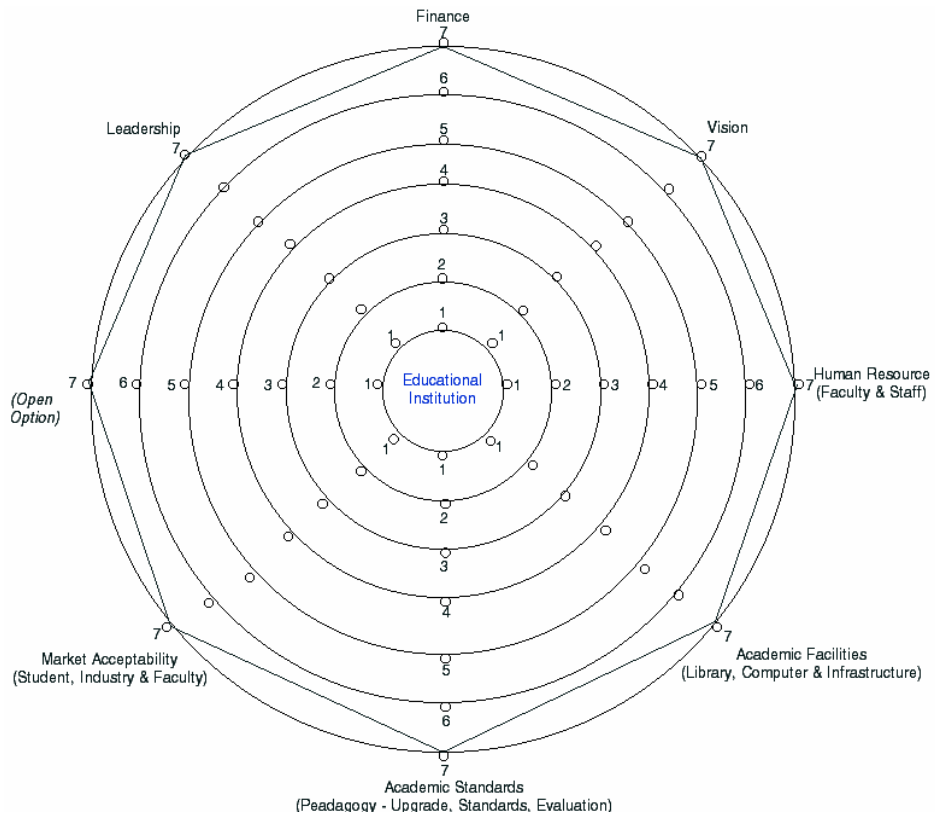


Figure 11: Economic Governance & Total Quality Growth Model for Educational Institutions

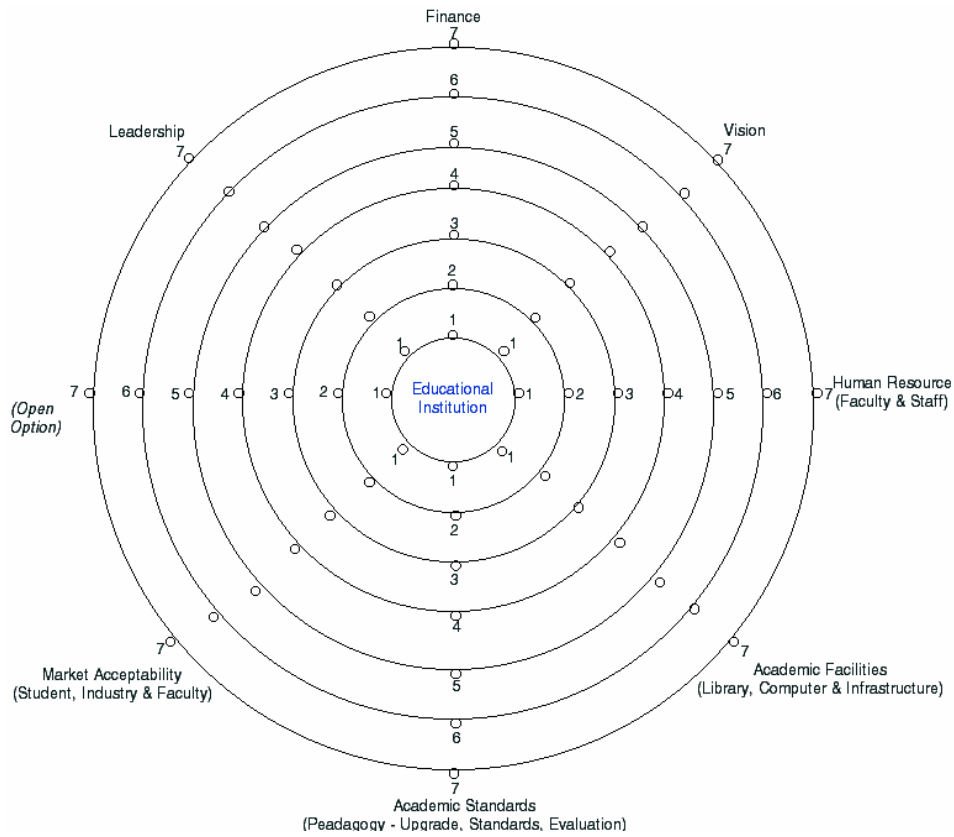


Figure 12: Case I : Governmental Setup
(In general, based on value perceptions and survey)

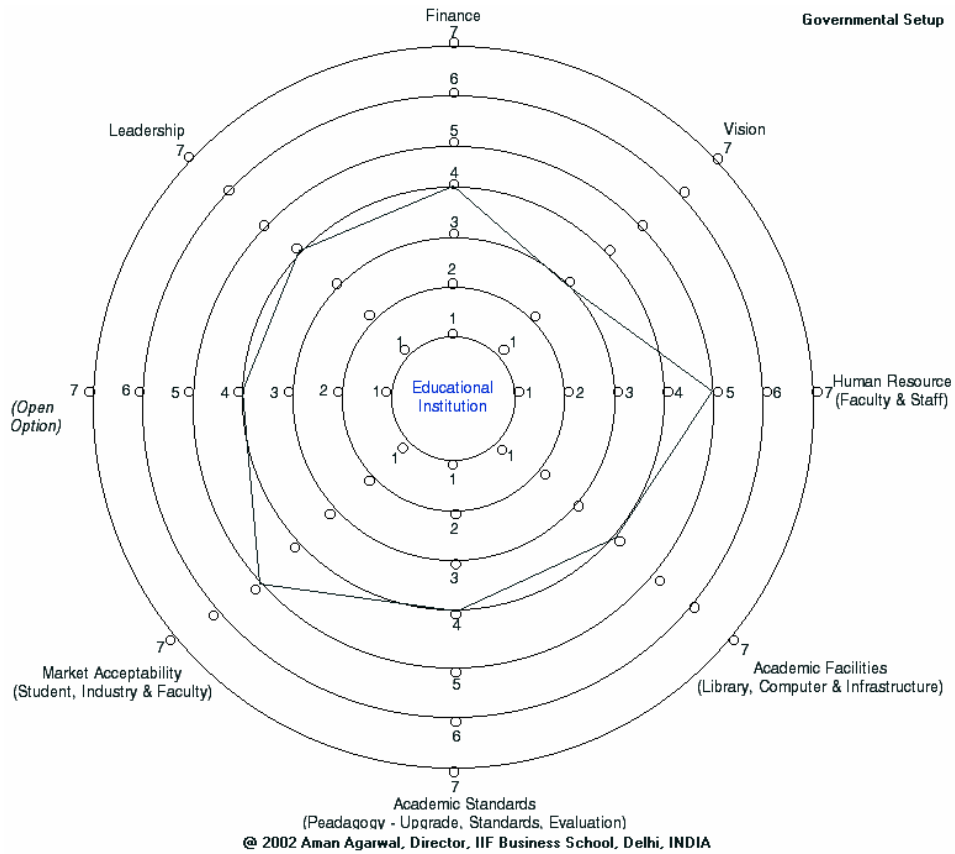
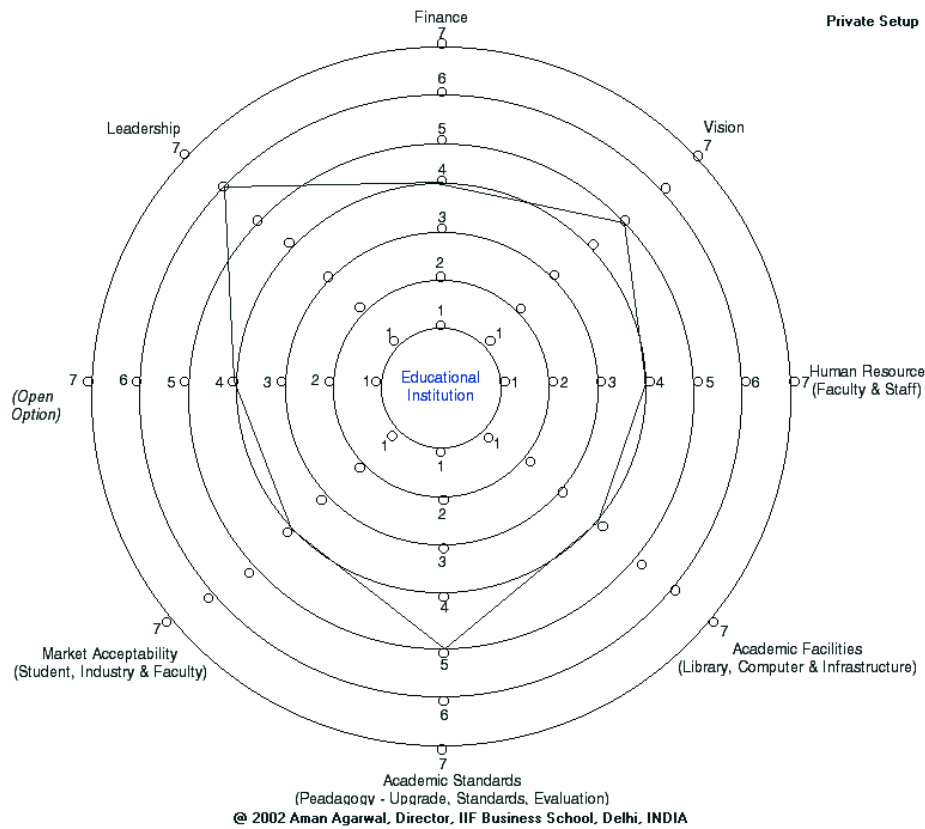


Figure 13: Case II : Private Setup
(In general, based on value perceptions and survey)



Awareness of self in co-existence with others is vital for organisational success in developing maturity in bringing governance. Institutions need to introduce new business management paradigms. There is also the need to bring in "Unity in diversity" by strengthening our institutions through synergy of the components mentioned in the Governance and Total Quality Model for Growth. One thing which we ought to do as today's *mantra* for a better tomorrow is to practise what we preach. It is easy to formulate, devise good models and mechanisms, but the implementation of them successfully is even more important. The idea floated by Microsoft recently to have an Implementation Committee to see that implementation of the decisions taken is done is a positive step towards the same. However, the important thing is the implementation and the formulation of the committee. So to begin with this would serve sufficiently for bringing in effective governance in the system. The current

organisational structure also lacks focus and accountability given the democratic structure organisations in the country. The frauds taking place internationally are substantial evidence of it. With a growing population the need and demand for good governance and total quality systems and organisations is humongous. Even in education, with the current or even three times the current institutional setup of the nation we would be unable to meet the needs of growing India. What we however need are effective and qualitative setups and environments. Though market theorists would agree that the market driven mechanism is an auto adjuster for the same. Unfortunately, with the kind of demand in nations such as India, the cost of market selection for the fittest is very high and counter productive at times.

If we look at the education sector again, Indian education, faculty and students are well appraised and respected for their hard work and knowledge globally. In many of our discussions with our colleagues and friends in universities in America, Japan and Europe, they not only have high regard and respect for Indian education, but also say if a department (in fields such as Mathematics, Finance, Engineering and some areas in Sciences) do not have an Indian faculty, then it is not considered as a well equipped department. This very well brings forth the respect the ambassadors of the Indian education system have created.

Look at some of the famous universities (to mention a few from amongst a larger number) such as University of Cambridge⁶ (UK), University of Oxford⁷ (UK), Harvard University⁸ (USA), Columbia University⁹ (USA), Princeton University¹⁰ (USA), Yale University¹¹ (USA), Stanford University¹² (USA), Tokyo University¹³ (Japan), London School of Economics¹⁴, Peking

⁶ Founded in 1209. Is ranked 11th with 16 Nobel prize winners. Has the biggest press and one of the most active research centers on contemporary China.

⁷ Founded in 1167. Ranked 1st for numbers of Nobel prize winners. Issac Newton was from this university.

⁸ Founded in 1754. Ranked 2nd with 38 Nobel prize winners. HU had set up the research center in East Asia as far back as 1950.

⁹ Founded in 1754, is ranked 3rd in terms of number of Nobel prize winners.

¹⁰ Founded in 1746, is ranked 4th in terms of number of Nobel prize winners. Einstein contributed 20 years of his research at Princeton.

¹¹ Founded in 1701, is the 3rd oldest university in the US.

¹² Founded in 1891, is ranked 12th in terms of Noble prize winners. The Silicon Valley is considered to have had its birth in this university through the industrial zone.

¹³ Founded in 1877, is Japan's 1st state founded university and ranked number 1 in terms of academic resources, intake and academic physical infrastructure, based in the heart of the capital city.

University¹⁵ (China), Australian National University¹⁶ (Australia), Melbourne University¹⁷ (Australia), Tohoku University¹⁸ (Japan), Allahabad University (India), Delhi University¹⁹ (India), Banaras Hindu University (India), Aligarh Muslim University (India), IITs (India), IISc Bangalore (India), IIMs (India) and the youngest of them – Indian Institute of Finance²⁰ (India) are known for their contributions to society, research, academia and setting forth norms of academic environments for institutions internationally. Faculty, which is the most vital ingredient of the academic resource for educational institutions, has been given the most importance while ranking and determining the strengths of an educational institution. Research is the other component, which is used as a determinant of the level an educational institution is rated internationally for the value it holds and the service to the society it can offer. The age and orientation of most of these have contributed to physical structural development. But over the years a few of them have lost their intrinsic worth, the market value and the prestige they enjoyed in earlier years due to poor governance.

As for research being done and disseminated from India, to quote an example, Indian Institute of Finance brings out policy oriented as well as theoretical research in Finance. It is seriously engaged in generating new knowledge and disseminating knowledge. The process of disseminating knowledge is done through teaching and by bringing new publications as well as through its quarterly prestigious 400 page journal *Finance India*²¹. IIF also holds public lectures, seminars, and think tank meetings. The

¹⁴ Founded in 1895, 13 Nobel Prize winners in economics, literature and peace have been either LSE staff or alumni. Is ranked No. 1 for economics and political science worldwide.

¹⁵ Founded in 1889, is the first state owned comprehensive university with the largest number of professors and research scholars and key laboratories in China.

¹⁶ Founded in 1946, is Australia's 1st research oriented university. In 1960, it was merged with Canberra University College.

¹⁷ Founded in 1853, is amongst the most famous university in teaching from Australia.

¹⁸ Founded in 1907, is the 1st imperial university to have introduced coeducation in the Japanese educational system, opened for foreign students in 1911.

¹⁹ Founded in 1921, is the largest university in India for enrollment of over 300,000 students intake yearly. Offers all possible courses through 80 colleges and other departments of the university. Has one of the richest faculty resources.

²⁰ Founded in 1987, is THE best business school in Finance in India, rated 40th Worldwide by American Statistical Association known for the research contributions and faculty resource. The refereed journal – *Finance India* is rated 3rd Worldwide by ASA and is referred to as the Bible of Finance. The institution has over 5 Nobel prize winners associated with it, apart from over 200 experts in finance known for their contribution to the literature.

²¹ The quarterly journal of finance of Indian Institute of Finance. URL: <http://www.financeindia.org>

journal has been ranked 3rd among 79 finance institutions and also among 148 institutions (of finance, macro economics and labour & general labour micro-economics) by B&E Datalinks of American Statistical Association based on ratings for providing financial information and a database. Some of the other institutions/journals rated are *Quantitative Finance Journal*, NBER, CSRP, *Journal of Finance*, FRB at St. Louis, FRB at Chicago, EDIRC, *Journal of Applied Economics*, JP Morgan, US Treasury, Bank of Canada and others. FI has attained a position of a refereed international journal. It is indexed and abstracted by over 13 institutions worldwide. It has some of the most prominent experts from around the world including Nobel Laureates on its editorial board and referees.

Case Study: Indian Institute of Finance

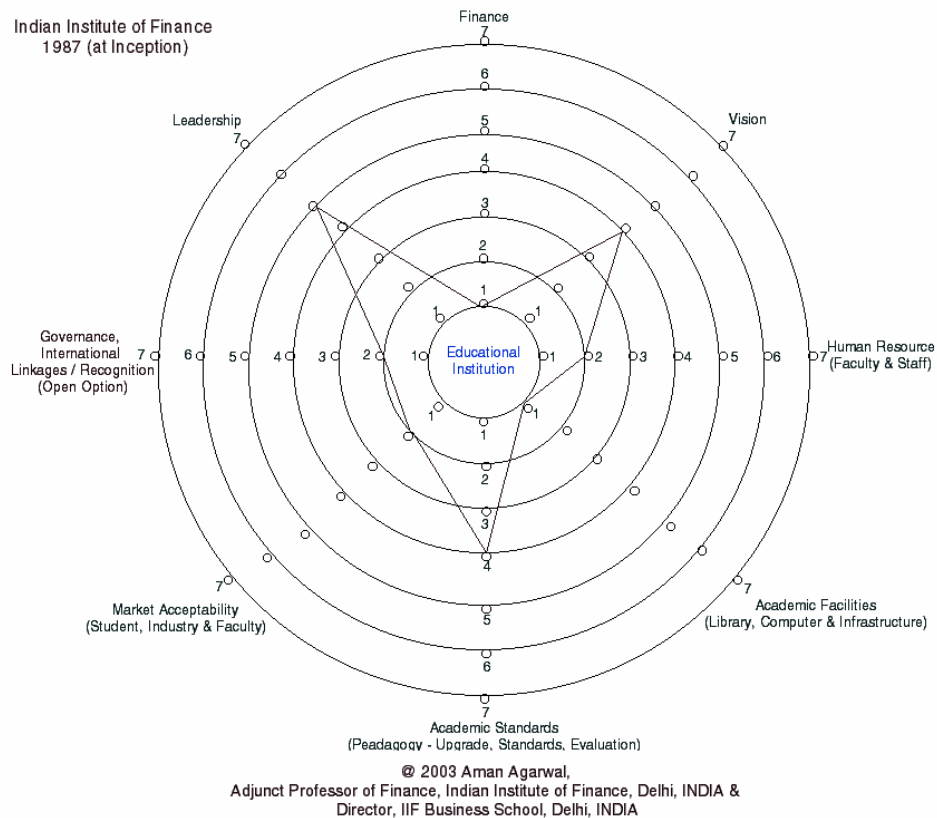
IIF, setup in 1987, as an autonomous non-profit educational research based institution. IIF in a short span of 15 years has been able to attain a formidable position and place itself on the world map. Some highlights on the achievements of IIF, since 1987 are:

1. Pioneered Business Finance Education in India
2. Bestowed with *Internationally recognised experts and celebrated authors* in Finance and Management such as Prof. J. D. Agarwal, Prof. A. L. Nagar, Prof. Kanti Sawrup, Prof. M. C. Kapoor, Prof. N. R. Chatterjee, Prof. Manju Agarwal, Prof. Ramanujan, Prof. R. K. Agarwal, Prof. Aman Agarwal and others. Most of these and other Professors are father figures in their fields in India and have theorems and models by their names.
3. Nobel Laureates associated with *Finance India* and Research activities of the institute – Prof. Franco Modigliani, Prof. Merton H. Miller²², Prof. Robert C. Merton, Prof. Robert A. Mundell, Prof. Douglass C. North and others.
4. Over 200 experts in Finance, Accounting and Economics associated worldwide.
5. Implementation of the policies suggested by IIF by various organisations and GOI such as
 - a. Budget Time Change (1st time in India's history since independence)

²² Deceased 2 years back.

- b. Capital Flight issue, which was debated and discussed in Parliament, hence the formation of FEMA and Money laundering bill.
- c. Kargil Tax not laid on the citizens of India, immediately after the war.
- d. Tax Investment & Reform schemes observed in last one decade implemented based on the study and book published in 1989.
- e. And various others.

Fig. 14: Indian Institute of Finance 1987 (at Inception)

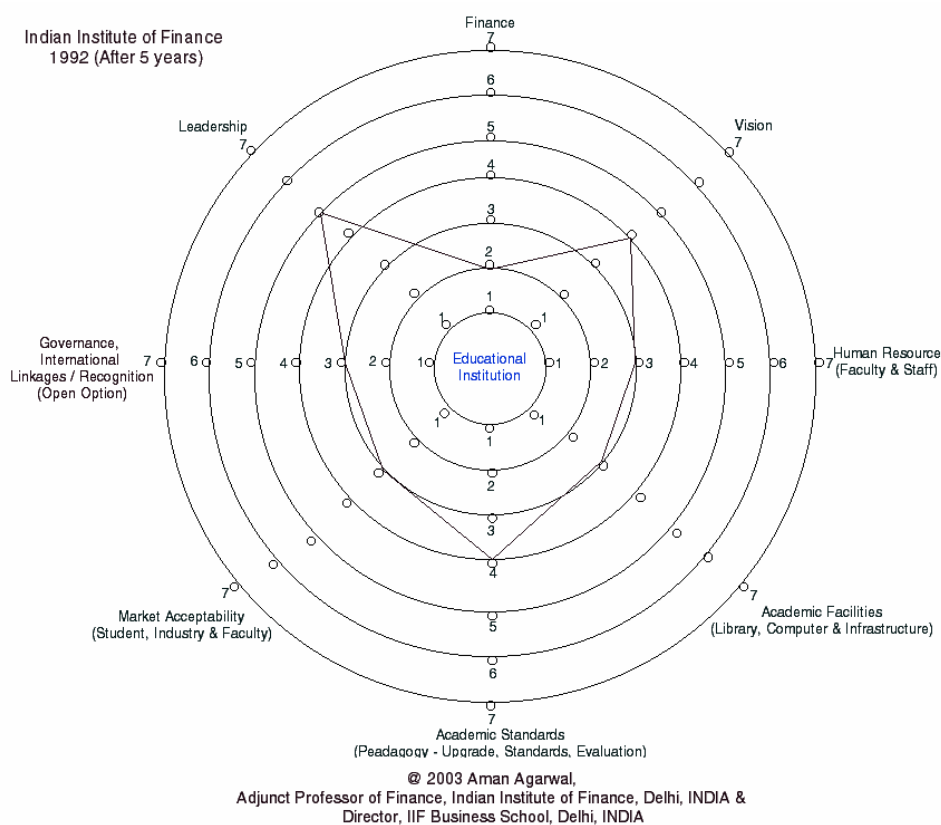


- 6. Invited by universities, international organisations and governments to set up educational Institutions, initiate MBA programmes, conduce research studies and organise international conferences. Has provided

human resources and developed MBA programmes for over 100 institutions worldwide.

7. The library is housed with over 55000 books in the area of finance and accounting and receives over 700 technical journals (over 250 from abroad). The library also acts as a depository library for various international agencies such as IMF, UNCTAD, WIDER and many others including over 20 Central banks globally. Has over 120 doctoral dissertations, 3000 company reports.

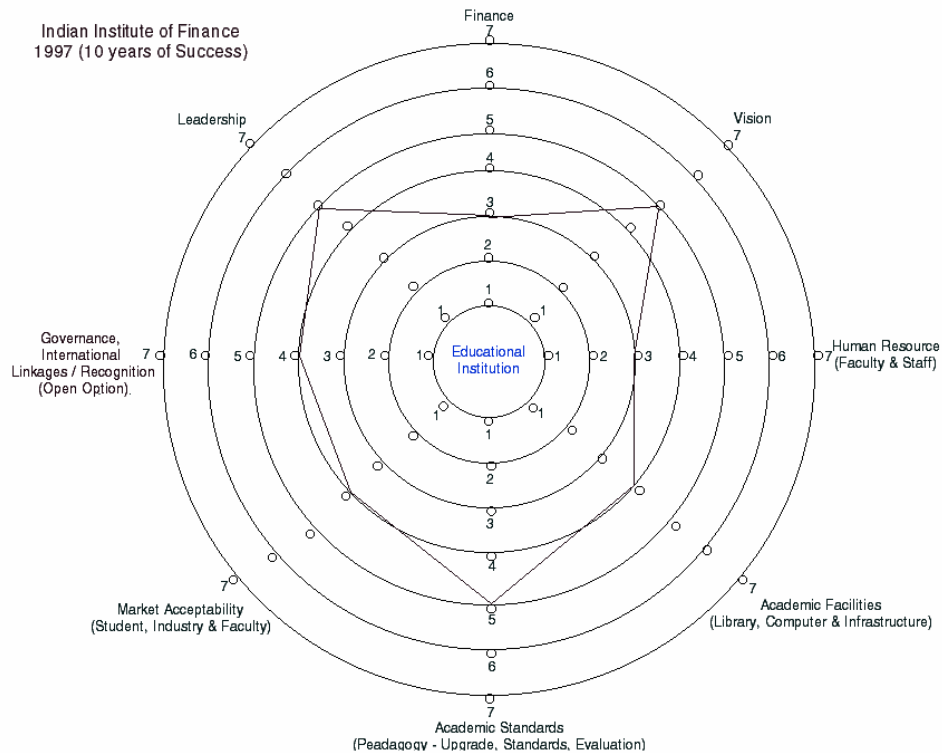
Figure 15: Indian Institute of Finance 1992 (After 5 years)



8. Receives over 12,000 interested applicants. Over 3200 are interviewed for 120 seats at the institute for the regular programmes.
9. For Finances IIF is a self sufficient and self reliant Institution
10. International Collaborations and Linkages in every part of the world.

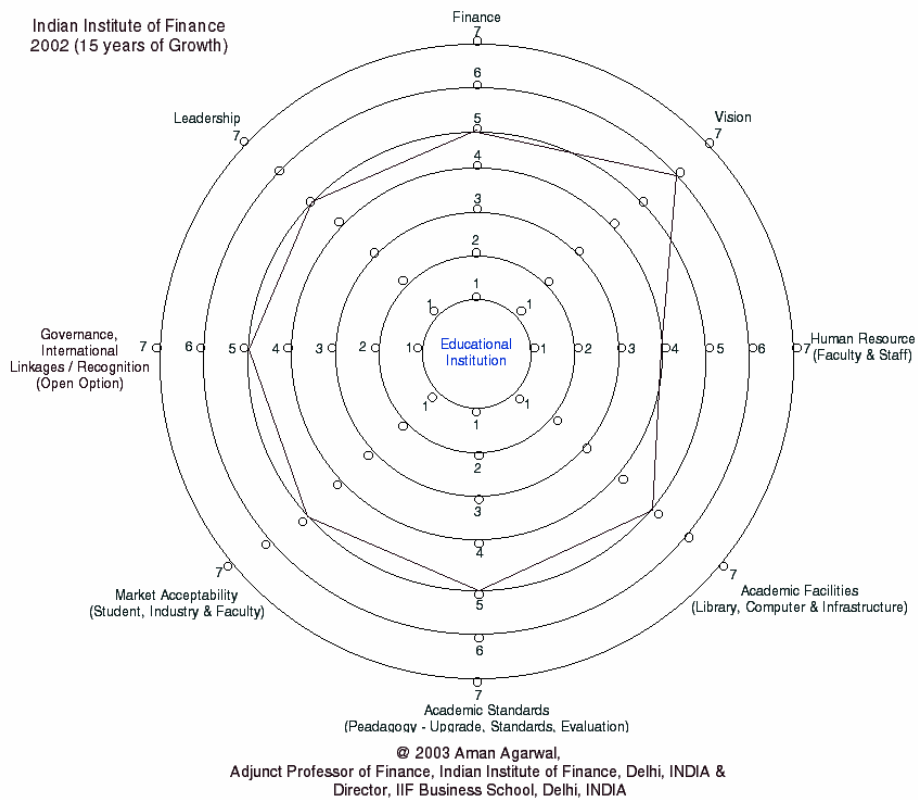
11. The students are selected from all over India with all backgrounds. Most of the candidates are with technical backgrounds or with 3 to 7 years average experience or with a pre-Master's degree. On an average 20% of the class is University/College Toppers.
12. The institute has 100% placement. The average salary in Indian and MNC companies for last two years has been Rs. 20,000 with minimum being Rs. 15,000 and maximum Rs. 45,000.
13. The institute has a 1:4 Teacher-Student ratio (including visiting professors) and also the same ratio is there for Student-Computers ratio.
14. Unique and the only institute of its kind in India.
15. It has highest per capita journals and books in the country amongst all management Institutes including IIMs.
16. Linkages with Industry and Government – over 10000 executives and government officials trained by IIF faculty.

Figure 16: Indian Institute of Finance 1997 (10 years of Success)



Recent Ranks have placed IIF as THE Best NICHE Business School in FINANCE in India *by Outlook 2003, 2002*; 21st for Best Placements and Admissions *by Indian Management (AIMA) 2003*; 24th for Best Placements with Moderate Fee *by Management Refresher 2002*; 27th for GOVERNANCE *by Indian Management (AIMA) 2002*; 26th for Intellectual Capital *by Indian Management (AIMA) 2003*; 27th WORLDWIDE amongst 79 Finance Institutions *by American Statistical Association 2002*. Some of the other organisations included in rating are Ohio's states Virtual Finance Library, Financial Databases Directory, Federal Reserve Bank of Chicago, Korea Stock Exchange, Harvard-MIT Data Center, University of Maryland Economic data library, New York Stock Exchange, OECD, CNN, World Bank, Nasdaq Market Data, NBER, Morgan Stanley Capital International and IFC etc.; 40th WORLDWIDE among Finance, Macro, Labour & Micro Economic Institutions for providing financial information and database *by American Statistical Association (B&E Datalinks) 2002*.

Figure 17: Indian Institute of Finance 2002 (15 years of Growth)



Conclusion

Organisations be they governmental or non-governmental are not and cannot be developed in years. It takes decades to develop a worthwhile institution in terms of physical infrastructure, human resources, academics, research and innovation, technical facilities, faculty, ethos, organisational culture and brand equity. An appropriate mix of experts on committees from government and non-government institutions needs to be utilised to lay a path for the new millenium into the next phase of excellence.

The quality of product, education and governance can best be maintained not through norms and standards fixed for physical facilities (which may be necessary to ensure stability) but through self-governing rules and regulation of the society/market mechanism. For this it is necessary that there is appropriate regulation and control at the entry point as well as exit. These need to be formulated within an institution and at the governmental level or via associations/chambers such as FICCI, CII, PHDCCI, IOD and others.

It is commendable that various chambers in India have initiated steps and brought forth a National Action Plan to be sent to the Central Government for enhancement, enrichment and growth of education and other sectors in India. Apart from the above, we would such as to mention that AICTE and MHRD have not paid any attention to foreign universities/institutions operating in India either independently or jointly with Indian institutions. Some of such foreign institutions do not have proper credentials. It is suggested that AICTE or MHRD needs to look into this issue on an urgent basis. Fortunately, this section for corporations has been well addressed and is under correction based on market performance since the set-in of the New Economic Order from 1991. Also, nodal agencies such as SEBI, Statutory Authorities, AICTE and UGC need to introduce transparency and accountability in its functioning so that more people have greater appreciation than criticism for their working. It should play a more constructive role of a regulator ensuring that good governance prevails and is encouraged and not that bad boys get rewarded and good ones punished, through a proper monitoring mechanism. These steps would initiate progressive growth, good governance and development in the organisations and the nation.

The models suggested would enable and empower an organisation to self-assess and formulate a route for good governance and growth-orientation.

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Macroeconomic Impacts of Monetary Variables on Pakistan's Foreign Sector

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Abstract

This study examines the impact of monetary variables on the balance of payments of Pakistan. Besides, exogeneity of monetary variables is also tested. The empirical findings of the study show that balance of payments is a monetary phenomenon and monetary policy could be useful in improving the foreign sector. The studies so far have not confirmed this effect. The study also shows that an increase in price level and real income lead foreign reserves to inflow. However, an increase in the interest rate, money multiplier and domestic credit lead international reserves to outflow. Partial sterilisation was evident in the short run. But in the long run, it tends to be equal to minus one, indicating no sterilisation effect on the foreign reserve movements. The central implication derived from the study is that an increasing government budget deficit leads to excessive expansion in domestic credit creation and as a result a loss of foreign reserves. The null hypothesis for exogeneity of price level, real income, interest rate and inflation rate to foreign reserves is accepted. However, the null hypothesis for the exogeneity of domestic credit is rejected for the general model but accepted for the linear model. It appears that monetary policy is effective in Pakistan

I. Introduction

Most underdeveloped economies face several economic problems such as budget deficit, chronic balance of payments deficit, debt servicing, low productivity and domestic resource mobilisation (Chaudhary and Abe, 1999, Naqvi, 1973 and Khan, Bilquees and Kemal 1980, Khan 1996 and Khan 1974). Moreover, they also face the problem of slow growth of exports and increasing demand for imports to accelerate their economic growth which creates a balance of payments problem, that has several impacts. Thus,

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balances of payments deficit deserves special attention (Mundell, 1973). There is hardly any country in the world that does not rely to some degree for its national well being on international trade and payments. This veracity is mostly seen in the case of developing countries, whose trade and payments magnitudes are particularly large in relation to domestic economic activity (Killick, 1981). The management of balance of payments is, thus, of great importance to the economic growth of such countries and Pakistan in particular. Pakistan's balance of trade remains in deficit since its birth¹.

Conventionally, the theory of balance of payments adjustment mechanism is viewed as a succession of approaches: the Hume's price specie flow mechanism, the elasticity approach, the Keynesian Multiplier or income approach, the absorption approach and the policy approach that stresses internal and external balance. However a new approach is developed, which centers on the idea that the balance of payments is essentially a monetary phenomenon. It is known as the monetary approach to the balance of payments adjustment mechanism. The essence of the approach is its consistent insistence that the balance of payments is a monetary and not a real phenomenon as postulated by the conventional theories. The major point of departure of this theory from other theories is the recognition of the fact that disequilibria in the balance of payments of a country involve the inflow and outflow of foreign exchange, caused by money market disequilibrium.

The balance of payments is closely related with different aspects of the economic system because it describes the transaction of all the residents of the country with the rest of the world. These connections are the basic grounds for the emergence of various approaches to the balance of payments analysis. The classical theory began with David Hume's price-specie-flow mechanism, of the mercantilist belief that a country could achieve a persistent balance of trade surplus by import-substituting and export-promoting policies. According to price-specie-flow mechanism, a temporary rise or fall of the general price level in the country is due to excessive or deficient supply of money relative to demand. This relative price level movement leading to a balance of trade deficit or surplus alters the stock of money in the direction of equilibrium.

The Elasticity approach associated with Robinson, (1937) and chronologically the first of 'Non classical' or 'Keynesian' approaches to the balance of payments theory and analysis involves the application of Marshallian partial equilibrium analysis to the separate markets for exports

¹ It is true for more than fifty years, out of fifty four.

and imports on the assumption that capital movements are excluded so that an excess or deficiency of the value of exports in relation to the value of imports gives rise to a balance of payments surplus or deficit as one aspect of equilibrium. In the Keynesian multiplier approach, Harberger (1950) and Laursen and Metzler (1950) simplified the approach by assuming a two-good international economy (exportable and importable goods only) and production of export goods at constant domestic money cost. According to this an extra demand for domestic output created by a successful devaluation will be satisfied by re-employing some of the unemployed and that, because part of it will be saved, the extra income generated by increased employment will not increase demand adequately to wipe out the initial improvement in the balance of payments.

In the 'Absorption Approach' Alexander (1952) argues that devaluation will produce an inflationary price rise that will cancel out the initial relative price effect, unless inflation itself deflates the aggregate demand for goods through an income redistribution effect or through a reduction in the real value of existing money balances. In the 'economic policy approach' Tinbergen (1952) and Meade (1951) analyse devaluation, not only as an arbitrary policy change but also as one of the two independent policy instruments (wage price flexibility and devaluation) required to achieve the two policy objectives of full employment (internal balance) and a balanced balance of payments (external balance). The implicit assumption underlying these approaches is that balance of payments disequilibria are permanent.

A new approach, which describes that balance of payments, is essentially a monetary phenomenon has developed. It originated in the 1950s, by Polak (1957) and his associates at the IMF, and developed in the 1960s and 1970s by Mundell (1968) and Johnson (1972). The major point of departure of the new approach is the recognition of the fact that a country's imbalance of payments deficit (surplus) would *ceteris paribus*, experience a change in its money stock. The main distinguishing feature of the new approach to the payments problem is its focus upon the monetary implications of balance of payments disequilibria. The balance of payments problems are monetary problems in a monetary world economy is basically the assertion of the proponents of the approach (Musa, 1976). The monetary approach assumes that the demand for real money balances is a conventional function for real income and interest rate and it is always stable. The goods and financial assets markets are perfectly mobile at the international level. The country for which the balance of payments is to be analysed is small relative to the world in the sense that it cannot affect world prices or the interest rate. Real forces, independent of the monetary factors determine

real output. These assumptions imply that the domestic price level and interest rates are determined exogenously. The demand for real money balances is a conventional function of real income and the interest rate and it is stable. Domestic output level is assumed to be determined exogenously. Domestic component of money supply is also exogenous. The goods and financial markets are perfectly mobile. The approach is applicable to a small country. Besides, real forces determine real output. Of course, most of these assumptions may not be applicable to developing countries. But with the liberalisation programmes and introduction of WTO reforms, Pakistan's economy is liberalised and interference of the public sector has been significantly minimised (Chaudhary 2003 and Chaudhary and Ahmed 2004).

Any disequilibrium in the money market is expected to be adjusted through changes in the international reserve flows under the fixed exchange rate system and changes in exchange rate when the economy is operating under the flexible exchange rate regime.² This proposition was tested by the 'reserve-flow equation' (Kreinin and Officer, 1976). A reserve-flow equation is an equation in which the dependent variable is either the level of the country's international reserves, the change in reserves or the rate of change in reserves (Connolly and Taylor 1976). The explanatory variables were interest rate, government expenditure, money multiplier, money stock, price index, exchange rate, and demand for nominal and real money balances and so on. Within this range, the explanatory variables may however vary from study to study. Using this equation, Courchene (1973); De Granwe (1976); Bilquees (1989) and Nwaobi (2003) got negative results, and Courchene and Singh (1976); Donna (1976); Cos and Wilford (1977); Wildford and Zecher (1979); Bhattia (1982); Odedokum (1997) and Howaed and Mamingi (2002) got positive results. Whereas Bean (1976); Connolly and Taylor (1976); Genberg (1976); Aghevli and Khan (1977); Guitan (1976); Sohrab-ud-din (1985) and Zecher (1976) got mixed results.

In the case of Pakistan, studies carried out by Sohrab-ud-Din (1985) and Bilquees (1989) showed that the monetary approach to balance of payments is not valid for Pakistan. The problem of these studies is that both studies have not tested the basic assumption of the monetary approach i.e. the exogeneity of money demand determinants and domestic credit with respect to foreign reserves. If the monetary approach to the balance of payments assumptions regarding exogeneity are not verified, then the estimation procedure would be inconsistent.³ Moreover, Bilquees's study also

² See Hossain (1988), pp. 66.

³ For detail see: Jame, M. Johannes (1981).

suffers from quality of data. She generated her own series of representative data for present Pakistan for some variables. Data for some variables may not exist before 1971. Thus, it was not actual data for the variable used for estimation. Besides her period of study and its results are hardly useful for the formulation of current policies. The very reason that the present economic structure is more liberal than that of the early period; when the public sector controlled over 90 percent of bank deposits and fixed exchange rate was the rule for foreign sector and trade (Chaudhary 2003). Presently Pakistan's economy is liberalised to the extent that there is no fixed exchange rate, tariff barriers have been reduced, trade is much liberalised, the financial market is moving towards the free market and the central bank has much autonomy. In the light of the above, there is a need for a fresh study, which must be up to date, and not suffering from the above cited drawbacks, so that it is useful for current policy formulation.

II. Methodology

The monetary approach to the balance of payments relates the balance of payments directly to the demand for and supply of money. In the closed economy analysis, the main interest is focused on the effects of variations in the nominal stock of money (monetary base), on interest rate, output and domestic price level. However, in a small open economy, the money supply can no longer be considered an exogenous instrument because it can be made to change through surpluses and deficits in the balance of payments. Therefore, it can be said that the monetary approach to the balance of payments is concerned with the relationship between the domestic component of money stock, prices, output, interest rate and the balance of payments.

In general, an excess demand for goods, services and financial assets creates disequilibrium in the balance of payments. Under the fixed exchange rate system the quantity of money is a key mechanism for attaining and maintaining monetary equilibrium. For instance, with the excess supply of money over demand, the residents must adjust their portfolios by purchasing foreign goods and assets in order to achieve monetary equilibrium. For this purpose, residents can purchase reserves from the central bank to make payments to foreigners, which decreases the domestic money supply until equilibrium is achieved. In this sense, the balance of payments is a monetary phenomenon. The formal monetary model of the balance of payments consists of the money demand function, a money supply equation and an equilibrium condition.

There will be a change in money demand and supply due to variations in economic activities. So it is necessary to watch these changes for meaningful analysis. The money demand shows the economy's capacity to absorb the increased money supply. The intertemporal stability of the money demand function is crucial for monetary policy to have predictable effects on the economic variables. Three basic issues in specifying the money demand function are: the definition of money, the variables to be used in the money demand function, the stability of money demand function.⁴ The specific features of underdeveloped economies such as Pakistan may affect these variables differently from the case of developed countries. In less developed economies, the interest rate is included in the money demand function, as an opportunity cost of holding the money variable, which is one of the most controversial issues. Because in such economies market forces, due to the existence of dual money, do not determine market interest rate (organised and unorganised). In LDCs where the range of alternative assets is limited, substitution may take place between goods and money. Therefore, it is more appropriate to represent the opportunity cost by the interest rate and the implicit return on goods, the rate of inflation.⁵ Thus, demand for real money balances can be written as:

$$M^d / P = a y^{b1} i^{b2} \pi^{b3} \quad (1)$$

Where M^d is the demand for nominal money balances; P is the domestic price level; y is the level of domestic real income; i is the domestic interest rate; and π is the rate of inflation. The money supply is defined as equaling the product of money multiplier and high-powered money.

$$M^s = Km \quad (2)$$

Where M^s is the supply of money; K is the money multiplier and m is the monetary base (volume of high-powered money). By definition the stock of high-powered money or the liabilities of the monetary authorities (m) is equal to the stock of international reserves (R) and domestic assets (net of liabilities) holdings of the monetary authorities (DC). Thus we may define it as:

$$m = R + DC \quad (3)$$

Putting this in equation (2).

$$M^s = K (R+DC) \quad (4)$$

⁴ See, Ahmed, (2000).

⁵ For detail see, Faiz Bilquees, (1989).

With the help of monetary equilibrium, we can derive the international reserves flows equation. The money market equilibrium will be:

$$M^d = M^s \quad (5)$$

By combining equation (1), (4) and (5), taking the variables in percentage changes, foreign reserves as dependent variable and adding intercept, we get the following foreign reserve flows equation⁶.

$$\begin{aligned} (R/m) \text{ g R} &= \beta_0 + \beta_1 \text{ g P} + \beta_2 \text{ g y} + \beta_3 \text{ g i} + \beta_4 \text{ g } \pi + \beta_5 \text{ g K} + \beta_6 \\ (\text{DC/m}) \text{ +g DC} &+ \text{ u} \end{aligned} \quad (6)$$

Equation (6) represents the key relationship in the monetary theory of the balance of payments. The expected signs and expected magnitudes of the parameters of equation (6) are as follows,

$$\beta_1 = 1, \beta_2 > 0, \beta_3 < 0, \beta_4 < 0, \beta_5 = \beta_6 = -1$$

The expected sign of β_1 implies that an increase in the rate of growth in price level (gp) improves the international reserve position because of devaluation. Devaluation is treated as a monetary phenomenon, since devaluation raises the domestic price level leading to reduction in domestic expenditures on goods and services via reduction in residents purchasing power. This leads to increase in the production of exportable goods. As a result, the level of income and employment improves. An increase in income and employment leads to increase in nominal money demand over money supply. If domestic credit is constant, the increased money demand generates capital and foreign exchange reserves inflows.

The coefficient β_2 is the income elasticity of demand for nominal money balances and, therefore is positive and in the neighborhood of unity. In particular, a one percent increase in income generates β_2 percent increase in the demand for money and consequently reserves inflows.⁷ Increase in interest is associated with reserves outflow in this hypothesis. Other things being the same, a given increase in the interest rate would depress the demand for money, creating an excess supply of money and consequently would result in reserves outflows. Hence, the interest rate and changes in this rate are

⁶ For detail derivation of eq. 6 see Appendix.

⁷ This result may appear to be different with the absorption theory in which rising income increases imports and generates reserve outflows. However, the absorption theory is concerned with the balance of trade rather than balance of payments. (Zecher, 1974), pp. 290.

assumed to reflect similar movements in interest rates all over the world.⁸ However, if changes in Pakistan's interest rate are dominated by changes relative to the rest of the world, the estimates of β_3 are such as to be positive. i.e. increase in Pakistan's interest rate relative to the rest of the world would attract capital and generate reserve inflows and vice-versa.

The coefficients of growth rates of money multiplier and domestic credit should be negative ones ($\beta_5 = \beta_6 = -1$). The coefficient (β_6) on domestic assets (net) called the offset coefficient and expected to have a value of minus unity (Sohrab-ud-Din, 1985). The offset coefficient indicates the degree to which changes in the domestic component of money supply are offset by the changes in international reserves (Bhatia, 1982).

III. Exogeneity test for Monetary Theory

The test used in this study is based on the work of Geweke (1978) and is summarised in Geweke (1978). Consider the "complete dynamics simultaneous equation model CDSEM".

$$\mathbf{B}(\mathbf{L})\mathbf{Y}_t + \mathbf{\Gamma}(\mathbf{L})\mathbf{X}_t = \boldsymbol{\xi} \quad (7)$$

(g×g) (g×1) (g×k) (k×1) (g×1)

Where $\mathbf{B}(\mathbf{L})$ and $\mathbf{\Gamma}(\mathbf{L})$ are matrices of polynomials in the lag operator which purports to be a complete description of the interaction between "k" exogenous variables (i.e. x_t represents observations at time t on k putative exogenous variables) and endogenous variables y_t . Geweke argued that a testable implication of the hypothesis that x_t is exogenous. Since x_t is determined outside the CDSEM, a proper specification of the determinants of x_t will not include any value of y_t . In other words, in the regression of x_t on past x_t and past y_t , i.e.

$$X_t = \sum_{s=1}^{\infty} F_s X_{t-s} + \sum_{s=1}^{\infty} G_s Y_{t-s} + \xi_t \quad (8)$$

Where:

⁸ Under the current international monetary system in which the financial markets have become more integrated, the domestic and foreign interest rates move together. Hamburger (1977) argued that the domestic and foreign interest rates generally move together and when they do, it is the domestic interest rate that determines the amount of money held by the public.

x_t = Exogenous variables (g_p , g_y , g_i , g_π and g_{dc}).

y_t = Endogenous variables (g_r).

F_s = Coefficients of lagged exogenous variables x_t .

G_s = Coefficients of lagged endogenous variables y_t .

ϵ_t = error term.

There “exists a CDSEM with exogenous x_t and endogenous y_t and no other variables, if and only if $G_s = 0$ for all $s > 0$ ”. The main purpose of the analysis is to test the hypothesis of exogeneity of price level, real income, interest rate, rate of inflation and domestic credit with respect to reserve flows. Using the Wald statistics we test the null hypothesis that $G_s = 0$ for all $s > 0$. Under the null hypothesis both tests are asymptotically distributed as a Chi-square with degree of freedom equal to the number of regressions.

IV. Empirical Results

The annual data is utilised from International Financial Statistics. All the series are stationary at level. For this purpose, Augmented Dicky-Fuller (ADF) and Phillips-Perron (PP) tests are used; results are reported in appendix Table-1. The foreign reserve equation (6) is estimated by Simple OLS for the period (1965-99) using the broad (M2) definition of money. The Chow Break point test is carried out to investigate the validity of the model during the sample period. The data was divided into two periods (1965-81) and (1982-99)⁹. The results indicate that the model was stable for the whole period. This means that there is no change or any shift in the reserve flow equation between the periods of fixed exchange rate and managed floating exchange rate regimes.

The results reported in Table (1) show that the positive signs of the growth rate of prices and real income confirm the proposition of the monetary approach but do not support the assumption of linear homogeneity in prices. These results also indicate that, if all other things are equal then a rise in growth rate of the prices and real income will lead to reserve inflows. Moreover, the view that interest rate and inflation both

⁹ The Chow test is carried out to investigate the validity of the model during the sample period. For this, the data was divided into two periods.

should be used to measure the opportunity cost of holding money in less developed countries is also supported by this study's finding. The domestic credit coefficient (offset coefficient) is statistically different from -1, the value predicted by the monetary model. This would imply that all increases in this variable would not totally leak out through reserve outflows. It means that the government sterilises the reserves through domestic credit in less developed countries such as Pakistan.

The coefficient of income shows that an increase in income at an annual rate of 10% will generate reserve inflows of 11.9 %, while the same increase in growth rates of interest, inflation, money multiplier and domestic credit will lead to reserve losses of 1.5%, 6.25% 2.13% and 8.22%, respectively. Thus, the effect of domestic credit expansion on international reserve out flows is more than other variables in the long run. Therefore, the movements in growth rate of domestic credit reflect the behaviour of monetary policy. The results portray the true picture of Pakistan's economy; where the government often fails to collect enough revenues to meet its requirements. As such the monetary authorities are forced to expand domestic credit irrespective of its adverse effects on the economy.

The results of this study support the monetary approach to the balance of payments, as also stated by others, for example, Courchene and Singh (1976); Donna (1976); Zecher (1976); Akhter, Putnam, and Wilford, (1977); Wildford and Zecher (1979); Bhattia (1982); and Howard and Mamingi (2002) found similar results. All these studies concluded that balance of payments is a monetary phenomenon and monetary policy is useful in dealing with it. But our results for Pakistan do not support the results found by Sohrab-ud-Din (1985) and Bilquees (1989).

The reason for this deviation lies perhaps in the definition of inflation ¹⁰ and use of different time period for this study. Besides, our study has a larger sample;

¹⁰ Bilquees used growth rate of GNP deflator and CPI as proxy for the growth rate of inflation and growth rate in prices in the same equation. But we use the growth rate of inflation as $\pi = [\log \text{CPI}(-1) - \log \text{CPI}(-2)]$ as used by Aghevli and Khan (1977), Khan (1996).

Table 1: Estimates of Foreign Exchange Reserve Flows Equation for Pakistan: (1965-99)

Variables	Coefficients		
	(1)	(2)	(3)
Constant	-1.238 (-2.33)**	-0.321 (-3.36)*	-2.09 (-4.34)*
Price level	0.001 (1.64)***	0.0002 (0.98)	0.001 (2.41)**
Real income	1.19 (5.99)*	0.835 (26.14)*	1.480 (8.047)*
Interest rate	-0.15 (-2.70)*	-0.236 (-4.92)*	----- -----
Inflation rate	-0.625 (-1.84)***	----- -----	-1.166 (-3.80)*
Money Multiplier	-0.213 (-3.26)*	-0.145 (-1.98)**	-0.244 (-3.38)*
Domestic credit	-0.822 (-35.16)*	-0.811 (-29.55)*	-0.823 (-32.08)*
MA	0.941 (16.28)*	1.39 (5.69)*	0.989 (1652.02)*
R-Squared	0.987	0.991	0.984
Adjusted R-Squared	0.984	0.989	0.981
S.E. of Regression	0.017	0.014	0.019
Durbin-Watson Stat.	1.98	1.40	2.33
F-statistic	311.57*	530.65*	302.87*
Chow Breakpoint Test:			
F-statistic	1.60	0.281	1.34

* = Significant at 1 % level
 ** = Significant at 5 % level
 *** = Significant at 10 % level

Therefore, these results are more reliable than the earlier studies, which were based on a shorter period. Our findings support the monetarist hypothesis of the balance of payments despite all restrictive assumptions behind the theory.

To test the exogeneity of the determinants of money demand (domestic price level P , real income y , interest rate (i) and inflation (π) and

domestic credit DC with respect to reserves R, two tests are carried out. In the first test, data is constructed as they appear in equation (6). In the second test, first difference of R, P, y , i , π and DC are used. The motivation underlying the second test is that if the test data are defined as in (6) then share weights for R and DC will appear on both sides of (8), and it is possible that a spurious simultaneity might be introduced.

The test results for both sets of data are displayed in appendix Table (2). The results of the first test are displayed under the heading "General model" and the results of the second test under the heading "Linear Model". The Wald Test (F-statistic and Chi-square) is used to test the null hypothesis of exogeneity; i.e., that six coefficients on lagged reserves in all five equations (one for each putative exogenous variable) are jointly zero which are displayed in column (3) and (4) of Table 2. The estimated value of F-statistic and Chi-square are insignificant, except for domestic credit. Domestic credit is significant in the general model hypothesis and the exogeneity of domestic credit is rejected for the general model but accepted for the linear model. The contradiction in domestic credit results may be a result of spurious simultaneity as suspected by Whitman (1975), Magee (1976), Borts and Hanson (1977).

V. Conclusion and policy implications

The study focused on analysing whether the balance of payments problem is a monetary phenomena. No study, so far, confirmed this notion. The empirical findings of this study show that balance of payments is a monetary phenomenon and monetary policy could be useful in improving the foreign sector. The increase in price level and real income lead to foreign reserve inflows whereas increase in interest rate, inflation, money multiplier and domestic credit lead to reserves outflows. This also shows that there is partial sterilisation in the short run but in the long run, it tends to equal -1; indicating no sterilisation policy adopted by the authorities to effect the foreign reserve movements through domestic credit creation. The results also indicate that excessive domestic credit expansion will lead to reserve out flows.

This increase in prices leads to an increase in the money demand. If this rise in money demand is not met by an equal increase in money supply by the monetary authorities, then it puts pressure on reserves from abroad, until the excess demand for money is entirely eliminated. Another implication of monetary policy is that if the monetary authorities do not increase the domestic component of money supply to meet the increased money demand, resulting from the growth of GNP over time, then an

inflow of money will take place to make up the difference. The central implication derived from this study is that an increasing government budget deficit led to excessive expansion in domestic credit and as a result, a loss of foreign exchange reserves. Thus, controlling domestic credit, as well as other monetary variables can stabilise foreign reserves.

APPENDIX 1: SPECIFICATION OF THE MODEL

The formal monetary model of the balance of payments consists on, the money demand function, a money supply equation and an equilibrium condition

Money demand function

The demand for real money balances can be written as:

$$M^d / P = a y^{b_1} i^{b_2} \pi^{b_3} \quad (1)$$

Where M^d is the demand for nominal money balances; P is the domestic price level;

y is the level of domestic real income; i is the domestic interest rate; and π is the rate of inflation. Equation (1) can be written as in log form:

$$m^d - p = a + b_1 y + b_2 i + b_3 \hat{j}$$

$$m^d = a + p + b_1 y + b_2 i + b_3 \hat{j}$$

Taking derivative with respect to time and denoting it by (g) , above equation becomes as:

$$g m^d = \alpha_0 + \alpha_1 g p + \alpha_2 g y + \alpha_3 g i + \alpha_4 g \hat{j} + u$$

Where:

$g x = (1/x) (dx / dt)$, and $x = p, y, i, \hat{j}$ and u is the stochastic disturbance.

The parameters α_2 , α_3 and α_4 are the elasticity of real income, interest rate and rate of inflation with respect to nominal money balances respectively, which are expected to have the following signs:

$$\alpha_2 > 0, \quad \alpha_3 < 0, \quad \alpha_4 < 0$$

Since the demand for money is assumed to be homogeneous of degree one in price level, so the expected sign of $\alpha_1 = 1$.

Money supply equation

The money supply is defined as equaling the product of money multiplier and the high-powered money.

$$M^s = Km \quad (2)$$

Where M^s is the supply of money; K is the money multiplier and m is the monetary base (volume of high-powered money)

By definition the stock of high-powered money or the liabilities of the monetary authorities (m) is equal to the stock of international reserves (R) and domestic assets (net of liabilities) holdings of the monetary authorities (DC).

$$m = R + DC \quad (3)$$

Putting it in equation (2):

$$M^s = K (R+DC)$$

Writing equation in logarithmic form we get:

$$m^s = k + \log (R + DC)$$

Where, m^s is the log of money supply (M^s) and k is the log of money multiplier (K).

Taking derivative with respect to time and denoting it by (g) and after some manipulation we get:

$$g m^s = g k + (R / m) g R + (DC / m) g DC \quad (3a)$$

Where:

$$g x = (1 / x) (dx / dt), \text{ and } x = k, R, \text{ and } DC$$

Equation (3a) can be written as:

$$g m^s = g k + g r + g dc$$

Where:

$g m^s$ = Growth rate of money supply. $g k$ = Growth rate of money multiplier

g_r = Growth rate of international reserves weighted by its share in monetary base .

g_{dc} = Growth rate of domestic credit weighted by its share in monetary base.

Money market equilibrium

With the help of monetary equilibrium, we can derive the international reserves flows equation.

$$g_m^s = g_m^d \quad (4)$$

$$g_k + g_r + g_{dc} = a + b_0 g_p + b_1 g_y + b_2 g_i + b_3 g_j + u$$

$$g_r = \beta_0 + \beta_1 g_p + \beta_2 g_y + \beta_3 g_i + \beta_4 g_j - \beta_5 g_k - \beta_6 g_{dc} + u \quad (5)$$

Equation (5) represents the key relationship in the monetary theory of the balance of payments. The expected signs and expected magnitudes of the parameters of equation (5) are as follows.

$$\beta_1 = 1, \beta_2 > 0, \beta_3 < 0, \beta_4 < 0, \beta_5 = \beta_6 = -1$$

Appendix: Table-1: The Unit Root Test of Stationarity

Variables	Test Type	Test for Unit Root in Level		
		Intercept	Test Equation include in Trend	None
Reserves	ADF	-5.613280 (-3.6496)*	-5.591444 (-4.2712)*	-5.689652 (-2.6369)*
	PP	-6.361415 (-3.6422)*	-6.290903 (-4.2605)*	-6.468714 (-2.6344)*
Price Level	ADF	-3.820057 (-3.6496)*	-3.797062 (-3.5562)**	-3.869686 (-2.6369)*
	PP	-6.107482 (-3.6422)*	-6.170552 (-4.2605)*	-6.125617 (-2.6344)*
Real Income	ADF	-3.315301 (-2.9558)**	-3.235786 (-3.2109)***	-0.828611 (-1.9517)
	PP	-2.163431 (-2.6148)	-2.051565 (-3.2081)	-0.541005 (-1.6211)
Interest Rate	ADF	-4.656246 (-3.6496)*	-4.574843 (-3.5562)**	-4.757654 (-2.6369)*
	PP	-5.614617 (-3.6422)*	-5.563833 (-4.2605)*	-5.656899 (-2.6344)*
Inflation Rate	ADF	-4.645548 (-3.6576)*	-4.551090 (-4.2826)*	-4.712595 (-2.6395)*
	PP	-5.882468 (-3.6496)*	-5.781154 (-4.2712)*	-5.991086 (-2.6369)*
Money Multiplier	ADF	-3.242476 (-2.9558)**	-3.633055 (-3.5562)**	-3.298826 (-2.6369)*
	PP	-5.225522 (-3.6422)*	-5.673861 (-4.2605)*	-5.313670 (-2.6344)*
Domestic Credit	ADF	-5.524144 (-3.6496)*	-5.483126 (-4.2712)*	-4.568966 (-2.6369)*
	PP	-6.056990 (-3.6422)*	-5.972944 (-4.2605)*	-5.315551 (-2.6344)*

ADF: Augmented Dickey Fuller Test, PP: Phillips-Perron Test.

() values show the critical τ (tau) statistics computed by MacKinnon.

* Stationary at 1% level

** Stationary at 5% level

***Stationary at 10% level

Appendix: Table 2: Regression Results for Testing Exogeneity of the Monetary Model
Test Statistic for Null Hypothesis
 $G_s = 0$, for all $s > 0$
Wald Statistic

Regression	Model	F-statistic	Chi-square	R ²	D.W.stat
g p	General Model	0.459	0.459	0.99	2.06
	Linear Model	(0.511)	(0.497)	0.85	1.67
		0.244 (0.631)	0.244 (0.620)		
g y	General Model	0.929	0.929	0.99	1.82
	Linear Model	(0.355)	(0.335)	0.77	2.15
		0.078 (0.785)	0.078 (0.779)		
g i	General Model	.634	1.634	0.76	2.05
	Linear Model	(0.227)	(0.201)	0.61	2.14
		0.500 (0.495)	0.500 (0.479)		
g π	General Model	0.391	0.391	0.99	2.42
	Linear Model	(0.544)	(0.531)	0.73	1.69
		0.154 (0.702)	0.154 (0.694)		
gdc	General Model	8.558**	8.558**(0.	0.98	2.05
	Linear Model	(0.03)	03)	0.76	1.61
		1.037 (0.365)	1.037 (0.308)		

g p = Growth rate of domestic price level

g y = Growth rate of real income

g i = Growth rate of domestic interest rate

g π = Growth rate of inflation

g dc = Growth rate of domestic credit

** = Significant at 5 % level.

() value shows the probability.

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Socio Economic Conditions of Child Labourers in Pakistan: Evidence from the Labour Force Survey

Umer Khalid & Lubna Shahnaz*

Introduction

Child labour has emerged as a serious, widespread and growing problem in many parts of the world. Asia has a large number of children employed as child labourers. *Child Labour Survey 1996* reports that there are 3.3 million children working between the ages of 5 and 14 years in Pakistan.

Developed countries have linked trade with child labour through the Harkin Bill and the Uruguay Round of Multilateral Trade Agreement (1994), which banned the market manufactured or mined goods produced in whole or in part by children under 15 years of age. Pakistan is also facing restrictions on some of its exports due to allegations of child labour. However, Pakistan has enacted the Employment of Children Act of 1991, which has banned employment of children below the age of 14 years.¹

The problem of child labour persists even in the presence of trade sanctions and legislation. In fact, trade restrictions and laws are only demand side factors, and they can intensify the problem, which could result in children being diverted to less desirable or more hazardous work, where it can flourish without being noticed. Therefore, mishandling of this issue can make matters go from bad to worse. We should work in a realistic way to deal with this complex issue. The policy makers, in order to combat child labour effectively, need detailed information about child labour. It is therefore relevant to explore the details about child labourers' socio economic profile in detail at the micro level. Further, factors determining parent's decision to send their children to the labour market should be identified in detail.

Keeping in view this background, the present study is an attempt to identify the socio economic features of working and non-working children between the ages of 10-14 years.² Moreover, conditions of working children

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¹ See Hyder (1998) for details.

² In Pakistan, the data about the extent of working children between the ages of 5-14 are not found well documented regularly. The Census and *Labour Force Survey* are two main sources of manpower statistics, but they set the standard age-cut off point at 10 years for labour force participation.

will also be examined in detail. This analysis would enable us to identify a range of policy variables that could be used to address the problem of child labour. It will also identify the parental characteristics of working and non-working children, which is necessary for the formulation of effective policies in reducing and eventually eliminating child labour in Pakistan

Review of Literature

The basic cause of child labour in developing countries is considered to be poverty; [Irfan (1981), Khan (1982), Levy (1985), Hussain (1986) Bequele and Boyden (1988), Ahmed (1990), Noman (1990-91), Boyden (1991), Awan (1992), Grootaert and Kanbur (1995)]. However, poverty alone is not responsible for the practice (Ray 1999). A number of other factors also affect the supply of child labour in developing countries including Pakistan. Child labour contributes to further poverty by pushing down the wage rate in the labour market.

Low wages, high cost of living and lack of adequate social security systems are the main causes of the prevalence of child labour in Hong Kong. [Porter (1975)]. Rodgers and Standing (1981) have associated child work with the mode of production and the structure of the labour market. They found that in an economy where labour intensive production techniques are used, child work would be common. Poorly endowed households are a major cause of child labour [Psacharopoulos and Assiagada (1989)]. High unemployment, unequal distribution of resources and a high dependency ratio push children into joining the labour force [Naseem (1991)]. Older siblings in the household and mother's education have a negative impact on a child's market work. Moreover, gender of the child is important; male children have higher probability of doing market work, while female children have higher probabilities of being engaged in home production [Degraff *et al.* (1993)].

More recently, Grootaert and Kanbur (1995), Basu and Van (1998), Basu (1999), Basu *et al.* (2000) have emphasised the link between household's struggle to survive and the incidence of child labour. According to Boyden (1991), the economic viability of the households depends on placing as many members as possible in the labour market. Ghayur (1997) discusses the existence of poverty in a household that pushes a child to work. While discussing the child's contribution to the household's total income, Ray (1999) concludes that the share of child earning in the household's total earning is considerably higher in Pakistan than Peru. Baland and Robinson (2000) have developed a model, in which they incorporate inequality between families. Rich families do not send their children to work,

whereas poor families do. So poverty is a major determinant of child labour. Basu *et al.* (2000) develop a model and conclude that household survival becomes an overwhelming concern when adult male members of the household become unemployed, due to unfavorable labour market conditions, then households are faced with the prospect of sending their children to work. Binder and Scrogin (1999) conclude that child's wages, parents earning capacity, household expenditure and composition play an important role in the labour force participation of children. Patrinos and Psacharopoulos (1995) investigate determinants of child labour in Paraguay and find that poverty; mother's education and number of siblings in the household have a significant effect on children's working status. Burki and Fasih (1998) analysed the supply side determinants of child labour in Punjab, Pakistan by using a reduced form model. They concluded that age and gender affect child's probability of working. Parent's characteristics and number of siblings in different age groups play a major role in children's schooling-work decisions.

Most of the research work is based on case studies covering a few villages, a city, a sub-national area and at best a province, state or an equivalent region,³ probably because of lack of systematic data collection and availability of micro-based data on child labour. Poverty is considered the most important causal factor for child labour in all these studies and provides valuable insights into the supply of child labour. However, we need to go further and ask the next question: What specific characteristics of poverty at the household level cause child labour? The proposed study will investigate the nature of child labour prevailing in Pakistan and will explore the causes of child labour in Pakistan by focusing on its supply side determinants. As child labour has a number of economic consequences, this problem needs to be analysed in detail.

Data Source

In Pakistan, a primary source of labour force data is the *Labour Force Survey* (LFS),⁴ which has been conducted annually since 1963 by the Federal Bureau of Statistics, Government of Pakistan. The purpose of the LFS is to provide policy makers and researchers with individual and household level data needed to analyse the impact of policy initiatives on households and individuals. The LFS records labour force participation for all household members of above 10 years and has questions on the labour market, education and socioeconomic

³ Bequele and Boyden (1988), Myers (1991), Jomo (1992), Groonsekere (1993) and Boyden and Myers (1995) report case studies.

⁴ See *Labour Force Survey* 1996-97, pages 27-29 for the detailed sampling methodology. Rural urban domain are also discussed in the above mentioned pages.

conditions of households. We used micro data tapes of the *Labour Force Survey* 1996-97 for this study, which has 22,060 households and 133,493 individuals. We follow the age limit of 10-14 in order to capture better information regarding child labour. The total children of age 10-14 are 17,119, and by excluding AJK, we have a sample of 15,749 children. By deleting some value data, we have a sample of 5,500 children.

Child Characteristics

Table 1 presents the distribution of children by location. The sample size of the population aged 10-14 years comprises 5,500 individuals, of which 363 (6.6 per cent) are classified as child workers and 5,137 (93.4 per cent) are classified as non-working. Among the child workers, the majority resides in rural areas (64.2 per cent), while most of the non-workers are in urban area.

Table-1: Distribution of Children by Geographical Location

Region	Working Child	Non-Working Child	Total
Urban	130 (35.8) [3.9]	3191 (62.2) [96.1]	3321 (60.4)
Rural	233 (64.2) [10.7]	1946 (37.8) [89.3]	2179 (39.6)
Total	363 [6.6]	5137 [93.4]	5500

Source: Labour Force Survey 1996-97

Note: Values in round brackets are column wise percentages and in square brackets are row wise percentages in all Tables.

Table 2 reports the distribution of child workers across the five provinces, which reveals that the Punjab received the greatest inflow of child labour (69.7%). In Tables 3 & 4 child labour is disaggregated by age and gender. We observe that as age increases child labour increases. Near 80% working children are in the age group of 12-14 years. We found that the percentage of male children engaged in labour is higher than their counter parts. This may be due to the fact that they are supposed to be the earners of their households.

Table-2: Distribution of Children by Province

Province	Working Child	Non-Working Child	Total
Punjab	253 (69.7) [10.2]	2237 (43.5) [89.8]	2490 (45.3)
Sindh	54 (14.9) [3.9]	1323 (25.8) [96.1]	1377 (25.0)
NWFP	53 (14.6) [5.3]	940 (18.3) [94.7]	993 (18.1)
Baluchistan	3 (0.8) [0.5]	637 (12.4) [99.5]	640 (11.6)
Total	363 [6.6]	5137 [93.4]	5500

Source: Labour Force Survey 1996-97

Table-3: Distribution of Children by Age Group

Age groups	Working Child	Non-Working Child	Total
10-11 Years	74 (20.4) [3.5]	2012 (39.2) [96.5]	2086 (37.9)
12-14 Years	289 (79.6) [8.4]	3125 (60.8) [91.5]	3414 (62.1)
Total	363 [6.6]	5137 [93.4]	5500

Source: Labour Force Survey 1996-97

Table-4: Distribution of children by sex

Sex	Working Child	Non-Working Child	Total
Male	271 (74.7) [9.2]	2667 (51.9) [90.8]	2938 (53.4)
Female	92 (25.3) [3.6]	2470 (48.1) [96.4]	2562 (46.6)
Total	363 [6.6]	5137 [93.4]	5500

Source: Labour Force Survey 1996-97

Educational qualification of the children is discussed in Table 5. The figures here indicate that 75.2 per cent of working children and 16.7 per cent of non-working children have no formal education. As educational level improves, the incidence of child labour decreases. In the middle class only 1.7 per cent children are labourers. Their illiteracy and lack of skills makes them vulnerable, turning them into helpless beings who can be easily targeted and preyed upon throughout their lives. After this their children must suffer the same fate resulting in a vicious circle of child labour. Table 6 presents the distribution of children by technical training, which shows that 90 per cent child workers acquired no training before entering the labour market.

Table-5: Distribution of Children by Educational Qualification

Educational Level	Working Child	Non-Working Child	Total
No formal education	273 (75.2) [24.2]	857 (16.7) [75.8]	1130 (20.5)
Incomplete primary	38 (10.5) [2.2]	1705 (33.2) [97.8]	1743 (31.7)
Completed primary	46 (12.7) [2.1]	2176 (42.4) [97.9]	2222 (40.4)
Middle	6 (1.7) [1.5]	399 (7.8) [98.5]	405 (7.4)
Total	363 [6.6]	5137 [93.4]	5500

Source: Labour Force Survey 1996-97

Table-6: Distribution of Child Workers by Technical Training

Technical training	Working Child	Non-Working Child	Total
No Training	327 (90.1) [6.4]	4752 (92.5) [93.6]	5079 (92.3)
Training	36 (9.9) [8.6]	385 (7.5) [91.4]	421 (7.7)
Total	363 [6.6]	5137 [93.4]	5500

Source: Labour Force Survey 1996-97

As we discussed earlier the majority of child labourers has not acquired formal education or any technical education. So they have to join elementary (unskilled) occupations, 35.5% belongs to this category (Table 7). It is evident from Table 8 that most child labourers are contract cultivators by employment status, the reason may be that the majority resides in rural areas. And 38.8% children work in the country side (see Table 9).

Table 10 describes that 36.9% child labourers worked 40-50 hours weekly and 27% children work above 50 hours per week. It is evident from Table 11 that 38% working children are not paid. May be they work only because their parents are working there already, or may be most of the children who worked are paid in the form of food and clothes. According to Table 12, approximately 58% children receive up to 1000 rupees per month.

Table-7: Distribution of Children by Occupation

Occupations	Working Child
Legislators, senior officials and managers	5 (1.4)
Professionals	1 (0.3)
Technicians and associate professionals	5 (1.4)
Clerks	3 (0.8)
Service workers and shop and market sales workers	32 (8.8)
Skilled agricultural and fishery workers	90 (24.8)
Craft and related workers	87 (24.0)
Plant and machine operators and assemblers	11 (3.0)
Elementary (unskilled) occupations	129 (35.5)
Total	363

Source: Labour Force Survey 1996-97

Table-8: Distribution of Children by Employment Status

Employment Status	Working Child
Regular paid employee with fixed wage	58 (16.0)
Casual paid employee	49 (13.5)
Paid worker by piece rate or work performed	91 (25.1)
Paid non-family apprentice	27 (7.4)
Own account worker non-agriculture	26 (7.2)
Own account worker agriculture	3 (0.8)
Owner cultivator	3 (0.8)
Contract cultivator	102 (28.1)
Unpaid family worker agriculture	4 (1.1)
Total	363

Source: Labour Force Survey 1996-97

Table-9: Distribution of Children by Place of Work

Place of Work	Working Child
At his/her own dwelling	39 (10.7)
At family or friends dwelling	3 (0.8)
At the employer's house	22 (6.1)
On the street	12 (3.3)
On country side	141 (38.8)
In a shop, business, office or industry	134 (36.9)
Other	12 (3.3)
Total	363

Source: Labour Force Survey 1996-97

Table-10: Distribution of Children by Weekly Hours of Work

No of Hours (per week)	Working Child
Up to 10 Hours	3 (0.8)
10-20 Hours	7 (1.9)
20-30 Hours	44 (12.1)
30-40 Hours	77 (21.2)
40-50 Hours	134 (36.9)
50-60 Hours	57 (15.7)
60-70 Hours	28 (7.7)
70-80 Hours	11 (3.0)
Above 80 Hours	2 (0.6)
Total	363

Source: Labour Force Survey 1996-97

Table-11: Distribution of Children by Periodicity of Payments

Periodicity of payments	Working Child
No Wages	138 (38.0)
Daily	55 (15.2)
Weekly	46 (12.7)
Fortnightly	7 (1.9)
Monthly	73 (20.1)
Other periodicity	2 (0.6)
Piece rate basis for service performed	39 (10.7)
Other	3 (0.8)
Total	363

Source: Labour Force Survey 1996-97

Table-12: Distribution of Child by Monthly Wages

Wages (in rupees)	Working Child
Up to 1000	129 (57.58)
1000-2000	71 (31.69)
2000-3000	19 (8.48)
3000-4000	2 (0.8)
4000 & Above	3 (1.33)
Total	224

Source: Labour Force Survey 1996-97

Parental Characteristics

Father's occupation reflects the socio-economic status of the household, and the periodicity of his earnings reflects the stability in occupation, income and socio-economic status of a household. Table 13 shows that the father's occupation strongly affects child labour. People engaged in white-collar jobs are less likely to send their children to work. The children whose fathers are blue-collar workers are more likely to send their children to work to raise the income of the family. We found that 54% children whose father's belong to elementary (unskilled) occupation are in child labour. To some extent the occupational status of the fathers also affects the choice of the occupation of their children.

Periodicity of payment of father's earnings is inversely related to child labour. The supply of child labour will be lower in households where the father has a stable and reliable source of earnings. The periodicity of earnings is ranked in the following way: the highest status is assigned to those who get a monthly income followed by those whose income is weekly, daily, fortnightly and piece rate basis for services performed, etc. Table 14 shows that there exists a strong relationship between the periodicity of father's earnings and incidence of child labour. Near 45% of the total-working children comes from households where the father's earning is on a daily or weekly or monthly basis. Among the total non-working children, 70.3 per cent of fathers earn on a monthly basis; while among the total working children 64.8 per cent of fathers do not earn on a monthly basis.

Table-13: Distribution of Children by Father's Occupation

Occupation	Working Child	Non-Working Child	Total
Legislators, senior officials and managers	3 (0.9) [0.9]	322 (6.4) [99.1]	325 (6.0)
Professionals	5 (1.5) [1.0]	512 (10.1) [99.0]	517 (9.6)
Technicians and associate professionals	4 (1.2) [1.2]	331 (6.5) [98.8]	335 (6.2)
Clerks	4 (1.2) [0.8]	496 (9.8) [99.2]	500 (9.3)
Service workers and shop and market sales workers	35 (10.3) [5.0]	670 (13.3) [95.0]	705 (13.1)
Skilled agricultural and fishery workers	36 (10.6) [21.6]	131 (2.6) [78.4]	167 (3.1)
Craft and related workers	51 (15.0) [7.3]	650 (12.9) [92.7]	701 (13.0)
Plant and machine operators and assemblers	19 (5.6) [3.6]	515 (10.2) [96.4]	534 (9.9)
Elementary (unskilled) occupations	184 (54.0) [11.4]	1427 (28.2) [88.6]	1611 (29.9)
Total	341 [6.3]	5054 [93.7]	5395

Source: Labour Force Survey 1996-97

Family's poor economic condition is one of the important determinants of child labour. The monthly wage of father and child labour are inversely related; as father's wages improve the incidence of child labour decreases. It can be seen from Table 15 that approximately 76% working children's father receive monthly wages up to 3000.

Table-14: Distribution of Children by Periodicity of Earnings of Fathers

Periodicity of Payments	Working Child	Non-Working Child	Total
Daily	92 (29.5) [10.6]	776 (15.7) [89.4]	868 (16.5)
Weekly	47 (15.1) [11.4]	365 (7.4) [88.6]	412 (7.8)
Fortnightly	8 (2.6) [13.8]	50 (1.0) [86.2]	58 (1.1)
Monthly	110 (35.3) [3.1]	3477 (70.3) [96.9]	3587 (68.2)
Other periodicity	7 (2.2) [26.9]	19 (0.4) [73.1]	26 (0.5)
Piece rate basis for service performed	43 (13.8) [14.7]	250 (5.1) [85.3]	293 (5.6)
Other	5 (1.6) [38.5]	8 (0.2) [61.5]	13 (0.2)
Total	312 [5.9]	4945 [94.1]	5257

Source: Labour Force Survey 1996-97

Table-15: Distribution of Children by Monthly Wages of Fathers

Wages (in rupees)	Working Child	Non-Working Child	Total
Up to 1000	29 (9.3) [14.2]	175 (3.5) [85.8]	204 (3.9)
1001 to 2000	127 (40.7) [12.9]	854 (17.3) [87.1]	981 (18.7)
2001 to 3000	80 (25.6) [4.9]	1547 (31.3) [95.1]	1627 (30.9)
3001 to 4000	50 (16.0) [4.3]	1121 (22.7) [95.7]	1171 (22.3)
4001 to 5000	8 (2.6) [1.7]	473 (9.6) [98.3]	481 (9.1)
5001 to 10000	12 (3.8) [2.1]	565 (11.4) [97.9]	577 (11.0)
10001 & above	6 (1.9) [2.7]	210 (4.2) [97.2]	216 (2.2)
Total	312 [5.9]	4945 [94.1]	5257

Source: Labour Force Survey 1996-97

Table 16 presents mother's monthly wages and incidence of child labour in each income category. It can be observed that 45.1 per cent of mothers of working children are found in the lowest income group of up to Rs.1000. 38 percent of the total-working children are found in the next income category of Rs. 1001-2000. Further up in the income category where mother's wages are Rs.2001-3000 per month, the incidence of child labour is only 14.1 per cent. When mother's wages are Rs 3001-4000 per month, working children form just 1.4 per cent of the total working children. Mother's occupation has a similar effect on child labour as in the case of father's occupation. Incidence of child labour was found to be highest in households where the mother had an elementary (unskilled) occupation, (Table 17).

Table-16: Distribution of Children by Monthly Wages of Mothers

Wages (in rupees)	Working Child	Non-Working child	Total
Up to 1000	32 (45.1) [22.5]	110 (32.1) [77.5]	142 (34.3)
1001 to 2000	27 (38.0) [19.4]	112 (32.7) [80.6]	139 (33.6)
2001 to 3000	10 (14.1) [14.9]	57 (16.6) [85.1]	67 (16.2)
3001 to 4000	1 (1.4) [2.9]	33 (9.6) [97.1]	34 (8.2)
4001 & above	1 (1.4) [3.1]	31 (9.0) [96.9]	32 (3.6)
Total	71 [17.1]	343 [82.9]	414

Source: Labour Force Survey 1996-97

Table-17: Distribution of Children by Mother's Occupation

Occupation	Working Child	Non-Working Child	Total
Legislators, senior officials and managers	1 (0.9) [12.5]	7 (1.5) [87.5]	8 (1.4)
Professionals	0	63 (13.2) [10.0]	63 (10.6)
Technicians and associate professionals	0	54 (11.3) [9.1]	54 (9.1)
Clerks	0	3 (0.6)	3 (0.5)
Service workers and shop and market sales workers	13 (11.4) [17.8]	60 (12.6) [82.2]	73 (12.3)
Skilled agricultural and fishery workers	31 (27.2) [23.0]	104 (21.8) [77.0]	135 (22.8)
Craft and related workers	10 (8.8) [12.2]	72 (15.1) [87.8]	82 (13.9)
Plant and machine operators and assemblers	1 (0.9) [20.0]	4 (0.8) [80.0]	5 (0.8)
Elementary (unskilled) occupations	58 (50.9) [34.3]	111 (23.2) [65.7]	169 (28.5)
Total	114 [19.3]	478 [80.7]	592

Source: Labour Force Survey 1996-97

Uneducated or poorly educated parents are another cause of child labour. There is an inverse relationship between parental education and supply of child labour. Educated parents are well aware of the worth of educating their children. Illiterate parents consider that sending their children to school is very costly and just a wastage of time and money. So they take into account the direct and opportunity cost of educating their children. Table 18 and 19 show a negative relationship between parental education status and child labour. As the educational level of parents increases, the prevalence of child labour decreases. The highest incidence of child labour is in the households

where the parents have no formal education. Table 18 shows that near 80 per cent fathers of working children have no formal education; in case of mother's education this figure goes up to 95 per cent (see Table 19). The incidence of child labour drops to zero where the father's educational level is postgraduate and the mother's level of education is intermediate. It can be seen that mother's education has a greater impact on child labour as compared to father's education. Incidence of child labour is 3 per cent, where the mother's educational level is incomplete primary. A further drop is noted in the households where the mothers have completed primary education; child labour drops to 1.1 per cent. Child labour declines further to 0.6 per cent when the mother's educational level is metric.

Table-18: Distribution of Children by Father's Educational Qualifications

Educational Level	Working Child	Non-Working Child	Total
No Formal Education	290 (79.9) [12.3]	2059 (40.1) [87.7]	2349 (42.7)
Incomplete Primary	15 (4.1) [7.6]	183 (3.6) [92.4]	198 (3.6)
Primary	27 (7.4) [4.6]	554 (10.8) [95.4]	581 (10.6)
Middle	16 (4.4) [3.1]	506 (9.9) [96.9]	522 (9.5)
Metric	10 (2.8) [1.3]	768 (15.0) [98.7]	778 (14.1)
Intermediate	2 (0.6) [0.5]	420 (8.2) [99.5]	422 (7.7)
Degree	3 (0.8) [0.6]	481 (9.4) [99.4]	484 (8.8)
Post Graduate	0	166 (3.2)	166 (3.0)
Total	363 [6.6]	5137 [93.4]	5500

Source: Labour Force Survey 1996-97

Table-19: Distribution of Children by Mother's Educational Qualifications

Educational Level	Working Child	Non-Working Child	Total
No Formal Education	345 (95.0) [8.2]	3857 (75.1) [91.8]	4202 (76.4)
Incomplete Primary	11 (3.0) [2.1]	521 (10.1) [97.9]	532 (9.7)
Primary	4 (1.1) [1.5]	269 (5.2) [98.5]	273 (5.0)
Middle	1 (0.3) [0.4]	283 (5.5) [99.6]	284 (5.2)
Metric	2 (0.6) [1.8]	112 (2.2) [98.2]	114 (2.1)
Intermediate	0	82 (1.6)	82 (1.5)
Degree	0	13 (0.3)	13 (0.2)
Total	363 [6.6]	5137 [93.4]	5500

Source: Labour Force Survey 1996-97

Conclusion and Policy Implications

This study is an attempt to describe the socio economic conditions of child labour in Pakistan and to highlight differences between households with working children and those households with out any child workers. It also discusses the labour market conditions of child workers by using *Labour Force Survey 1996-97*. Our results show that a higher proportion of children between the age cohorts of 12-14 years are involved in work and the majority of them are male. Nearly, 70 per cent reside in the Punjab and 64 per cent belong to rural areas. Working children are found uneducated and working without any technical training. The majority work in the elementary (unskilled) occupations. Around 39 per cent of child workers work in the countryside. Approximately, 58 per cent of working children earn monthly wages up to 1000 rupees and the majority work nearly 40-50 hours per week. Most of the fathers of working children are involved in elementary occupations. About 41 per cent of fathers earn incomes between 1000-2000

rupees monthly, while 45 per cent of mother's monthly income ranges up to 1000. It is observed that around 80 per cent of fathers of working children had no formal education. In case of mothers this figure goes up to 95 per cent. Evidence suggests that unbearable economic pressure forces the parents to send their children to work. Children are compelled to share the economic burden of their families. Parent's occupational status and educational level are together linked to child labour.

From the above discussion, several implications for policy makers emerge which can serve as guidelines for the eventual elimination of child labour. The problem of child labour cannot be eliminated merely by the implementation of child labour laws. There must be an easy access to education; it would not only increase the literacy rate but also decrease the incidence of child labour as a large number of children work due to low economic status of their families. Non-formal education programmes can be devised to enable working children to upgrade their skills. Economic incentives should be offered to adults to compensate for the loss of that income which results from the school education of their offspring. Adult's literacy programmes should also be promoted. Increased employment and earning opportunities for adult household members should be created.

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Why Private Investment In Pakistan Has Collapsed And How It Can Be Restored

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Abstract

The purpose of this paper is to analyse the decline in private investment and formulate a comprehensive strategy to overcome this problem, which is the main cause of deceleration in the growth momentum of Pakistan's economy. Due to lack of investor confidence, private investment has reached its lowest point in the recent economic history of the private sector led growth phase (1978 to 2002) in Pakistan. This paper argues that economic as well as non-economic factors are responsible for this declining investment. Economic policies are formulated in such a manner that the short-term objectives of lowering the fiscal and trade deficits were to some extent achieved but overall economic performance and investment were ignored. In order to control external trade deficits, a policy of devaluation increased the cost of production through an increase in prices of imported raw material especially of plant and machinery. Higher real interest rates due to excessive public borrowing that were due to the failure in reducing fiscal deficits has resulted in financial crowding out and has corroded the savings that might be used to finance private investment. The unexplained part of private investment that is not determined by economic factors can be attributed to non-economic factors, which include internal and external shocks. These shocks start from the sanctions which were imposed after the nuclear blast. Events following that initial shock like the freezing of foreign currency accounts, the military coup, the harassment of the partially successful accountability drive of the military government, the 9/11 incident, the Afghan war and tensions on the Pak-India border have complemented the shock. A comprehensive programme is required to boost private investment and for the restoration of investor confidence. Therefore, an economic package is recommended in this paper that consists of incentives that relax the supply side constraints by reducing cost of production as well as demand-enhancing efforts. It is the best time to introduce a strategy to increase investment activities in the

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economy because of the high level of foreign exchange reserves, the rescheduling of foreign debt and the drastic reduction in interest rates which have reduced the debt servicing cost. Investor confidence can be restored by accelerating economic activities through following policies that can reduce the cost of imported raw material, bring down the real interest rates in the economy, increase expenditures on infrastructural development activities and that can also increase the availability of conditional subsidised credit for the export oriented small scale industries so that there is an improvement in the quality of the final product. This would make it more competitive in foreign markets.

I. Introduction

The objective of this paper is to analyse the slowdown in private investment that has resulted in a reduction of the growth momentum of the economy from the early 1990s till today. Overall economic growth was above 6% during the decade of 1980s, fell to a mere 4% in the 1990s and further decelerated to 3.8% in the last three fiscal years (1999-00 to 2001-02). This secular decline in the rate of economic activity can be attributed to the fall in total investment to a level much below the requirements of the economy. Total investment was 17.7 % of GDP in 1980s, 17.1% in the first half of the 1990s and further declined to 14.9% in the second half. The decline in total investment is due to a fall in private as well as public investment. Private investment that grew at an average rate of 6.8% in the 1980s declined to 3.8% in the 1990s and grew at only 2.1% in 2000-02. The average growth of public investment was 4.6% in the 1980s, 0.5% in the 1990s and -0.5% in 2000-02. The investment-GDP ratio in Pakistan compared to neighboring countries is also very low. For example, gross domestic investment to GDP ratio of India was 9 % higher than in Pakistan and in Bangladesh it was 7.5% higher during 1999-02.

Table-1: Investment behaviour of the Pakistani Economy
(Percent of GDP)

	Decade of 80's	First Half of 90's	Second Half of 90's	2000- 01	2001- 02
Total	17.7	17.1	14.9	13.5	12.7
Investment	[5.6]	[4.3]	[-1.1]	[2.9]	[-1.6]
Private	8.0	8.3	8.6	7.5	7.4
Investment	[6.8]	[4.7]	[2.6]	[-1.7]	[3.8]
• Agriculture	1.7	1.3	0.9	0.9	0.8
	[5.8]	[-1.2]	[0.5]	[-6.4]	[-15.2]
• Industry	2.1	2.8	1.9	1.7	1.6
	[11.3]	[3.7]	[0.5]	[2.1]	[-2.8]
• Services	4.2	4.3	5.7	4.9	5.1
	[5.5]	[8.9]	[4.2]	[1.7]	[7.6]
Public	9.7	8.7	6.6	6.1	5.3
Investment	[4.6]	[4.0]	[-2.9]	[3.1]	[-9.3]

Source: *Pakistan Economic Survey* (various issues)

Figures in parenthesis are growth rates

Few studies have concentrated on the Pakistani economy in analysing the determinants of private investment. Ahmed (2001) has shown that output, cost of capital and the Public Sector Development Plan (PSDP) determine net investment. He concluded that cost of capital and PSDP are the most significant determinants of private investment in Pakistan. Sakr (1993) has explored the determinants of private investment in Pakistan and concluded that GDP growth, growth in credit extended to the private sector and government investment are important variables. Further, he disaggregated government investment in two categories: investment in infrastructure and in non-infrastructure projects. The latter has a negative impact while the former has a positive one on private investment. These studies however examined the aggregate private investment and did not explore the determinants of private investment in each sector of the economy. In this study, as an initial attempt, we take private investment in each sector – agriculture, manufacturing and services, to find the determinants of private investment.

This paper is organised in the following way. Section II discusses the determinants of private investment in agriculture, manufacturing and services sectors, and the effect it has in bringing down the growth rate. In section III an economic package for the revival of the growth rate of the

Pakistani economy is presented. Section IV brings together all the conclusions emerging from the analysis.

II. Determinants of Private Investment

In Pakistan, GDP growth has decreased and at the same time gross investment in each sector has fallen. Thus an examination of the role of different factors in influencing the level of private investment is necessary. Firstly, we specify a number of factors which influence private investment in the agricultural, manufacturing and services sectors. Interest rates, relative prices of imported machinery and the stock of infrastructure are hypothesised as the main determinants of private investment. However, sector specific determinants are also incorporated to have a closer examination of investment in each sector¹.

Theoretically, interest rates are the main determinants of investment and have an inverse relationship with investment. Provision of better infrastructure improves the productivity of capital and hence increases the return on private investment. Increased output is also positively related with investment.

However, in small open economies, external factors also play an important role in determining investment. Prices of imported plant and machinery relative to the prevailing general price level can be hypothesised as a major determinant of private investment. In a similar manner, increased external demand reflected by exports may increase investment activities.

A) Agriculture

The share of the agriculture sector in total private investment declined from 21.4 percent in the decade of the 80s, to 14 percent in the first half of the 90s and further to 11.2 percent in the second half of the 90s. Despite this the agriculture sector consisted of a fourth of GDP value. However its share in total private investment has declined massively. Private investment in the agriculture sector was 1.7 per cent of GDP in the decade of the 80s, which declined to 1.0 percent of GDP in the previous decade. The performance for the last three years is also discouraging due to the prevailing drought conditions², as private investment has a negative growth of 10% for this period.

The sample period for this analysis is from 1974 to 1999. The post-1999 data was not taken into consideration since due to the drought the investment series differs widely between the estimated and revised estimates

¹ Details about the data sources and variable construction are given in Appendix I.

² For details see *Stabilisation Versus Growth 2001*.

in the economic surveys and therefore, to avoid computational errors, we avoid using these observations.

We specify a behavioural function for real private investment in the agriculture sector (IPA_t^R) that depends on real remittances (RM_t^R), index of provincial infrastructure (SPI_t^I), nominal interest rate (R_t), and a lagged dependent variable ($IPA_{(t-1)}^R$).

$$IPA_t^R = \beta_0 + \beta_1 RM_t^R + \beta_2 SPI_t^I + \beta_3 R_t + \beta_4 IPA_{(t-1)}^R + \varepsilon_t \quad \dots(1)$$

The results³ also show that in the agriculture sector, productivity depends heavily on the climatic conditions and so the unobserved changes also matter along with the economic determinants. The coefficients and elasticities of real private investment with respect to remittances, economic infrastructure, interest rate and private investment (lagged) are presented in Table 2. Magnitudes of elasticities computed at mean of data demonstrate that a 10 % increase in remittances causes a 1.4 % increase in real private investment and a 10 % improvement in economic infrastructure results in a 5.1 % increase in real private investment. Similarly, a 10 % increase in the nominal interest rate will decrease the investment by 9%.

Table-2: Private Investment in the Agriculture Sector

Dependent Variable: IPA_t^R			
Variables	Coefficients	t-statistics	Elasticities
Constant	4639.78	2.301**	
RM_t^R	0.0405	2.068**	0.14
SPI_t^I	13.101	2.513**	0.51
R_t	-415.847	-2.072**	-0.89
$IPA_{(t-1)}^R$	0.424	2.684**	0.42
R-squared	0.887	Durbin-Watson	1.707

Breusch-Godfrey Serial Correlation LM Test reject serial correlation as F-stat =0.487

**Shows significant at 5 % level.

³ Stationarity tests of the variables and residual are reported in Appendix II.

Absolute contribution of the determinants of private investment in the agriculture sector is computed from the estimated coefficients and presented in Table 3. The changes in magnitudes of economic determinants will provide information in understanding the changes over time in private investment in the agriculture sector. The total increase in private investment in the 1980s, 3257 million rupees⁴, was due to the better provision of economic infrastructure that contributed to 1102 million rupees, increasing remittances contributed 62 million rupees, and a relative lower interest rate contributed 54 million rupees and a higher level of investment in the previous year contributed to 993 million rupees. An unexplained increase in private investment of 1046 million rupees was also higher, which might be due to the favourable climatic conditions. Private investment in the agriculture sector has declined by only 3 million rupees during the first half of the last decade because the major decline in investment due to increasing nominal interest rates was partly offset by better provision of infrastructure. In the second half of the 90s, all the determinants contributed negatively except infrastructure but non-economic factors pulled investment and resulted in a net increase of 754 million rupees in investment. A simulation shows the reversal of this situation which is observed during the last three years of 2000-02, as economic factors contributed positively while non-economic factors have caused a massive reduction in investment that dominated the contribution of economic factors.

Table-3: Contribution of Determinants of Real Private Investment (Agriculture) (Million Rupees)

	1981-90	1991-95	1996-00	2000-02
$\Delta (IPA_t^R)$	3257	-3	746	-1479
Determined by				
RM_t^R	62	24	-190	624
SPI_t^I	1102	847	195	203
R_t	54	-1015	-142	607
$IPA_{(t-1)}^R$	993	-563	-360	565
ε_t	1046	704	1243	-3478

The agriculture sector is characterised by randomness so we have more unexplained variation here⁵. Increasing nominal interest rates and declining

⁴ The Rupee is the currency of Pakistan. \$1 US is approximately equal to 60 rupees (in 2001).

⁵ For detail see Hafiz A. Pasha *et al* (2002)

remittances have resulted in lower investment during the 1990s, but a major part of investment remained unexplained. However, drought conditions caused a severe loss and reduced investment during the last three years.

B) Manufacturing

Private investment in the manufacturing sector grew at an average rate of 11.3 % in the 80s, but then decreased to 3.7 % in the first half of the 90s and to 0.5 % in the second half. As a percent of GDP, private investment in this sector increased in the first half of the 90s to a peak of 2.8 percent. Policy makers attribute this increase in private investment to the policy of deregulation and the liberalisation regime adopted in that era. But this level of private investment was not sustained and declined to 1.9 % in the second half of the 90s. This decelerating trend continued and private investment in manufacturing declined to 1.7% and 1.6% in 2000-01 and 2001-02 respectively.

We specify a behavioural function for real private investment in the manufacturing sector (IPM_t^R), which depends on the real interest rate (r_t), capacity utilisation in the manufacturing sector (CU_t^I), the relative prices of imported machinery (RP_t^M) and the exports of goods (XG_t^R).

$$IPM_t^R = \beta_0 + \beta_1 r_{t-1} + \beta_2 CU_t^I + RP_{t-1}^M + \beta_3 XG_t^R + \beta_4 DUM_{1994} + \varepsilon_t \dots\dots (2)$$

Table-4: Private Investment In the Manufacturing Sector

Dependent Variable: IPM_t^R			
Variable	Coefficient	t-statistics	Elasticities
Constant	-13080.89	-4.759*	
r_{t-1}	-189.39	-2.87*	-0.067
CU_t^I	22296.91	5.816*	1.539
RP_{t-1}^M	-1700.07	-2.40**	-0.327
XG_t^R	0.208	8.841*	1.176
DUM_{1994}	3522.168	3.448*	
R-squared	0.956	Durbin-Watson	1.53

Breusch-Godfrey Serial Correlation LM Test reject serial correlation as F-stat = 1.51

* and ** show significant at 1% and 5% levels respectively.

The econometric results⁶ show that the lagged real interest rate (r_{t-1}), capacity utilisation in the manufacturing sector (CU_t^I), lagged relative prices of imported machinery (RP_{t-1}^M) and exports of goods (XG_t^R) are significant determinants of investment. The elasticities of explanatory variables demonstrate that a 10% increase in real interest rate reduces the next period's investment by 0.67% and a 10% increase in relative prices of capital goods causes a reduction of 3.27% in the next year's private investment. However a 10% increase in capacity utilisation increases investment by 15.4% and a 10% increase in exports of goods results in an increase of 11.76% in private investment in the manufacturing sector.

A study of the determinants of investment in this sector shows that an increase in real interest rates and the relative prices of imported capital goods during the 1980s reduced investment, but higher growth in capacity utilisation and increasing exports overcame the exacerbating impacts and resulted in positive growth of 6834 million rupees in private investment. But in the first half of the 90s private investment declined by 215 million rupees, which was mainly due to a decline in capacity utilisation and unexplained factors. However, declining real interest rates and relative prices of capital goods along with positive growth in exports of goods have enhanced private investment. Afterwards, poor performance of the manufacturing sector was reflected by lower capacity utilisation and an increase in real interest rates resulted in a massive decline in real private investment. However, during the last three years (2000-02), higher real interest rates, increasing relative prices of imported capital and declining capacity utilisation worsened the negative impact on growth of private investment, which has fallen by 95 million rupees. Higher exports of goods have played an important role in enhancing investment in the manufacturing sector throughout the 80s and 90s. Changes in private investment in the manufacturing sector are explained by the changes in its determinants such as a movement in interest rates, capacity utilisation and external factors. But a reduction in the interest rate and a better export performance seems insufficient to offset the decline in investment in the last three years (2000-02). The role of non-economic factors is evident in decreasing private investment in the last three years.

⁶ Stationarity tests of the variables and residual are reported in Appendix II.

**Table-5: Contribution of Determinants of Real Private Investment
(Manufacturing)
(Million Rupees)**

	1981-90	1991-95	1996-00	2000-02
$\Delta(IPM_t^R)$	6834	-215	-1581	-95
Determined by				
r_{t-1}	-145	699	-1743	185
CU_t^I	3155	-2331	-913	-669
RP_{t-1}^M	-3082	706	-744	-1003
XG_t^R	5393	2342	747	4842
ε_t	1513	-1631	1072	-3450

C) Services⁷

Contrary to the trends in the commodity sectors, the services sector performs relatively better. Higher growth in the value added of the services sector attracted more private investment. Private investment in services were 4.2% of total investment that went up to 4.3% in the first half of the 1990s and to 5.7% in the second half of the decade. In 2001-02, this increased to 7.9%. But the increase in private investment in this sector was not sufficient to recover the overall decline.

We specify a behavioural function for real private investment in the other sectors (IPO_t^R) that depend on the real interest rate (r_t), value added in services sectors (YSO_t^R), relative prices of imported machinery (RP_t^M) and the lag of the dependent variable (IPO_{t-1}^R) along with the dummy for the massive inflow of Independent Power Projects (IPP) investment (DUM_{IPP}).

$$IPO_t^R = \beta_0 + \beta_1 r_{t-1} + \beta_2 RP_{t-1}^M + \beta_3 YSO_{t-1}^R + \beta_4 IPO_{t-1}^R + \beta_5 DUM_{IPP} + \varepsilon_t$$

..... (3)

⁷ All other sectors are added in the services sector due to unavailability of disaggregated data for each sector.

Table-6: Private Investment In Services Sector

Dependent Variable: (IPO_t^R)			
Variable	Coefficient	t-stat	Elasticities
C	242.89	0.358	
(RP_{t-1}^M)	-1762.78	-2.81*	0.155
(r_{t-1})	-155.70	-1.876***	0.025
(YSO_{t-1}^R)	0.101	9.131*	1.05
(IPO_{t-1}^R)	0.067	0.88	0.0596
(DUM_{IPP})	12031.80	9.83*	
R-squared	0.99	Durbin-Watson	1.78

Breusch-Godfrey Serial Correlation LM Test reject serial correlation as F-stat = 0.143

Significant at 1% level, ** significant at 5 % level, *** significant at 10%.

An econometric investigation⁸ of the factors that determine private investment in the services sectors show that lagged value of relative prices of imported machinery and real interest rates are inversely related while lagged value of value added in services is directly related to private investment. The coefficients of the estimated equation along with the elasticities are reported in Table 6. Further, elasticities of the explanatory variables demonstrate that a 10% increase in relative prices of imported capital causes a reduction of 1.55% in private investment. A 10% increase in the real interest rate causes a 0.25% decline in investment. However, the accelerator impact is very strong and is reflected by a 10% increase in real value added in this sector, which results in an increase of 10.5% in private investment.

⁸ Stationarity tests of the variables and residual are reported in Appendix II.

Table-7: Contribution of Determinants of Real Private Investment (Services)
(Million Rupees)

	1981-90	1991-95	1996-00	2000-02
$\Delta(IPO_t^R)$	7358	9028	1687	3291
Determined by				
(r_{t-1})	-120	574	-1433	152
(YSO_{t-1}^R)	10320	5565	5132	2655
(RP_{t-1}^M)	-3195	732	-771	-1040
(IPO_{t-1}^R)	500	289	1357	-596
ε_t	-147	1868	-2598	2120

Absolute contribution shows that in the services sector, the income effect is quite strong and has maintained private investment in this sector. However, the movements in the real interest rates and relative prices of imported capital goods also have a significant impact on real private investment in the services sector.

III. Economic Package

A detailed analysis of the determinants of private investment in the various sectors leads us to formulate an economic package to restore investor confidence in Pakistan. This is the best time to introduce such a strategy, and could be used to convert the recent external sector development into real sector growth through investment-oriented policies. Foreign exchange reserves can be properly utilised in constructing a growth-oriented strategy to increase social and economic welfare. This approach entails the removal of supply side bottlenecks and will enhance demand to boost private investment in the economy. The important features of the economic package are as follows:

- Duty free import of Plant and Machinery
- Reduction in real interest rate
- Public sector investment in infrastructure

- Subsidised credit for Small and Medium Enterprises (SMEs)
- Tax incentives for Term Finance Certificates (TFCs)

In the past, governments have used a policy of devaluation in order to enhance export demand, and this has resulted in an increase in the prices of imports especially in those of imported plant and machinery. On the one side, export oriented exchange rate policies have increased industrial investment but on the other hand have also discouraged investment through higher cost of imported machinery. Further, an effort to reduce the prices of imported machinery can be made by allowing for duty free imports of the machinery and plants with careful consideration of the domestic capital producing industries. This type of policy will not only restore investor confidence, which would result in new investment but would also reduce the replacement costs of the existing plants (sick industries). Therefore to enhance private investment, an incentive such as duty free imports of machinery would open the avenue for new investment opportunities and would increase the margin of return in the industries that are below break even.

In recent years, the inflation rate in Pakistan has decreased considerably. This has resulted in the lowering of interest rates by the State Bank of Pakistan, which has had a direct effect on domestic debt servicing in that the cost of debt has been reduced. Lower real interest rates will encourage new investment by reducing the cost of capital.

Private investment in the agriculture sector depends on the provision of infrastructure such as irrigation facilities and communications facilities. But lower growth in the provision of infrastructure has resulted in a declining contribution. Therefore the initiative of the public sector to provide better infrastructure would enhance investment in this subsistent sector.

Export oriented small scale industries are facing the problem of provision of better quality products as compared to other competitive countries. To improve the quality of the products of these industries there is an acute need of capital in order to make these industries competitive, and to improve the quality of their products to the level of their international competitors. A credit facility should be introduced and subsidised loans for those industries should be provided. This must be conditional on the improvement of the quality of their products.

Since the last two years, a new instrument in the secondary debt market has emerged, called the Term Finance Certificates. The development of such a secondary debt market is encouraging for investment activities in

the economy. Thus tax incentives given to these secondary debt markets will ultimately improve investment. Further, instruments will be developed due to such incentives.

IV. Conclusion

A consistently declining investment and economic growth rate is the major problem that the Pakistani economy has been facing for the last decade. An in-depth analysis of the determinants of private investment in different sectors of the economy is quite helpful in designing a revival plan for the economy. Interest rates emerge as the significant determinants of investment in all the sectors. Nominal interest rates and infrastructure are important in the case of agriculture only, while relative prices of imported machinery and real interest rates are significant in the manufacturing and services sectors. Unexplained variation in private investment is observed in all the sector, which might be due to the different external and internal shocks to the economy. The proposed economic package will not only be helpful in increasing private investment but will also play an important role in restoring investor confidence that has been eroded due to the shocks.

APPENDIX I

The detail of the variables along with the units and sources is presented in the Table below.

Table 1: Variables Description

Variables	Description
IPA_t^R	Private Investment in Agriculture Sector in Real Terms (Million of Rupees). Data is collected from the various issues of <i>Pakistan Economic Survey</i> .
IPM_t^R	Private Investment in Manufacturing Sector in Real Terms (Million of Rupees). Data is collected from the various issues of <i>Pakistan Economic Survey</i> .
IPO_t^R	Private Investment in Other Sectors in Real Terms (Million of Rupees). Data is collected from the various issues of <i>Pakistan Economic Survey</i> .
RM_t^R	Total Remittances in real terms (Million of Rupees). Data is collected from the various issues of <i>Pakistan Economic Survey</i> .
SPI_t^I	Index of Stock of provincial Public Infrastructure the data is collected from the various issues of Provincial Budget Documents.
R_t	Interest Rate on Advances and data is collected from various issues of <i>Statistical Bulletin of State Bank of Pakistan</i> .
CU_t^I	The index of capacity utilisation is constructed covering five major manufacturing industries Namely textile, vegetable ghee/cooking oil, fertilizer, cement and sugar. Only the data is available for those industries. Data is collected from the various issues of <i>Pakistan Economic Survey</i> .
XG_t^R	Exports of Goods in real term (Million of Rupees). Data is collected from the various issues of <i>Pakistan Economic Survey</i> .
YSO_t^R	The data on value added in Other sectors at factor cost (Million of Rupees). Data is collected from the various issues of <i>Pakistan Economic Survey</i> .
RP_t^M	Price index of imported plant and equipment divided by the index of domestic price level. Data is collected from the various issues of <i>Pakistan Economic Survey</i> .
P_t^I	GDP deflator is collected from the various issues of <i>Pakistan Economic Survey</i> .

APPENDIX II

If the linear combination of the I(1) variables is stationary or I(0), then the variables are said to be cointegrated (Granger 1981) and the regression makes sense. In the case of the linear combination is not stationary then regression will be spurious. Below, we have reported the results of stationary test for the estimated three regressions. Ljung-Box Q-stat (Ljung Box 1979) in the column 2 of Tables shows that all the variables are I(1). However residual of the estimated regression are I(0) that are reported in the last row of each table. Hence proving the existence of long run relationship (co-integration). The Dickey Fuller (Dickey, D. A. and Fuller, W. A. 1981) and P-P (Philips and Perron 1988) test also proves the same situation in columns 3 and 4 of the three tables below.

Table 2: Stationarity Test for Agriculture Regression

Variables	Q-STAT	ADF	P-P
IPA_t^R	19.85*	.086	0.0309
$\Delta (IPA_t^R)$	0.065	-3.76*	-4.233*
RM_t^R	21.12*	-1.96	1.66
$\Delta (RM_t^R)$	0.547	3.34**	4.02*
SPI_t^I	27.942*	0.83	-1.80
$\Delta (SPI_t^I)$.0140	-4.472*	-5.102*
R_t	23.954*	0.975	1.804
$\Delta (R_t)$	0.3195	2.74**	6.054*
ε_t	0.281	5.53*	4.33*

Table-3: Stationary Test for the Manufacturing Regression

VARIABLES	Q-STAT	ADF	P-P
IPM_t^R	26.74	1.182	1.149
$\Delta(IPM_t^R)$	0.0001	-3.578*	-5.316*
r_t	8.68	0.97	-2.52
$\Delta(r_t)$.0140	-3.741*	-6.142*
CU_t^I	20.57	0.96	0.61
$\Delta(CU_t^I)$	0.007	3.16*	5.235*
RP_t^M	24.79*	0.107	0.152
$\Delta(RP_t^M)$	1.93	2.50**	3.41*
XG_t^R	26.43	0.768	0.377
$\Delta(XG_t^R)$	0.893	2.87	4.22
ε_t	0.281	5.53*	4.33*

Table-4: Stationary Test for the Services Sector Regression

VARIABLES	Q-STAT	ADF	PP
IPO_t^R	23.35*	-0.177	-0.067
$\Delta(IPO_t^R)$	0.001	-2.80***	3.06*
r_t	8.68	0.97	-2.52
$\Delta(r_t)$	0.0140	-3.741*	-6.142*
YSO_t^R	24.16*	2.70	2.48
$\Delta(YSO_t^R)$	5.54*	4.55*	3.94**
RP_t^M	24.79*	0.107	0.152
$\Delta(RP_t^M)$	1.93	2.50**	3.41*
ε_t	0.154	3.02**	3.80*

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Simultaneous Decision Making of Child Schooling and Child Labour in Pakistani Urban Households

Karamat Ali and Rana Ejaz Ali Khan*

Introduction

In recent years, there has been a rapidly expanding literature on child labour that provides empirical evidence on its nature and determinants. The previous literature on Pakistani child labour includes Khan (1982), Hussain (1985), Ahmed (1991), Khan and Ali (1991) and Weiner and Noman (1995), and recently Addison, *et. al.* (1997), Burki and Fasih (1998), Ray (2000a), Ray (2000b), Ray (2001) and Ali and Khan (2003). Some studies (see for instance Khan 1982; Ahmed 1991) discuss mainly the qualitative features of child labour. The recent literature has focused attention on the quantitative aspect, taking advantage of the increasing availability of good quality data on child labour. Within the empirical literature on child labour, there has been a shift in emphasis from more quantification to an econometric analysis of its determinants. As child labour is seen to result from the same variables influencing child schooling but in inverse, so school enrolment is strongly correlated with child labour. Child labour commitments are major reasons for children's non-participation in school. So the literature has moved to incorporate child schooling and child labour and thus analyses schooling and child labour jointly (see for instance, Degraff *et. al.* 1993; Mahmood *et. al.* 1994). The present study is one of this category.

Notwithstanding almost universal agreement that child labour is undesirable, there is wide disagreement on how to tackle this problem. The formulation of policies that are effective in curbing child labour require an analysis of its key determinants, namely identification of variables that have a significant effect on child labour. Ray (2000a) shows that child labour takes different forms in different regions, and the nature of child labour, its key determinants and consequently, the strategies to reduce it vary within regions.

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According to Federal Bureau of Statistics (1996) among the 40 million children aged 5-14 years, 3.3 million, i.e. 8.3 percent are economically active in Pakistan. Of them 2.4 million (73 percent of child labour force) child labourers are boys and 0.9 million (27 percent of child labour force) are girls. The urban child population is 11.7 million, that is 28 percent of the total child population. Urban child labour is one-eighth of rural child labour.

A number of studies (Ahmed 1991; Weiner and Noman 1995; Addison *et. al.* 1997) indicate that poverty is one of the major causes of child labour. In the urban areas of Pakistan 22.4 percent of the population lives below the poverty line as compared to 36.3 percent in rural areas (ADB 2002:12). The average income of the households in urban areas is higher as compared to their rural counterparts. The income distribution in urban areas is more unequal than rural areas (ADB 2002:10). The socio-physical infrastructure is better in urban areas. The largest urban center of Pakistan, Karachi is growing at the rate of 3.8 percent annually with the present human population of 11.8 million. About 45 percent of the population of the city lives in *Katchi Abadis* and squatter settlements and 35 percent lives below the poverty line. An urban child is more likely to be in school than its rural counterpart (Durrant 1998:37; Maitra and Ray 2000:15). Gross Primary Enrolment Rate is 97 percent in urban areas and 63 percent in rural areas of Pakistan. For boys it is 95 and 75 percent and for girls 92 and 50 percent for urban and rural areas respectively. This means that not only the enrolment rate is higher in urban areas but also the gender disparity in urban areas is less as compared to rural areas (ADB 2002:21). It seems that urban households in Pakistan have specific characteristics, which determine child schooling and child labour decisions. This fact leads to the need for the present study, i.e. to analyse child schooling and child labour decision of urban households. The point of departure of the present study from its predecessors lies in the use of primary data collected by researchers. The previous studies (see, Burki and Fasih 1998) used the data collected by the Federal Bureau of Statistics (FBS 1996), which was collected by a cluster study where the cluster has a concentration of child labour. Although we had used the cluster sample technique, the sample was selected so that it consisted of all the households of all income groups regardless of concentration of child labour.

Objectives

The principal objective of the study is to contribute to the analytical and empirical basis for answering the policy question of whether and to what extent changes in the education of the child, household income, education

level of parents, unemployment level of parents and the demographic factor could effectively reduce child labour. Based on the results, the study briefly describes the possible policy strategies for influencing the changes in these variables.

The precise objectives of the study are to analyse the supply side determinants of child labour in urban areas, i.e. to determine the relation between the decision of the parents (to send their children to school only, school and work, work only or no school no work) and four categories of socio-economic variables as: Child Characteristics (Birth order of the child, Gender of the child, Age of the child, Education of the child), Head of the Household Characteristics (Gender of the head of the household, Age of the head of the household, Education of the head of the household, Employment status of the head of the household, Income of the head of the household), Parent's Characteristics (Education of the father, Employment status of father, Income of the father, Education of the mother, Employment status of mother, Income of the mother), Household Characteristics (Ownership of the assets, per capita expenditure of the household, Family size, Composition of the household, i.e. number of children in the age group of less than 5 years and those in 5-15 years).

Methodology

Definitions and Concepts: The definition of child labour to be used in the study is that the participation of school age children (in the age group of 5-15) in the labour force i.e. work for wage or in household enterprises to earn a living for themselves or to support household income. A child is defined as a person of 5-15 years old. The 15 years age coincides with the end of the school age. Likewise cutoff age between infancy and childhood is the age of 5.

Household: Household is a single person living alone or a group of persons who normally live and eat together under common cooking arrangement and have no other usual place of residence elsewhere.

Income of Household: Income of the household, which is one of the economic determinants of child labour and child schooling, is defined as non-child household income. This reflects the assumption that decisions on child labour are taken after adult and other non-child earnings are determined. Such a view, also, underlies the 'Luxury Axiom' of Basu and Van (1998), namely, that a family will send the child to the labour market only if the family's income from non child labour sources drops very low.

Household Members: Include all such persons present or temporarily absent whose usual place of residence falls in the selected household at the time of enumeration.

Head of Household: Head of household means the representative of the family who has power to supervise its members and is the main bread earner of the household. Usually one of the parents is the head of the household, but one of the grand parents may act as the head of the household in a combined family system or in the case of missing parents. If parents, grandparents, all are not members of the household then the eldest person of the household acts as head of the household and makes the decisions of the household. Some times parents or grand parents are the members of the household but are too old, then the eldest person after them takes the responsibilities of the head of the household.

Urban areas: Urban area is defined as the area within the boundaries of municipal committee and the rural areas are the areas outside the boundaries of municipal and town committees. If the household lives in an urban area while some children or persons are working in rural areas, the household is considered as an urban household.

Development of Instrument: A questionnaire and comprehensive interview schedule was developed. The interview schedule was structured so that the information revealed can easily be analysed by a computer.

Universe: Universe of the survey comprised all the urban households of all income groups in the country.

Sample Design: Cluster sample technique was adopted. Sample of the population, i.e. district Pakpattan was selected intentionally. There were a large number of colonies and *mohallas* in the district but the study area was confined to some selected colonies/*mohallas*. These clusters represented the average conditions of the area so these were selected intentionally. The households in the selected area represented all income groups and all walks of life.

Source of Data: Field surveys were the main source of data that were conducted in six clusters for the study and the data was collected by a household survey. Moreover, personal observations supported the subject.

Area of Survey: To keep the study within manageable limits, a sample study was proposed. The sample observations consisted of two thousand urban households from district Pakpattan.

Mode of Survey: Interviewing the head of the household was the mode of collecting data. The information was collected through questionnaires which consisted of dichotomous, multiple choice and open-ended questions. The interview was conducted at the homes of the interviewee and the researcher made door-to-door contact with the interviewee.

Model: There are several ways to econometrically model the decision of child schooling and child labour. Most of the work is based on the contribution of Rosenzweig and Evenson (1997) that has the setting of standard constrained utility maximisation model of the household. Many researchers (see for instance Lavy 1985; Rivera-Batiz 1985; Sharif 1994) followed the same criterion. For the analysis of the determinants of schooling and child labour a reduced-form model is developed and adopted by many researchers (see Grootaert 1999a; Cartwright 1999; Cartwright and Patrinos 1999; Ray 2000a; and Ray 2000b). The present study has followed the same studies.

As far as the decision making process within the household is concerned, there is no direct evidence in the literature on household's decision-making process, i.e. whether the household makes a simultaneous decision or hierarchical decision. The sequential model approach has advantages over the simultaneous approach (see Grootaert 1999b). In order to disentangle the conflicting determinants of schooling and child labour and to assess the relative importance of each of the factors influencing schooling and child labour decisions, the household decision-making is empirically estimated in the context of a sequential probit model. The households are assumed to use a sequential process. So in the study, the decision of child schooling and child labour is analysed as a sequential decision making process. The sequential choices making the welfare of the child were assumed as: (i) schooling (ii) schooling and work (iii) work only (iv) neither schooling nor work. This leads to the following four choices, and choice probabilities, to be estimated for each child:

P_1 = Probability to go to school and not to work.

P_2 = Probability to go to school and to work.

P_3 = Probability not to go to school but to work.

P_4 = Probability neither to go to school nor to work.

In the sequential probit model the probabilities for the four choices are determined as followed:

$$P_1 = f(b_{1X})$$

$$P_2 = (1 - f(b_1X)) f(b_2X)$$

$$P_3 = (1-f(b_1X)) (1-f(b_2X)) f(b_3X)$$

$$P_4 = (1-f(b_1X)) (1-f(b_2X)) (1-f(b_3X)) f(b_4X)$$

Where f represents the standard normal distribution function, and b_1 , b_2 , and b_3 are vectors of the model parameters. The vector X contains the explanatory variables. Parameters b_1 are estimated over the entire sample. Parameters b_2 are estimated over the sample of children excluding those who go to school only. Parameters b_3 estimated over the sample of children excluding those who go to school only, and who go to school and work simultaneously.

The Independent Variables: Three groups of explanatory variables have been selected as determinants of child schooling and child labour, i.e. child characteristics, head of household characteristics, parent characteristics and household characteristics. The variables have been selected on the basis of related previous economic literature (See, Burki and Fasih 1998; Cartwright 1999; Cartwright and Patrinos 1999; Ray 1999; Grootaert 1999; Ray 2000a; Ray 2000b; Maitra and Ray 2000; Sawada and Lokshin 2000; Ray 2001; Ali and Khan 2003).

Child characteristics: The present study model includes birth order, the gender of the child, age of child in completed years, squared age of the child, and number of years of formal education as explanatory variables.

Head of Household Characteristics: Gender of the head of household, age of the head of household, squared age of the head of the household, education level of head of household, employment situation of the head of household and income of the head of household.

Parent's Characteristics: The model includes the parent's characteristics (separately of father and mother) as explanatory variables. These are number of years of education, employment status of parents and income of parents.

Household Characteristics: The variables included are the household's ownership of income-generating assets (such as a household business, house, shop, land, or farm equipment, etc.), per capita expenditure of the household, family size, i.e. number of family members, the number of children less than 5 years and 5-15 years.

The variables used in the sequential probit model are represented in Table 1.

Table-1:

VARIABLES	DEFINITION
Dependent Variables	
P ₁ (Child goes to school only)	1 if child goes to school and not to work, 0 otherwise
P ₂ (Child goes to school as well as to work)	1 if child goes to school and to work, 0 otherwise
P ₃ (Child does not go to school but to Work)	1 if child does not go to school but to work, 0 otherwise
P ₄ (Child neither goes to school nor work)	1 if child neither go to school nor to work, 0 otherwise
Independent Variables	
Child Characteristics	
Bord (Birth order of child)	Birth order of child in his/her brothers and sisters
Cgen (Child's gender)	1 if child is male, 0 otherwise
Cage (Child's age)	Child's age in completed years
Cagesq (Child's age squared)	Child's age squared
Cedu (Child's education)	Child's education in completed years of education
Hgen (Head of household's gender)	1 if head of the household is male, 0 otherwise
Hage (Head of household's age)	Head of household's age in completed years
Hagesq (Head of household's age squared)	Head of household's age squared in completed years
Hedu (Head of the household's education)	Head of the household's completed years of education
Hemp (Head of household's employment)	1 if Head of household's employed, 0 otherwise
Hy (Head of household's income)	Head of household's income per month
Parent's Characteristics	
Fedu (Father's education)	Father's education in completed years of education
Femp (Father' employment)	1 if father is employed, 0 otherwise
Fy (Father's income)	Father's income per month
Medu (Mother's education)	Mother's completed years of education
Memp (Mother's employment)	1 if mother is employed, 0 otherwise
My (Mother's income)	Mother's income per month

Household Characteristics

Asst (Household's ownership of assets)	1 if the household has ownership of assets, 0 otherwise
Pcexp (Per Capita Expenditure of Household)	Household's per capita expenditure in Rupees per month
Fmsiz (Household family size)	Number of household members
Child 015	Number of children ages 15 or less than 15 years in the household
Child 04	Number of children ages 4 or less than 4 years in the household
Child 515	Number of children ages 5-15 years in the household

Results and Discussion

The sequential probit results are presented in Table 2 for the children aged 5-15 in the urban areas of Pakistan. The table reports the probability derivatives of the parameters estimates, computed at the means of the explanatory variables. These derivatives show the percentage point change in probability for a one unit increase at the mean of a given explanatory variable holding all other variables constant at the mean. In the parentheses the t-statistics are shown. The majority of the results are consistent with the theoretical implications of child labour.

Table-2: Sequential Probit Results for Urban Households

Variables	<i>First Stage</i>	<i>Second Stage</i>	<i>Third Stage</i>	<i>Fourth Stage</i>
	P ₁ = Probability that the Child Goes to School Only	P ₂ = Probability that the Child Goes to School as well as Work	P ₃ = Probability that the Child does not go to School but Work	P ₄ = Probability that the Child neither go to School nor Work
Constant	-1.9140 (-1.5307)	-0.5248 (-2.7117)	-1.8993 (-1.7065)	1.9447 (2.2766)
Child Characteristics				
Bord	-0.0047 (-1.3302)**	-0.0084 (-1.2863)**	-0.0115 (-1.2656)**	0.0186 (1.4903)*
Cgen	0.1081 (1.8908)*	-	-0.0428 (-1.6251)**	-0.0122 (1.2869)**
Cage	0.1742 (2.1273)*	1.0852 (1.3768)**	0.0709 (1.9148)*	-0.0822 (-1.2991)**
Cagesq	-0.0123 (-2.5559)*	-0.0001 (-1.2966)**	-0.0026 (1.6934)*	0.0049 (1.4620)**
Cedu	0.0357 (1.8849)*	0.0111 (4.2011)*	-0.0258 (-1.5641)**	-0.0795 (-3.0463)**
Head of Household Characteristics				
Hgen	0.0010 (1.3910)**	-	0.0000 (0)	0.0000 (0)
Hage	0.0654 (1.3110)**	0.0185 (0.2662)	0.0802 (1.5973)**	-0.0968 (-2.5054)*
Hagesq	-0.0007 (-1.7433)*	-0.0001 (-0.1287)	-0.0008 (-1.5221)**	0.0011 (2.5726)*
Hedu	-0.1491 (-1.3095)**	0.0002 (-0.0100)	-0.9830 (-1.7205)**	-0.2299 (-2.2618)*
Hemp	-0.0903 (-1.6094)**	-	-0.1703 (-1.5086)**	0.2576 (1.8622)*
Hy	0.0001 (1.1348)**	-0.0000 (-0.9395)	-0.0063 (-1.1484)**	0.0000 (0.9341)
Parent's Characteristics				
Fedu	0.2135 (1.4434)**	-0.0043 (-0.1581)	-0.9727 (1.7131)*	0.2061 (1.6348)*
Femp	0.0000 (0)	-	0.0000 (0)	0.0000 (0)
Fy	0.0000 (0)	0.0000 (0.0853)	0.0000 (0)	0.0000 (0)
Medu	0.2366 (1.6535)*	-0.0046 (-1.8397)**	-0.0347 (-1.2836)**	-
Memp	0.1674 (-1.2991)**	-	0.0381 (1.3180)**	-0.1844 (-1.3533)**
My	0.0003 (1.5902)**	3.1435 (1.2758)**	0.0000 (1.3937)**	-0.0001 (-1.4330)**
Household Characteristics				
Asst	0.0805 (1.8925)*	-0.0163 (-1.1514)**	0.0395 (-1.6460)*	-0.0398 (-1.7057)*
Pcexp	0.0069	-0.1769	-0.0003	-0.0014

	(-0.7555)	(0.9755)	(1.8429)*	(-1.3786)**
Fmsiz	0.0194 (-1.7426)*	-0.0053 (-1.2929)**	0.0181 (-0.5195)**	0.4107 (2.0796)**
Child015	-0.0287 (-1.4062)**	-0.0002 (-1.2820)**	-0.0914 (-1.5507)**	0.0187 (1.3168)**
Child04	0.1550 (1.2753)	0.0174 (1.2801)*	0.2039 (1.5504)**	-0.3060 (-3.1312)*
Child515	0.2258 (1.6576)*	0.0006 (2.0551)*	0.1323 (1.2877)**	-0.2026 (-2.9017)*
No. of observations	564	106	510	684
Log of Likelihood Function	-376.9	-76.86	-160.1	-297.1
R-Squared Percent	0.6333	0.6057	0.6090	0.5282
Correct Predictions	0.8704	0.8419	0.8825	0.8987

* Indicates significant at 10 percent level and ** indicates significant at 5 percent level.

First Stage Results: The first stage results show the probability of going to school and not to work.

In economic literature there is no consensus about whether birth order effect in education of children really exist, and if it exists, whether positive, negative or non-linear in form (Parish and Willis 1993). There are two possible cases (Behrman and Taubman 1986). The first probability is a negative birth order effect. As more children are born, the household resources constraint becomes severe and fewer resources are available per child. If per child resource shrinkage effect is dominant, the younger (high order) siblings will receive less education than other siblings. Alternatively, the resource competition effects might decline overtime, since the household can accumulate assets and increase income overtime. Moreover, the older children may enter the labour market, contributing to household resources. Therefore young children (high order) siblings could spend more years at school. This is the case of positive birth order effect. Moreover, an economy of scale due to household-level public goods might be important as well, since young children can learn easily from the experience of their older siblings through home teaching. In sum, having older siblings might promote the education of a younger child, rather than impede the education of that child, if the resource extension effect, scale economies, and externalities are larger than the competition effect. Our research suggests that birth order exists and more importantly it is negative for the school only decision. The birth-order in his/her brothers and sisters shows that the

younger brothers and sisters have lower probability of going to school. This may be due to the resource constraint but another explanation more probable may be the delayed enrolment of children in schools.

The male children are more likely to go to school as compared to female children and statistically it is significant. This provides conformation of results by Durrant (1998), Sawada and Lokshin (2000) and Ray (2001). There are several possible explanations for the distinct gender gap. The lack of female schools in rural areas possibly explains this result. Moreover, strict Islamic laws that keep women at home and in comparatively conservative rural communities explains the lower school probability for girls. Sawada and Lokshin (2000) have described that high opportunity cost of daughter's education in Pakistan may lead to apparent intra-household discrimination against women in terms of education. Because of the custom of seclusion of women, parents might have a strong negative perception of female education. The low probability for girls schooling may also reflect the low female teacher availability and quality in schools. The socio-cultural forces also create the needs for women teachers to teach females. The traditional Pakistani culture requires single sex schools. The lack of school availability affects female education more seriously than male education (Shah 1986).

The probability derivative of age is positive and age square is negative so the result of the sequential probit model shows that age is an important variable on the decision about child schooling. More specifically, it implies that the probability of going to school decreases at a decreasing rate. The result is contradictory to the general perception that school participation decreases by increase in age (See, Burki and Fasih 1998). We have taken the minimum age of a child to be in school as 5 years. At this age the children are not sent to school, that is the explanation for the probability derivative being positive. The results again explain the fact that the school enrolment of children is delayed. In Pakistani rural areas the school enrolment is delayed as well (see, Ali and Khan 2003) so regardless of the rural or urban areas the school enrolment of children is delayed at the national level.

We have found that children from the male head of household are slightly more likely to go to school. But Maitra and Ray (2000) found for Pakistan that the gender of the head of the households does not matter in the schooling decision of children. Ali and Khan (2000) found that in rural areas of Pakistan children from a male head of household are less likely to go to school. This makes the impact of the gender of the head of household on the schooling decision ambiguous in economic literature. But the present study revealed the impact of male head of household positive on child

schooling. The female adults in Pakistan participate in economic activity less due to various socio-cultural reasons, which keeps the income of the females low, so the probability of children from female-headed households remains low. Consequently this involves an economic effect behind the gender effect.

The stage in life cycle of the head of the household has a positive effect in the case of schooling. The older the head of the household, the more likely it is that the child attends school only. The possible explanation may be that the older head of household has comparatively more elder siblings (more than 15 years of age) as compared to a younger head of household. These elder siblings have earning capacity so the financial status of the household is enhanced, resultantly school-going age children are more likely to go to school. Furthermore, if the head of household is older, and is more frequently father or mother of the children, and the elder siblings (more than 15 years of age) are studying instead of earning, the children in the school-going age are more likely to go to school due to economies of scale of education within the household.

The head of the households are critical in determining the child's schooling and labour decision. It is generally perceived that the head of the household's education plays a positive role in child's decision to go to school. For instance Ali and Khan (2003) found that in rural areas of Pakistan the probability of a child going to school increases by 9.7 percent by increase of one year of schooling of head of household on the average. This indicates important complementarity between the education of the head of the household and the child's schooling. This complementarity is generated possibly by educated parent's positive incentives for educating children, improved technical or allocative efficiency, and/or superior home teaching environments as pointed out by Behrman *et. al.* (2000). The effect of head of household education underlines the transgenerational links between lack of schooling and child labour. But surprisingly we have concluded a negative relation between the education of the head of the household and probability of going to school.

Ali and Khan (2003) found that in rural areas of Pakistan the employment status of head of household affects schooling positively. The children from an employed head of household are more likely to go to school and not to work. The result highlights the fact that an unemployed head of household cannot ensure himself against income fluctuations that create supply of child labour from the household. But the present study has shown the inverse, i.e. the children from employed head of households are less likely to go to school. But the income level of head of household affects the schooling decision positively. It is concluded that it is not the

employment status of the head of household but the income level of head of household which affects the schooling decision positively.

The father's education has a significant positive effect on child's schooling. One additional year of education of the father will increase the school participation of children by 21 percent. Mother's education has a positive effect and one additional year of education of the mother will increase school participation by 23 percent. Mother's employment results in 16 percent more probability of the child going to school. Mother's income has a slight but significant positive effect on child's schooling, as the probability derivative for a child to go to school is positive for mother's education. It is evident from the results of parent's parameters about the decisions of child's schooling that mother's characteristics i.e. education, employment and income of the mother are more important when compared to those of the father.

If the household has assets, the child has 8 percent more probability of going to school only. The ownership of assets such as household enterprises, house, land, shop etc. is an obvious measure of a household's wealth. Hence our results suggest that the probability of child's schooling is systematically higher for households with wealth. Moreover, ownership of assets makes the household stable against the fluctuations in income through credit procurement or sale of the assets.

Generally, the household composition does not exert a significant impact on the child's schooling decision and where it does, it is through the number of adults rather than the number of children in the household. In the case of Pakistan we found that the household composition exerts an impact on child's schooling. The impact is through the number of children. The number of children (up to the age of 15 years) in the household has a negative effect. The explanation as given by Ray (2001:10) is that a child living in a household with a large number of children is more likely to be living in poverty than a child residing in a household with few children. Sawada and Lokshin (2000:15) had the similar results that students who could obtain higher education are from households with a small number of children. This is a reflection of the intra-household resource competition.

Second Stage Results: The second estimation stage eliminates from the sample the children who go to school only. The probability to be determined for the remaining sample is that of combining school and work.

As the birth-order plays an important role in the decision making of child schooling and child labour, it is found that younger children are less

likely to combine schooling with work. The child's age matters in the decision combining schooling and work, the probability of the child combining schooling and work increases with age. The negative age square suggests, however, that the effect weakens in the higher age group. The results contradict those of Maitra and Ray (2000) for Pakistani rural as well as urban areas. They found that age increases the likelihood that a child goes to school only or work only.

The current years of education of a child increases the probability of combining school and work. It shows that a child has to work to support educational expenditures. As the education level increases the educational cost increases, so the probability of combining schooling and work increases. The same results are found for rural areas by Ali and Khan (2003).

Mother's education is negatively related to the decision of combining school and work. Similarly it is negatively related to the work only and positively related to the school only decision. So it is concluded that there is a strong effect of mother's education on child's schooling and labour decision. It supports the general perception that parental education is associated with lower incidence of child labour and high school attendance rate. Mother's income has a positive relation with the probability of the child combining school and work and negative relation to no-school, no-work decision. As mother's income correlated with mother's education, i.e. educated mothers have more earning opportunity so ultimately the income effect on education represents the mother's education effect. The more educated women or the more earning women perceive their children's education positively and decide for their children to go to school only, as a second option to go to school and work simultaneously, but not to remain in the state of no-school, no-work. It may also be concluded that educated working women perceive education positively on the basis of financial returns to education, as they themselves have gained these returns.

Assets of the household have a negative impact on the child's decision to combine school and work. The more the assets a household has, the less is the probability of the children of that household combining school and work, but more probability of going to school only. The presence of assets in a household, as assets stand as a proxy of wealth, increases the financial status of the household and decreases the fluctuation in the income of the household, so asset owner households do not need to decide to combine schooling with work. That is in these households the education cost is easily affordable by the households.

The children from large size households are less likely to combine work with schooling. The presence of siblings in the age group of 5-15 years in the household increases the probability of combining school and work. Similarly, presence of infants i.e. siblings less than five years of age increases the probability of the children combining school and work. Here resource competition occurs.

Third Stage Results: The third stage of the estimation looks only at the children who are not in school and determines the probability that they will work for wages or in household enterprises rather than work only at home care tasks or not work at all.

The birth order of the child is negatively related to work only, i.e. elder the child among the brothers and sisters, he/she is more likely to work only. The child participation in wage or household enterprises increases with child age (see also Durrant 1998; Ray 2001). Such a relation shows the dropout of children from school at higher grades. There may be a number of reasons for the phenomenon, that are: as the age of the child increases resultantly the opportunity cost of child increases; by increase in age the school grade increases so education cost also increases; for higher grades there are less number of schools as compared to lower grade schools; the girl's drop-out rate is higher than boys at higher grades due to social discrimination, etc.

The gender of the child also matters and another surprising result is that the boys are less likely to engage in work only than girls. Education level surely has a negative impact on the work only option. The current educational level of the child significantly reduces his/her labour, *ceteris paribus* an increase in child labour has a significant adverse impact on schooling so a trade off between child labour and schooling is established.

Life cycle of the head of the household has a positive effect at this stage. The more the age of the head of the household, the more likely for the child to work only. Education of the head of household has significant and negative impact on child's work. On average one additional year of education of head of household decreases the probability of child working by 98 percent. The explanation is that the educated head of household perceives the disadvantages of work and benefits of education. Similarly employment level and income of the head of household both have a negative impact on child's work. As the head of the household is a major contributor to household income so employment of the head of the household makes the household income stable and reduces the need for child labour. At the same time the increase in income of the head of the

household decreases the probability of the child working (see also, Ali and Khan 2003), that is decline in poverty reduces child labour.

The ownership of assets has a negative impact on the decision of the parents to send their children to work only. But for rural areas Ali and Khan (2003) have found a positive impact of ownership of assets, showing a complementarity between assets and child labour.

Fourth Stage Results: The no-school, no-work or homecare activity decision is positively related to the birth order of the child. The higher the birth order of a child, that is younger the child among brothers and sisters the more likely he/she to be in the state of no school no work. This explains the fact of delayed primary school enrolment as the younger children remain at home. Similarly, no-school no-work or homecare is negatively related to the age of the children. The older is the child he/she is less likely to do homecare or remain in no-school, no-work situation. Each additional year of age of child decreases the likelihood of homecare by 8.2 percent. On the other hand increase in age enhances the probability of going to school, combining school and work and work only. The notion again confirms the fact that school enrolment is delayed in urban households in Pakistan.

Boys are less likely to remain in the state of no-school, no-work. On the other hand they are more likely to go to school. This shows a gender disparity about children's decision by parents.

Age of the head of the household has a significant effect on the child's activities. The children from households with older head of households are less likely to engage in home care/neither school nor work activity, but these children are more likely to go to school only or work only.

Head of household's education decreases the likelihood that the child is engaged in homecare. Each additional year of education of head of household decreases the likelihood of home care by 22.9 percent. Mother's income and employment both have a negative impact on no-school no-work activity.

The ownership of assets by the household decreases the probability of the children doing homecare. The children from households with assets either go to school (evident from first stage results) or work for wages or for household enterprises (from third stage results). So when the assets increase the income of households, the household decides to send their children to

school, but when they feel some problem in education (other than cost of education), for example, the low quality of education, irrelevant education, lack of interest in education by children, no financial return to education etc. they engage their children in work because they have the opportunity owing to ownership of physical capital assets. It is concluded that the deficiencies in the educational system also cause children to work.

The per capita income of the household has negative probability with no-school no-work decision, that is the children from poor households are more likely to live in no-school no-work status. Due to poverty the poor parents can not send their children to school, even cannot engage them in work, which force them to keep their children in no-school no-work situation. Similarly, children from families with a large number of siblings are more likely to do home-care. The reason behind may be poverty, that is related to the large number of children in the household and it makes the parents unable to send the children to school or work.

Policy Recommendations

Our results lead to many recommendations. It is significant to note that schooling cannot be enhanced instantly and consequently child labour cannot be eradicated immediately as a number of independent variables need time for change.

Reducing poverty will contribute more than other interventions to enhancing school participation and to eliminate child labour. Among the poverty alleviation programmes the provision of credit to poor households without collateral is significant so the household does not need to rely on their children and send them to school instead.

One policy may be the provision of low cost schools. Education subsidies are another way to transfer resources to poor households. Raising household income through transfer payments may increase school participation and decrease child labour. Government assisted programmes such as the District Primary Education Projects and Integrated Children Development Schemes in India (See, Fallon and Tzannatos 1998:15) Food-for-Education Program in Bangladesh can act as a role model in the promotion of schooling in Pakistan.

Adult literacy programmes are proposed. Moreover, public awareness about education can play an important role. Gender disparity in education should be minimised and quality education, technical education and relevant education should be provided.

Employment of the mother and consequently income are critical determinants of child schooling and child labour, so increase in employment opportunities for females may increase child schooling and decrease child labour. For the employment of women, micro credit through NGOs is important.

The fertility issue is immense so effective population planning programmes are recommended to curtail population pressure and decrease resource competition within the household.

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Comparative Systematic Risk Analysis: Evidence on the Banking Sector in the United States, Western Europe and South East Asia

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I. Introduction

The basis for asset pricing in financial markets was provided by Bachelier (1900) in his magnificent dissertation “Théorie de la Spéculation” submitted at Sorbonne (Université de Paris). Although from today’s perspective, the mathematics and economics he applied were flawed, yet the great genius, Markowitz, declares this early work as an inspiration for his own classical paper of “Portfolio Selection”. The risk return relationship has always been a debatable issue in financial theory. “Portfolio Selection” came up with a meaningful measure of quantifying the risk associated with investment; the variance of returns. The equilibrium model of Capital Asset Pricing (CAPM) (Sharpe 1964, Lintner 1965, Mossin 1966) further classified the risk as relevant and irrelevant risk. According to the CAPM, the relevant risk is the systematic risk or non diversifiable risk. The systematic risk is the volatility of returns of a particular stock to the market returns.

Historically, the banking sector is not that active in capital markets. The investors like to invest in deposits and saving accounts more than they would like to go for the stocks of a bank or a financial institution, primarily because of higher risk involved in stock markets. This could be a possible explanation why the banking sector has less representation in stock markets as compared to other sectors. However, the absence of public equity also increases the risk of a bank. The major chunk of assets and liabilities in a bank are of a financial nature. They are subject to interest rate changes and respond quickly to the volatility in the economy. The equity or the share capital acts as a cushion in case of bank’s default on its obligations. Due to this utmost importance of equity in a bank, the regulatory authorities have set a standard capital adequacy ratio (see Basle 1988, 1996). This minimum ratio is a

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measure to insure the creditors against any mishap or at least to minimise the possible losses. Similarly, every credit risk management model (Credit Metrics¹, KMV² etc) incorporates the shareholders' equity as an important component.

The sleeping nature of banking stocks makes them an alien in the financial markets. Their sensitivity to economic events makes them more volatile as compared to other industries. Diversification is a tool to minimise the risk and consequently maximise returns. This diversification³ could involve investing in different industries or even internationally. Banking stocks could be possible candidates for inclusion in a diversified portfolio. Thus the problem arises as to how these stocks respond to the stock markets and what level of systematic risk they are exposed to in different markets, given certain economic circumstances. The stock markets in the United States, Western Europe⁴ and South East Asia⁵ are the significant stock markets in the world, and based on their different geographic location and economic circumstances, they could be a test case for observing the comparative riskiness of banking stocks in these three different regions.

Historically, the financial sector has been blamed for bubbles, panics and shocks. Leading from Tulip mania to the South East Asian currency crisis, the weaknesses in the banking sector have always been regarded as the main cause for the spread of the financial crises. All these factors make the banking sector more hostile for any investment in their stocks. There are virtually hundreds of studies on systematic risk and its impact on different pricing models, yet the literature is not that vast for systematic risk in international markets. In this study we will estimate the systematic risk in an international environment and test for the riskiness (market risk) of the banking stocks.

The paper is organised as follows. Section-II will provide a theoretical background on systematic risk, CAPM and related concepts. Section-III will describe the possible bias in betas due to emerging market phenomenon and beta correction methods. Section-IV will describe the research methodology, data and model estimation. Section-V will represent data findings and results and Section-VI will conclude the study.

¹ See J P Morgan Credit Metrics – Technical Document

² KMV Risk Management based on Black, Scholes and Merton's Option Pricing Models.

³ In this article, we refer to diversification only in stocks.

⁴ The countries that adopted Euro as common currency.

⁵ We will refer to Indonesia, Malaysia, Thailand, Philippines and Singapore.

II. Theoretical Perspective

a. Systematic Risk

The systematic risk is the volatility of a particular stock or a portfolio to the market. It can be measured by the degree to which returns a given stock tends to move up or down with the market. This tendency of the stock is reflected in its beta coefficient. The beta determines how the stock affects the riskiness of a diversified portfolio, so it is theoretically the most relevant measure of any stock's risk. The concept of systematic, non diversifiable risk or beta was first discussed under the frame work of capital asset pricing model (CAPM), presented by Sharpe. The CAPM framework is very simple under ideal conditions. The model states that the expected returns of an asset are a positive function of three variables: beta, the risk free rate and the expected market return. A simple CAPM equation can be written as

$$R_i = R_f + (R_m - R_f)\beta_i \quad \dots\dots\dots(1)$$

The above equation of CAPM can be written as a simple time series model that is normally used to estimate betas in the CAPM context. This regression interpretation is

$$R_{it} - R_{ft} = \alpha_i + \beta_i \gamma_{it} + e_{it} \quad \dots\dots\dots(2)$$

where $\gamma_{it} = R_{mt} - R_{ft}$ and is known as risk premium.

From the above equation, it is evident that systematic risk attributable to its sensitivity to macroeconomic factors is reflected in β_i ; non-systematic risk, the unexpected component due to unexpected events that are relevant only to the security, is reflected in e . The expected return on an asset depends only on its systematic risk. No matter how much total risk an asset has, only the systematic portion is relevant in determining the expected return on that asset (Corrado and Jordan [2000], p.524).

Another popular model of estimating betas, is the market model or single index model. The studies of stock prices behaviour show that when the market, as measured by a market index, rises most stocks' prices tend to increase. Similarly when the market is on a downside, the stocks in general lose their value. This observation suggests that the reason the stock returns are correlated might be because of common response to the stock market. This correlation could be obtained by relating the return on stock to return on market index. Mathematically this could be expressed as

$$R_i = \alpha_i + \beta_i R_m + e_i \quad \dots\dots\dots (3)$$

The α_i and e_i are the components of return of security i , and are independent of the market. They are random variables representing the returns insensitive or independent of markets.

Beta is a measure of risk in equilibrium in which investors maximise a utility function that depends on the mean and variance of returns of their portfolio. The variance of returns is a questionable measure of risk for at least two reasons: First, it is an appropriate measure of risk only when the underlying distribution of return is symmetric. Second, it can be applied straightforwardly as a risk measure only when the underlying distribution of returns is normal. However, both the symmetry and the normality of stock returns are seriously questioned by the empirical evidence on the subject.

b. Systematic Risk and CAPM

The systematic risk or the beta has been in the limelight since its inception in the 1960s. For the last 30 years academicians and practitioners have been debating the merits of CAPM, focusing on whether beta is an appropriate measure of risk. Moreover, the stability of beta has always been a concern in empirical studies. The test of CAPM is the observation of existence of a positive linear relationship between beta and returns. Although the model postulates a positive trade off between beta and expected returns, researchers in general always found a weak but positive relationship between beta and returns over the sample period. Hence, they claimed that the results are inconsistent with the positive linear relationship between beta and returns as prescribed by CAPM and the validity of CAPM is in question, questioning beta as an appropriate measure of systematic risk.

Fama and MacBeth (1973) tested the validity of CAPM using a three step approach. In the first period, individual stocks' betas are estimated and portfolios are formed according to these estimated betas. In the second period, betas of portfolios that are formed in the first period are estimated. In the final step, using data from a third time period, portfolio returns are regressed on portfolio betas (obtained from the second period) to test the relationship between beta and returns. They found a significant average excess return of 1.30% per month, for the period 1935 through 1968, a positive relationship exists between beta and monthly returns. They concluded that results support the CAPM in the US stock market and consequently beta is a valid measure of systematic risk.

However, Schwert (1983) suggested that Fama and MacBeth (1973) only provided a very weak support for a positive risk return trade off since the positive risk return relationship found is not significant across sub periods. Furthermore, when considering seasonal behaviour of their results, the t-statistics for the study period becomes highly suspect and the basic risk return trade off virtually disappears.

Fama and French (1992) studied the monthly average returns of NYSE stocks and found an insignificant relationship between beta and average returns. They concluded that CAPM cannot describe the last 50 years of average stock returns and only market capitalisation and the ratio of book value to market value have significant explanatory power for portfolio returns.

The above mentioned studies give evidence against beta as a useful measure of risk. However, Pettengill *et al.* (1995) developed a conditional relationship between beta and realised returns by separating periods of positive and negative market excess returns. Using US stock market data in the period 1936 through 1990, they found a significant positive relationship between beta and realised returns when market excess returns are positive and a significant negative relationship between beta and realised returns when market excess returns are negative. This significant relationship is also found when data are divided by months in a year. Furthermore, they found support for a positive risk return relationship. Isakov (1999) followed the approach of Pettengill *et al.* (1995) and examined the Swiss stock market for the period 1983 - 1991. He found supporting results that beta is statistically significantly related to realised returns and has the expected sign. Hence, Isakov (1999) concluded that beta is a good measure of risk and is still alive.

Most of the studies relating to systematic risk have been using the domestic markets. Thus a logical question arises whether the relationship between beta and returns can also be applied to international markets. Does beta have an explanatory power in international equity markets?

To the best of our knowledge, no study (except one) has investigated this issue. Fletcher (2000) examined the relationship between beta and returns in international stock markets between January 1970 and January 1998 using the approach of Pettengill *et al.* (1995). Using monthly returns of Morgan Stanley Capital International (MSCI) equity indices of 18 countries and the MSCI world index, Fletcher (2000) found that a consistent result exists. There is a significant positive relationship between beta and returns in periods when the world market excess returns are positive and a significant negative relationship in periods when the world market excess returns are negative. Besides, this relationship is symmetric and there is a positive mean excess

return on the world index on an average. Fletcher (2000) also found that the significant conditional relationship in January exists only in periods of positive market excess returns and the relationship is insignificant in periods of negative market excess returns. The results differ from those obtained from Pettengill *et al.* (1995) on the US market data.

III. Bias in Beta Coefficient

The estimation of beta using the CAPM framework or market model is not difficult. However, there are some issues related to the goodness of the measure. The beta estimates using the above mentioned models will be a suitable measure only if the stocks are actively traded. The active trading in the market helps the beta coefficient to explain the risk associated with the particular stock. One important point to note is that it is not only the stock that has to be traded actively, but also the markets should be active. If, on the contrary, the stock is not actively traded or the markets are thin trading markets, the estimated beta will not be a good estimation of the systematic risk of the stock. This requires correction of estimated betas.

Beta commonly is estimated by using the Ordinary Least Square (OLS). In the OLS model, historical returns on a given security i are regressed against the concurrent returns of the market. Basically, such estimation has a disadvantage because it gives unstable and biased Beta (Scott and Brown [1980]). Biased Beta usually happens in a thin-trading market. Thin-trading phenomenon that results in biased Beta is identical with non-synchronous trading that is caused by infrequent trading. In this sense, there might be some sleeping stocks. Non-synchronous trading problems arise in securities due to the time lag between the setting of market clearing prices for securities and the market index computed at the end of a discrete time interval, known as the intervaling effect (Ariff and Johnson [1990], p.85). Upon pros and cons, the potential for bias in the OLS β_i due to non-synchronous trading has been recognised. For securities traded with trading delays different than those of the market, OLS β_i estimates are biased. Likewise, for securities with trading frequencies different from those of the market index, OLS β_i estimates are biased (Peterson [1989]).

The adjustment to Beta values for non-synchronous trading activities is necessary. Most of the non-synchronous trading phenomenon happens in emerging stock markets because in those markets trade is low (thin). In most practices, not all securities are traded in the same interval, and some of them are not traded for a period of time. If there is no security transaction on a certain day, the security closing price for that day is actually the price from the previous day, which was the price at the last

time the security was traded. It could be two days ago, three days ago, or may be weeks ago. When the price is used to calculate the market index of a day, the market index actually reflects the trading value of its previous days. If Beta is calculated using returns of a security and returns of a market index formed from security returns from different trading periods, the Beta will be seriously biased (Hartono and Suriyanto [2000]).

This phenomenon happens in almost all the emerging Stock Exchanges. The major problem is that shares listed on these exchanges are thinly-traded, thus leading to the problem of non-synchronous trading where the market's prices at the end of a period cannot be accurately matched with the prices of a thinly-traded share (Lantara [2000], p.18-19). Consequently, estimates of systematic risk of these shares will be biased. If the estimate of α_i and β_i are biased, the estimate of e will also be biased, and the extent of the bias will be more serious for more thinly-traded shares (Ariff and Johnson [1990], p.82).

a. Beta Correction Methods

In a perfect stock market where prices are continuously formed, the problem of non-synchronous trading should not exist as every stock in the market would have registered a market clearing price at the discrete time of observing the market index, which is the average of all prices at that instant. A significant proportion of the stocks in a market, however, trades so infrequently that prices may be cleared on a few days in a typical month. This is the general behaviour in developing countries. Consequently, the measured market price (and the market return, R_m) deviates from the actual returns had there been continuous trading.

Non-synchronous trading makes beta biased. If the market Beta value obtained from the weighted average of individual Beta values is not equal to one, the adjustment to the Beta values is obviously necessary. There have been many methods suggested by experts to adjust or correct the biased Beta. However, we will use Fowler Rorke method of beta estimation.

Fowler and Rorke (1983) developed a biased Beta correcting method by scaling the coefficients with appropriate weights. The weighting factors to multiply n periods of regression coefficients are calculated as follows:

$$w_n = \frac{1 + \rho_1 + \rho_2 + \dots + \rho_{n-1} + \rho_n}{1 + 2\rho_1 + 2\rho_2 + \dots + 2\rho_n}$$

The values for ρ_n are generated from a regression equation as follows:

$$R_{mt} = \alpha_j + \rho_1 R_{mt-1} + \rho_2 R_{mt-2} + \dots + \rho_n R_{mt-n} + e_t$$

The corrected Beta values using Fowler-Rorke method is gained from:

$$\beta_i = w_n \beta_j^{-n} + \dots + w_1 \beta_j^{-1} + \beta_j^0 + w_1 \beta_j^{+1} + \dots + w_n \beta_j^{+n}$$

McInish and Wood (1986) examined the adjustment techniques proposed by Fowler-Rorke and found that these techniques reduce a portion of the bias in β_i arising from thin trading and delays in price adjustments. For some researchers, particularly those who do research in emerging capital markets, the Fowler-Rorke method is believed to be the strongest one in reducing the bias.

Ariff and Johnson (1990) used Fowler-Rorke's three lags and three leads in estimating the corrected Betas at the Singapore Stock Exchange. Hartono and Suriyanto (2000) found that Fowler-Rorke's four lags and four leads is the best method in correcting Betas on the Jakarta Stock Exchange, after doing several tests with different lags and leads each.

IV. Research Methodology

As mentioned earlier, our research will test the comparative riskiness of banking stocks in an international context. The market risk will be measured using the portfolio of banking stocks in each geographic market. The three markets that we have chosen are that of the United States, Western Europe (Euro zone) and South East Asia. These stock markets are the significant stock markets in the world, and based on their different geographic location and economic circumstances, they could be a test case for observing the comparative riskiness of banking stock.

United States' financial markets are considered to be safer for investment primarily because of two reasons. The markets are close to strong form efficiency and the tendency of extraordinary profit making is lower. The players in the financial markets can be regarded as somewhat rational compared to other countries. Secondly, the government regulations are strict enough to provide a fair game. They are weaker in emerging markets, especially in Asian markets where either there are no proper guidelines for market trading, or else not practised. Although there have been ups and down in US stock markets such as the Market Crashes of 1929 and 1987, which could be a strong challenge to the *being safer* proposition, yet the over all situation is better than many of the emerging stock markets. The panics and bubbles have occurred every where but the recovery of the US stock market has been tremendous in

response to these panics and crashes. The United States' banking sector is also more developed than those in other countries and the banks are more actively traded both on organised and over the counter markets.

The monetary integration of Western Europe has helped to homogenise the economies in these countries. The Euro was launched in the year 2001 but the preparation for a common European currency started from the early 90s. The banking sector in these countries is well monitored and the financial markets are no less than those in the United States. The industrial giants such as Germany and France rely heavily on their banking sectors. However, the evidence shows that in the Euro zone the number of banks listed on the stock exchange, is much lower than that of the United States and all of them that are listed, are not even traded very actively. The banking sector in the Euro zone is less active in stock markets, than that of the United States but is far better than that of Asia. Thus the comparative analysis of risk measure and the performance of banking stocks in the Euro Zone should give us an insight about these stocks in an international reference. An important point to note is that we exclude the United Kingdom and Switzerland because firstly they have not adopted the Euro as a common currency and secondly the banking sector in these two countries have different characteristics than that of Euro countries. The financial sector in Switzerland is more complicated and it requires more factors to analyse it than just systematic risk. Hence, to consider the performance on a regional basis, it could be only possible in the countries that have identical systems and characteristics.

The third geographical region we mentioned is South East Asia⁶. Apart from Japan, generally Asian economies are considered to be a lot more risky. Government intervention in Asian markets, to obtain desired results, is nothing new. The economic policies have a very short life. Personal likings and dislikes of the ruling government translates into regulations without looking into its outcome. All this makes foreign capital escape from a particular economy. An exception to this could be Japan, which is the second biggest economy after the United States. Apart from Japanese markets the second option could be South East Asia. The South East Asian countries have long been known as Asian Tigers. These Asian Tigers share common features in their economies. The banking sector in these countries is weaker than that of the United States or Europe but could be considered better than that of other underdeveloped countries.

⁶ ASEAN countries & excluding Japan.

The countries from South East Asia suffered the worst crisis in their history in 1997. The crisis originated by the devaluation of Thailand's currency, the Baht and the period following the devaluation of the Thai Baht witnessed a sudden and unprecedented collapse in asset prices, corporate and financial fragility, and a drastic economic slowdown in East Asian markets. In just over 12 months, the region's stock markets, once among the largest in the world, saw their market capitalisation shrink by as much as 85% in US dollar terms. Similarly, East Asian currencies depreciated sharply beyond the levels needed to maintain export competitiveness, with some currencies falling by 50-80% against the US dollar by end 1998. The rapid depreciation in East Asian currencies, coupled with a plunge in asset prices in these countries, led to a fall in real purchasing power as inflationary pressures took root. Concurrently, there was a marked slowdown in economic growth: Asia's real GDP growth declined to 5.8% in 1997 from 6.6% in 1996, with a further decline to 4.1% in 1998. Emerging markets took on an increasingly high-risk low-return profile, as rising volatility and the deterioration in economic fundamentals led to the outflow of capital from these markets.

The financial sector was the most to suffer in this crisis. Many banks were liquidated, taken over by the government or simply were forced to merge. This made the performance of the banking sector in South East Asia more questionable and investors began to avoid investment thereafter in the financial sector. The economies started to recover in 1999, and so also the stock markets but the position of the fragile banking sector is still questionable. Many researchers blame the weaknesses in the financial system for this crisis that spread like a contagion. Given these facts, the question arises as to how the stock market is performing now, has investor confidence developed again? The best observation of the banking sector and its riskiness should be measured by observing the periods in pre crisis, during crisis and post crisis.

To observe the impact of the South East Asian currency crisis on the financial sector and the stock markets, and to avoid a bias in market risk estimation, we need to observe the study period in three periods. These three periods should be pre crisis, during crisis and post crisis. In the pre crisis period the financial markets in South East Asia were performing well and hence their riskiness should be close to that of the United States and Western Europe. During the period when the crisis was at its peak, the risk must have increased significantly and consequently market performance must have been affected. In the post crisis period, the financial sector started to recover, but maybe investor confidence has not fully revived so the markets in South East Asia might still be riskier as compared to the other two.

1. Types and Sources of Data

In every study of international diversification, the first concern is differences in currency. One cannot compare directly a return or a risk from a country's portfolio with another one, if both portfolios are still denominated in each of their own currency (Fletcher [2000]). For this reason, we transform all currencies in the Europe Zone and Asia portfolios into the US dollar at historical spot exchange rate. Hence, we observe the banking portfolios from the point of view of an American investor (Elton and Gruber [1995]).

We will use secondary data, extracted from Data Stream. The data consists of daily closing prices for the selected banking companies and the closing market indices of Morgan Stanley Capital Index (MSCI). The aim is to have one base of market return, so that the return of each portfolio will be reflected from its relation with one specific market. To homogenise the returns in one currency i.e. the US dollar, we will also use the exchange rates of the local currencies, for each of the South East Asian countries, against the US dollar. Similarly during pre Euro period, we will use the exchange rate for every Euro zone country's original currency against the US dollar and lastly the US dollar-Euro exchange rate. All these rates will be on a daily basis.

2. Criteria Limitation

During sample selection, we observed there are not many banks listed on the stock exchanges of the countries under consideration. Moreover, some banks have strategic business units that are also listed as a separate entity. These business units are different from the main bank. They normally have small capitalisation and are thinly traded. Their selection in the data could possibly result in bias due to firm size effect. So we exclude all such business units from our research. Hence only the parent banking company is selected from the whole banking group. This limitation was more intense while selecting stocks in the banking sector from Euro zone countries. In the case of the United States and South East Asia the constraint was somewhat limited. The banks that are more into advisory services and investment banking like Morgan Stanley, Goldman Sachs and Merrill Lynch are also excluded from the research despite their higher capitalisation that is, at times, greater than some of the European and Asian banks.

To be eligible for inclusion as a sample, each company had to meet the following criteria:

1. The company must be a public limited banking company, listed on NYSE, organised exchanges of Euro zone and organised exchanges of South East Asia from March 1994 until March 2003.
2. The company must be transacted on the above mentioned stock exchanges and must have a complete record of daily prices.

The period of continued listing is important because we divide our study into three periods, namely pre crisis, crisis and post crisis, for beta estimation and its comparison. Many banks from South East Asia went bankrupt during the period of crisis and hence are excluded from the sample. The final sample included 30 banking companies from each region. All these banks have similar capitalisation in purchasing power parity terms. Similarity in capitalisation is required to avoid a possible bias that might arise due to firm size effect. The research has shown that size to book value ratio is an important factor in determining the risk profile of a company. During the financial crisis in South East Asia some high performing banks were forced to be liquidated as they were not able to sustain the economic pressure. There were about a hundred banks that were liquidated during the crisis. Though these banks performed very well in the pre crisis era but as they ceased to exist after the crisis. They are excluded from the sample.

3. Econometric Limitations

Whenever beta is estimated there are certain conceptual problems associated with the estimation. We will present three most basic econometric issues related with betas.

1. The systematic risk or beta estimates are based on ex-ante risk premiums, which are not directly observable. These estimates are based on rational expectations for an investor. Under rational expectations, the realised rates of return on assets in a given time period are drawings from the ex-ante probability distributions of returns on those assets. However, no logical justification can be given that investors will be rational over time.
2. Betas are normally estimated using linear regression. The underlying assumption for these estimates is the normal distribution of returns. However, in reality the normality of returns is not necessary.
3. The third major problem relates to the observation of the proxy of market portfolio. In fact, many assets are not marketable and the proxies used for return on market portfolios exclude major classes of assets such as human capital, private businesses and private real estate. The most common

assumption used to overcome this problem is by assuming that the disturbance terms from regressing the asset returns, on the return of the market proxy portfolio, are uncorrelated with the true market portfolio and that the proxy portfolio has a unit beta. If the market proxy is a portfolio constructed from the individual assets or portfolios contained in the test sample, this assumption is equivalent to assuming that the market proxy is the minimum variance unit beta portfolio of the set of all feasible portfolios constructed from the assets in the test sample.

4. Estimation of Beta Coefficients

We will use two methods to estimate the beta coefficient. The first one is by using Ordinary Least Square (OLS) regression or the single index model, and the second one is with the Fowler-Rorke method. These two methods, however, are not applied to all portfolios. The OLS will only be applied to Europe and the United States portfolio, because both markets are matured markets and have no significant sleeping stocks phenomenon. The Fowler-Rorke method will be applied exclusively for the Asian market, due to considerations of non-synchronous trading, sleeping stocks, and emerging markets.

Elton and Gruber (1995) clearly explore that in a good portfolio, the Alpha and Beta respectively, must be statistically significant, equal to zero and one. Thus, first we will test the betas and alphas generated by both methods for all portfolios. This is aimed to have a clearer overview about the robustness of results.

The single index model used for estimation of beta will be similar to equation (3),

$$R_i = \alpha_i + \beta_i R_m + e_i .$$

The returns R_i and R_m will be calculated using the logarithmic approach. The daily returns will be of the form

$$R_{id} = \ln \left[\frac{P_{id}}{P_{id-1}} \right] \text{ where } P_{id} \text{ and } P_{id-1} \text{ are prices on day } d \text{ and } d-1.$$

$$R_{md} = \ln \left[\frac{MSCI_{regX, d}}{MSCI_{regX, d-1}} \right] \text{ where } MSCI_{regX, d} \text{ is Morgan Stanley Capital$$

Index on day d and $d-1$ for either region Europe, Asia or the United States.

For South East Asian banking stocks we will use the Fowler-Rorke biased Beta correction method, with several tests using: (1) three lags and three leads, (2) four lags and four leads, and (3) five lags and five leads. The final objective is to determine the criterion that best estimates market Beta value i.e. closest to one (see Fowler and Rorke 1983).

The Fowler-Rorke method can be established by first calculating the weighting factors. The formula is as follows:

$$w_n = \frac{1 + \rho_1 + \rho_2 + \dots + \rho_{n-1} + \rho_n}{1 + 2\rho_1 + 2\rho_2 + \dots + 2\rho_n}$$

The values for ρ_n are generated from a regression equation as follows:

$$R_{mt} = \alpha_i + \rho_1 R_{mt-1} + \rho_2 R_{mt-2} + \dots + \rho_n R_{mt-n} + e_t$$

The corrected Beta values using Fowler-Rorke method is generated from:

$$\beta_t = w_n \beta_i^{-n} + \dots + w_1 \beta_i^{-1} + \beta_i^0 + w_1 \beta_i^{+1} + \dots + w_n \beta_i^{+n}$$

The n value is among three, four, and five to test: (1) three lags and three leads, (2) four lags and four leads, and (3) five lags and five leads. *The criterion that gives a market Beta value closest to one will be used in calculation.*

5. Hypotheses

According to the general perception the hypothesis to be tested is that, based on systematic risk, Asian banking stocks are the riskiest followed by that of Western Europe and the United States. The hypotheses (alternative) tested are

» For the period March 1994 – June 1997 (Pre Crisis Period)

$$H_1 : \beta_E - \beta_A \neq 0$$

$$H_2 : \beta_E - \beta_{US} \neq 0$$

$$H_3 : \beta_{US} - \beta_A \neq 0$$

» For the period July 1997 – December 2000 (During Crisis)

$$H_4 : \beta_E - \beta_A \neq 0$$

$$H_5 : \beta_E - \beta_{US} \neq 0$$

$$H_6 : \beta_{US} - \beta_A \neq 0$$

» For the period January 2001 – March 2003 (Post Crisis)

$$H_7 : \beta_E - \beta_A \neq 0$$

$$H_8 : \beta_E - \beta_{US} \neq 0$$

$$H_9 : \beta_{US} - \beta_A \neq 0$$

The subscripts in the term signify countries: US for United States, E for Euro zone and A for South East Asia.

V. Data Findings and Results

The returns and beta coefficients are estimated according to the sub-periods of hypothesis:

1. March 1994 until end of June 1997 for the pre-crisis period.
2. July 1997 until end of 2000 for the crisis period.
3. January 2001 until end of March 2003 for the post-crisis period.

The following Table presents the mean beta for all the periods using Fowler Rorke for Asian portfolio while OLS for Euro Zone and United States.

Table 1: Beta for all Regions and all Periods

	One-Sample Statistics			
	N	Mean	Std. Deviation	Std. Error Mean
BETAEUR1	30	.1175533	.082481220	.015058942
BETAEUR2	30	.34660033	.329572304	.060171395
BETAEUR3	30	.53008933	.683933177	.124868543
BETAUS1	30	.06197900	.169317182	.030912947
BETAUS2	30	.42748233	.369086530	.067385673
BETAUS3	30	.57382200	.420150011	.076708546
BASIA1FR	30	1.168208	.953923916	.174161882
BASIA2FR	30	3.093616	2.078689525	.379515048
BASIA3FR	30	1.101129	.940943826	.171792053

Note that in Table 1 above, the period 1, 2, and 3 signify the pre-crisis, crisis, and post-crisis periods, respectively, and EUR, US, and ASIA signify the regions. The Fowler Rorke method used was 5 Leads and 5 Lags instead of 3 Leads and 3 Lags and 4 Leads and 4 Lags because the calculations resulted in beta significantly close to 1 in 5 Leads and 5 Lags than the other two.

The following table presents the mean difference hypotheses for systematic risk using t test approach.

Table 2: Mean Systematic-Risk Differences Significance Test

Panel A: Beta Europe minus Asia

	F	Sig.	T	Sig. (2-tailed)	Mean Difference	Std. Error
BT1EAFR	66.71086	3.21E-11	-6.61542	1.29323E-08	-1.156452417	0.174811707
			-6.61542	2.77921E-07	-1.156452417	0.174811707
BT2EAFR	53.36427	9E-10	-7.14893	1.64752E-09	-2.747015744	0.384255473
			-7.14893	5.43796E-08	-2.747015744	0.384255473
BT3EAFR	3.473773	0.067413	-2.68878	0.009346834	-0.571039493	0.212378583
			-2.68878	0.00956684	-0.571039493	0.212378583

Panel B: Beta United States minus Asia

	F	Sig.	T	Sig. (2-tailed)	Mean Difference	Std. Error
BT1AUFR	53.67778	8.29E-10	-6.25398	5.1778E-08	-1.10622875	0.176884062
			-6.25398	6.11492E-07	-1.10622875	0.176884062
BT2AUFR	50.69467	1.84E-09	-6.91692	4.04118E-09	-2.666133744	0.385451035
			-6.91692	9.60118E-08	-2.666133744	0.385451035
BT3AUFR	21.49694	2.06E-05	-2.80273	0.006878453	-0.527306826	0.188140135
			-2.80273	0.007766899	-0.527306826	0.188140135

Panel C: Beta Europe minus United States

	F	Sig.	t	Sig. (2- tailed)	Mean Difference	Std. Error
BETA1EU	7.052121	0.010205	1.460594	0.149523083	0.050223667	0.034385782
			1.460594	0.151562518	0.050223667	0.034385782
BETA2EU	0.587638	0.446443	0.895301	0.374327071	0.080882	0.090340609
			0.895301	0.374373927	0.080882	0.090340609
BETA3EU	14.4213	0.000352	0.298418	0.766450318	0.043732667	0.146548129
			0.298418	0.766667608	0.043732667	0.146548129

*Note that 1, 2, and 3 signify the periods.

As we can see from Table 2, all results lead us to reject our null hypotheses. The negative mean difference in Panel A of Table 2 shows that the risk of Asian banking stocks is greater than European ones, and all are statistically significant at $p = 1\%$. The same result is also established in Panel B, where risk of Asian region banking stock is greater than that of the United States market, and all are significant. The comparison between Europe and United States markets gives a risk in European portfolio rather than in that of the United States but significance is very low. The *F-test* shows great significance for Panel A and Panel B. This means that variances of beta in Panel A and Panel B are statistically not equal and each beta stands on its own variance. However, the *F-test* in panel C is not significant in comparison between Europe and the United States in the crisis and the post crisis period. The Mann-Whitney *U* non-parametric test confirms all these results.

Table-3: Mann Whitney Non Parametric Test

Panel A Europe and Asia

	BT1EAFR	BT2EAFR	BT3EAFR
Mann-Whitney U	90.000	43.000	259.000
Wilcoxon W	555.000	508.000	724.000
Z	-5.322	-6.017	-2.824
Asymp. Sig. (2-tailed)	.000	.000	.005

where EAFR is Europe and Asia Fowler Rorke.

Panel B Asia and United States

	BT1EAFR	BT2EAFR	BT3EAFR
Mann-Whitney U	105.000	54.000	282.000
Wilcoxon W	570.000	519.000	747.000
Z	-5.101	-5.855	-2.484
Asymp. Sig. (2-tailed)	.000	.000	.013

where AU is Asia FR and United States.

Panel C. Europe and United States

	BT1EAFR	BT2EAFR	BT3EAFR
Mann-Whitney U	375.000	396.000	387.000
Wilcoxon W	840.000	861.000	852.000
Z	-1.109	-.798	-.931
Asymp. Sig. (2-tailed)	.268	.425	.352

where EU is Europe & United States

From the Mann Whitney U test it is evident that European and US's banking stocks are significantly less risky than that of Asia, for all periods, pre, crisis and post. While the US Banking sector appeared to be less risky than that of the Euro Zone's, but this fact is not significant in statistical terms. These findings are in line with those we observed before. Thus we reject our null hypotheses and conclude that Asian stocks are the most risky followed by European and US stocks. These findings are significant at the 5% level of significance.

In order to test whether the three mean betas (independent sample) are not equal we further perform the Kruskal Wallis Test. The mean betas were found to be significantly different from each other. The following table summarises the result for the Kruskal Wallis non parametric test.

Table-4: Kruskal Wallis Chi Square Test

Ranks			
	REGIONS	N	Mean Rank
BETA1	Europe	30	33.37
	Asia	30	60.53
	United States	30	42.60
	Total	90	
BETA2	Europe	30	40.23
	Asia	30	50.27
	United States	30	46.00
	Total	90	
BETA3	Europe	30	44.53
	Asia	30	36.10
	United States	30	55.87
	Total	90	
	BETA1	BETA2	BETA3
Chi-Square	16.775	2.229	8.649
df	2	2	2
Asymp. Sig.	.000	.328	.013

where 1, 2 and 3 represent the three periods as used previously.

Our test statistics resulted in rejection of our null hypotheses and support our alternative hypotheses. The beta of banking stocks from Asia was found significantly higher than that of Western Europe and the United States. This is again similar to what we obtained initially. The Chi square statistics clearly specify that there is no mean difference between the three

samples. However, the significance is quite low in the case of the United States vs. Western Europe. All the beta estimates were significant at $p = 1\%$. It would be interesting to observe the beta values of the banking portfolio for the three periods under consideration. The mean beta for the Euro Zone during the pre crisis period was around 0.01. Now if we consider the CAPM framework the beta estimate, which is close to zero, makes the portfolio return equal to a risk free rate. The equilibrium return in the presence of such beta would be slightly higher than that of risk free rate prevailing in the economy. Similarly beta in the US for this period was 0.06, giving a similar observation of banking portfolio for the period. In Asia, as demonstrated by our statistics, the beta was significantly greater than one. One possible explanation for this phenomenon could be better prudential practices in the United States and Western Europe for the banking sector than in South East Asia.

In the period, when the crisis was at its peak, the beta for all three markets increased. Some studies have shown that the crisis in South East Asia not only affected the domestic economies but the fear of the spread of crisis like a contagion produced concerns in foreign economies including the United States and Western Europe. The beta of Asian banking stocks was around 3 and it is a clear picture of what was happening to the banking sector in the ASEAN countries.

In the post crisis era, as is evident from the empirics above, the Asian stocks recovered. However the stocks of the United States and Western Europe became more risky. In fact this period was the post September 11 era so investment was risky. This period could be termed as the crisis period for especially the United States and to some extent Western Europe. Like all of Wall Street, banking stocks also suffered and a high risk profile emerged.

VI. Conclusion

This study was aimed at testing the comparative riskiness of banking stocks in three different geographic markets. The theory of finance suggests that the systematic risk is the only relevant risk for which the investor is rewarded. There are many factors that contribute to the systematic risk both at the macro and micro levels. In an international environment the systematic risk becomes more relevant as it also includes country specific factors such as country risk, exchange rate risk etc. The banking sector is like the backbone of the economy of any country and surprisingly the number of banks traded, on organised or over the counter markets, is low. They also face the phenomenon of thin trading due to investors' low

interest in their shares. The analysis was based on the performance of banking stocks in the stock market. We compared the systematic risk for three regions. South East Asia was hit by one of the worst financial crisis in 1998. This crisis badly affected the economy of the Asian region. The financial sector was the most to suffer. Many banks were liquidated or were taken over by the government as they were unable to sustain the pressure created by the crisis. Some of the banks literally went bankrupt overnight. The failure of central banks to handle the crisis added fuel to the fire.

However, during this era, the banking stocks in EU and the US were performing normally. Hence we divided the study period into three different periods. The pre crisis era when there was no abnormality, the era of crisis when the South East Asian sector was on fire and the post crisis era when the banking sector started to recover. In the post crisis era the events of September 11 took place making Western markets more risky for investments. Our empirical results, as reported, support our notion of risk profiles of the three regions. We reject our null hypothesis for Asia vs. US and Asia vs. Europe concluding that Asian banking stocks were more risky than those of EU and the US. However, the results for Europe vs. US were not significant. These observations were supported by Kruskal Wallis Chi square and Mann Whitney test at the 5% level of significance. The mean beta estimates for the three periods indicate that banking portfolio of Asian stocks, during the crisis, was thrice as risky as that of the market. Moreover the beta estimate for the US and EU increased significantly in the post crisis period. The possible explanation for this phenomenon could be the events of WTC making investment in the stock market more risky. The less than one beta portfolio in the United States and Western Europe make them a strong candidate for investment.

However we feel that in order to have more insight into the issue, performance of the stocks using event study methodology, must be observed. Do these stocks outperform or underperform the market in the three periods and to what extent? This phenomenon requires further explanation and could be a possible issue for further research.

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Book Review

Khadija Haq, (Edited) *The South Asian Challenge*, Oxford University Press 2002, Second impression: OUP Pakistan 2003, pp 333.

The South Asian Challenge is a compilation of nine essays on South Asia by eminent economists and social science researchers. The idea was initiated by Dr. Mahbubul Haq who had set up a South Asia Commission to analyse and identify the challenges facing the region, in order to publish a report on its recurrent issues of poverty and economic crises, and to offer new directions for meaningful change. Before the Commission could draft an outline of the Report, Dr. Mahbubul Haq passed away. Subsequently it was decided by the Human Development Centre in Islamabad to publish this collection of essays as a tribute to his memory and his quest for a new world.

All the papers in this collection discuss the different components of development – political institutions, civil society, economic policy – and their experience in South Asia. The basic thesis is that while South Asia is a region vibrant with potential and possibility, it is also a place where a culture of violence, mistrust and political instability and a convergence of institutional vested interests have created a disabling environment for the people, and from which it would take a great deal of political will and civic intervention to enable them to go forward.

The first essay in this collection is by Dr. Meghnad Desai, Professor of Economics at London School of Economics. He begins by quoting from an article that Mahbubul Haq had written for *Dawn*, April 27, 1998, wherein he had poignantly asked, “...will the fourth great wave of development (after Japan, East Asia and China) touch the shores of South Asia? Can South Asia become the next economic frontier in the 21st century? Or, will it miss the opportunity once again, as it has so often done in the past?”

Dr. Desai explains why opportunities have been missed in the past, by analysing the fall out of colonial politics in the region. The administrative and economic policies of the colonists led to unequal development among different provinces of the sub-continent and which were sharpened and exacerbated in post-independence years by the rich and vocal provinces attracting larger funds from the treasury while the neglected regions grew poorer, giving rise to the phenomenal poverty levels still present in the region. Again, the way areas were demarcated for partition culminated in a permanent conflict between Pakistan and India on Kashmir, which subsequently ensured a strong military dominated economic polity in the two biggest players of South Asia. However, at the same time, it was colonist rule

that laid the basis of a commonality of perceptions and bonding among the peoples of a diverse, vibrant and ethnically varied sub-continent.

According to Dr. Desai, it is in this commonality rather than the conflict that the way to development lies for the entire region. The argument is that when the European Union was conceptualised, there were wide differences of constitution, laws and legal traditions, banking procedures, currency, language, and levels of development. In South Asia, there already exists a commonality of interest in western type democracies, a common Anglo-Saxon language of administrative, legal and political discourse, and that is understood across the seven countries unlike those in the EU, a currency that has developed from the same rupee in content and terminology, unlike the newly introduced Euro, a common history, a similar level of development, and a way of looking at the world that is different from the Latin American or Chinese or Japanese ways of looking at things. He is almost prophetic in his proposals for a common South Asian strategy for development. The 12th SAARC summit in Islamabad in January 2004 concluded on a note of unprecedented optimism: a common market and a common strategy for competing in the global textiles market. The foundations have been laid, and Dr. Desai's vision elucidated in 2001 may yet come true.

But the basis for cooperation lies in an understanding of the causes of poverty and lack of initiative in the South Asia of today. In their paper "Asian Drama Revisited", Paul Streeten and Adeel Malik compare the promise of the sixties with the reality of 2001 in terms of Myrdal's yardsticks. The concept of the "Soft State" is still very relevant in all parts of South Asia: both the state and civil society have still not developed to the extent that they can take their obligations seriously: work for welfare of the citizens, ensure equal distribution of resources, stop the evasion of taxes and bank loans, and devise and implement properly planned economic and developmental activities. Another common and still pervasive phenomenon in South Asia was the continued use of inappropriate developmental models and irrelevant concepts to economic planning which were creating problems (but also serving vested elite interests) back in the sixties.

"Asian Drama Revisited" is a fine piece of research with an interesting conclusion: as long as economic growth was dependent on investment, developing countries who had so-called "benign" dictatorships could and did well – Chile, South Korea, Taiwan, Singapore and China. But when the emphasis shifted to the productivity of investment, in terms of development of human resources and social capital, then democracies could provide better incentives and institutions to sustain growth. "...human development and economic growth lead, sooner or later, to the irresistible call for freedom." By

this thesis, it would seem that ultimately the ends justify the means. If so, would they recommend this path for present day South Asia?

In his paper "Globalization: What does it imply for South Asia?" Shahid Javed Burki discusses how Globalisation can help bring about positive change in South Asia if certain policy decisions are taken and implemented: 1: freezing of defence expenditure at 1996 levels will result in a release of \$80 billion for development, as suggested earlier by Dr. Mahbub Haq; 2: political stability; 3: poverty alleviation and investment in health and education; 4: development of physical infrastructure; 5: decentralisation in decision making; and 6: motivation of expatriates for the transfer of technology and remittances.

Francis Stewart and Taimur Hayat in their paper analyse the different kinds of conflict that exist in the region – ranging from border conflicts, ethnic and tribal clashes, insurgencies and secessionist civil wars to terrorist attacks due to religious intolerance. The result of this culture of conflict is not only that the state and society are militarised and consequently brutalised: it also translates into homeless refugees, displacement, disability, disruption of civic services and reduction in economic activity. For example, during the Bangladeshi war of independence, per capita GDP fell by over 20% and food production per head decreased by 12.5% during 1969 to 1972, a factor that also contributed to the famine of 1974.

South Asia's Crisis of Governance is a paper by Rehman Sobhan, who looks at the institutional infrastructure inherited from the colonists, and how it has not evolved commensurate with the needs of a free people. The key institutions of governance – democracy, judiciary, the administrative system, the military and the role of civil society – are analysed in the context of the evolution of political systems and their accountability to the citizens. The author gives a very concise and balanced review of the problems emanating from the power struggles of different vested groups, culminating in effective convergence of interests, so to speak, against the people. The role of civil society has achieved a critical significance in the developing countries, but its influence is limited and should not be used by the governments to shrug off their responsibilities. Also, the distinction between those organisations that have their roots in the history and political culture of each country, and those who are being manufactured by donor resources should be recognised for the sustainability of civic activism.

Nurul Islam discusses the agricultural development strategies in Asia and the lessons of experience and future prospects. Swaminathan also talks about the persistence of poverty in South Asia and the impact of the green

revolution. Gustav Ranis and Rashid Naseem in their paper “The Tortoise and the Hare” compare the development in east and south Asia in a policy framework. Arjun Sengupta’s paper emphasises that only a participatory process can ensure “The Right to Development”.

All in all, the collection of papers in *The South Asian Challenge* discuss the issues facing South Asia today, and bring out new facts and figures to light. But it is Dr. Desai’s paper that illuminates the reader with a brilliant synopsis of what has been and what could be. The book is useful in understanding the complex background in which change, although difficult, is inevitable.

Lahore

Rukhsana Shah

Book Review

Pakistan Human Condition Report 2003, Centre for Research on Poverty Reduction and Income Distribution (CRPRID), Planning Commission, Islamabad, UNDP, UNOPS, November 2003, pps 264.

It is becoming obvious that all large multi-ethnic societies, after attaining the beatific status of development, lose interest in removing poverty. The undying myth of development, that it will remove all poverty forever from all corners of the world, now lies shattered. It comes somewhat as a surprise that so many people believed it for so many years with a sense of naivety and innocence. Even affluent economies such as the US have not been able to rid their societies entirely of the plague of poverty from within their borders.

That said, it appears that somebody somewhere means business. The Centre for Research on Poverty Reduction and Income Distribution (CRPRID), an autonomous body with its own board of directors, has published its rather glossy *Human Condition Report 2003*, the second in its series. The main intent of the Report, as stated in the Forward, is to guide and influence policy makers and be an autonomous tool for monitoring and evaluating the progress made towards achieving the targets laid out in the Poverty Reduction Strategy of Pakistan as well as the Millenium Development Goals.

Tariq Husain, in the first chapter synthesises the analysis in the rest of the Report as well as presents additional analysis of the existing information for a policy maker's perspective. The next chapter is an elaboration upon the quality of the HIES/PIHS dataset of the FBS as well as PSES panel dataset of PIDE. Also included in the Report is an extensive analysis of HIES data and recommendations for policy makers and researchers. Then there is an analysis of the PSES data with insights both about the dynamics of poverty and its likely determinants.

AR Kemal provides coverage of all major studies on Income Distribution during the preceding fifty years. He highlights the vital link of poverty and income distribution policies and proposes a research agenda in line with this. This is followed by a lengthy chapter on malnutrition, disease and poverty links and the intergenerational dimension of this set of issues which to date has not received the priority it deserves in Pakistan. There is an enlightening chapter on the growth of public expenditure and its performance in a historical perspective, as well as the weakness of the fiscal relations with the idea of tracing the causes of the widening social gap.

The chapter by Tariq Husain includes a useful delineation of the poor to form the Poverty Spectrum, categorising them between the extremely poor, the chronically poor, the transitory poor, the transitory vulnerable, the transitory non-poor and the non-poor. Yet one has reservations about the distinction between extremely and chronically poor, because after all don't both the terms imply the same thing? Or perhaps this is but a question of semantics and not that significant. He also presents a logical though debatable framework for various paths on how to escape poverty, for instance the prime mover being education and higher wages thereafter. Policy lessons are spelt out and the chapter in its entirety is comprehensive with a holistic account of the poverty problem.

Dr. Tahir discusses how the data bases for poverty analysis themselves have been made a subject of controversy and attempts to place the issue in a proper perspective, arguing that what was flawed was the basis of raising the controversy, not the dataset. He further presents a historical backdrop to the study of poverty and the development of income and expenditure surveys with this intent.

Noshin Hussain in her piece offers certain very pertinent policy suggestions such as the need to undertake every possible effort to make available a reliable dataset for the estimation of poverty. In her opinion, it is the rural poor that should be the target group of population control policies while the rest of the population can benefit from the improvement in the quality of the population through better health facilities and cleaner environment, etc. She seems confident that with the implementation of certain measures and policy interventions, it is possible to reduce poverty by half in Pakistan by the year 2015 in accordance with the Millenium Development Goals.

In the next chapter the assertion is made, and rightly so, that the dynamics of poverty, movement into and out of poverty, have rarely been examined in Pakistan. A discussion on the socio-economic characteristics of the sampled households is given as well as a discussion of a poverty transition matrix showing movement into and out of poverty. Poverty transition and changes in household consumption are reported and factors associated with the poverty transition examined.

It is Dr. Kemal's contention in his piece that the increase in poverty should have resulted in more and not less studies on income distribution as the case has been. His study examines various indices of income inequality. His arguments throughout are substantiated with extensive and reliable data. Various testable hypotheses are presented in the hope that future research in

Pakistan will take up these studies. His concluding remark is that whereas several studies estimate the incidence of income inequalities, the reasons behind rising or falling income levels are generally unexplored territory.

The following chapter on Nutrition, a Factor for Poverty Eradication and Human Development takes considerable effort to plough through, however inherently useful, as there is considerable repetition and the author appears to belabour the point. However, the redeeming feature is the innovative and visibly effective diagrams and figures interspersed throughout the chapter.

The chapter on public expenditure presents a historical overview as well as touches on almost each and every aspect of the subject such as expenditure on defence, debt servicing, social, community and economic services. In his policy recommendations the author contends public expenditure may not be the only way to deliver certain services or to achieve particular objectives and that private spending may have a role to play. Further that increasing budgetary allocations for economic and social services may not be the only or most effective way to reduce poverty. Improving the effectiveness of spending through better allocation of public resources and better quality of public service delivery to the poor needs far more focus. Last but certainly not least, the statistical tables at the end of the Report are useful especially given the paucity of solid data in economies such as ours.

As an after thought, it would be worth pointing out here as the Indian scholar Ashis Nandy does, that poverty is not destitution. The two terms are often collated or collapsed by intellectuals and activists. It cannot be denied that the traditional safety net now increasingly lies in tatters. More and more a sizeable section of the poor in the world are becoming destitute and Pakistan is no exception. Development may have removed poverty in many societies, but it has done so by expanding the proportion and the absolute number of the destitute. And this reality should not be forgotten by our policy makers. If, and it is a big if, only some part of what is recommended in this Report is implemented in letter and spirit, the poor in this country might just not be compelled to suffer in the living nightmare of poverty and destitution.

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