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DETERMINANTS OF PAKISTAN'S EXPORT PERFORMANCE

Sajid Gul[1] & Shafiq Ur Rehman[2]

Abstract:

The purpose of this article is to investigate different factors affecting the demand and supply of Pakistani exports. Factors affecting the demand of exports include real effective exchange rate, nominal exchange rate, world production capability, world export price variable, whereas factors influencing supply of exports include, net national investment, gross capital formation, local production, FDI and Pakistan export price. The period of the study is from 1990 to 2010. The sources of data are State Bank of Pakistan, Karachi Stock Exchange, Handbook of statistics on Pakistan Economy and International Financial Statistics. Two Stage Least Square Method was applied in the study. Results show that, export demand decreases with increase in Real Effective Exchange Rate. Insignificant relationship was found between the demand of Pakistani exports and export price variable and nominal exchange rate. This study also found positive and significant association between the demand of Pakistani export and World Income. On the other side, positive link is found between local demand measured by GDP and supply of export. Insignificant relationship was found between Foreign Direct Investment and export supply but with negative coefficient. The variables gross capital formation and net national investment has significant positive association with supply of Pakistani exports.

Keywords: Export Growth, FDI, GDP, Two Stage Least Square

JEL Classifications: F13, F14, F15, F23, O1, L22

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1. Introduction

Exports play an important role in the economic development of developing or less-developed countries. It is also one of the major sources of foreign exchange currency in a country, which ultimately covers the Balance of Payment deficit and as well as utilizes in the formation of domestic capital, which is subsequently used in the process of the export production. Trade deficit of the Pakistan has increased quite a lot in the last few years, whereas export revenue has shown notable progress but import bills surpassed the exports revenue, which leads to a large upswing in the Balance of Payment deficit. The exports of Pakistan have increased sharply from 7.5 billion US dollar in 1999 to 18 billion US dollar in 2008 and 22 billion dollar in 2010. Various factors are responsible for this performance of the exports; one of the factors is Foreign Direct Investment, which has been growing constantly in Pakistan since nineties. However, despite of mounting FDI inflows, there has not been any major attempt to verify its positive roles in the export growth of Pakistan.

Redding and Venables (2004) have carried out a study to investigate the performance of the exports by taking into consideration the external factors and the internal factors. He found variance in the performance of the exports in different countries mostly due to the progression of the foreign factors. He also reported that the export supply of the country is related to the internal factors, such as the geographical location of the country and the quality of institutes.

In the first half of nineties Pakistan started adopting dynamic export promotion policies keeping in view of some major developing countries policies to improve the economy of Pakistan more efficiently whereas, before this, import substitution policy continued as one of the prominent and important policy in Pakistan. Further, in 1990 the government had abolished trade restrictions in the sectors of insurance, agriculture, energy and telecommunication to encourage the FDI. But due to constant instability in the political atmosphere of Pakistan and unpredictability in the policies, the level of FDI remained low in comparison with other developing countries of the region. However, FDI Stocks and Inflows have shown remarkable increase during the policies reforms period in Pakistan.

From the last few years, it has been observed that the impact of policy reforms on the economic growth has been one of the emerging topics in the development studies of economics. Since the middle of seventies the trade reforms have been shifted from the import substitution strategy approach to the export promotion strategy in several developing countries of the world and Pakistan is also one of those countries. Many studies revealed that export promotion strategies leads to economic growth because of positive correlation found between export growth and economic growth in several countries.

As the world is becoming more globalize, many counties are trying to maximize their advantage from this development, because globalization is a key source for gaining the Capital through FDI. Pakistan has been doing much to magnetize the FDI to improve the Pakistani economy. Foreign Direct Investment can contribute in number of ways in Pakistan. FDI Inflows is also responsible for the Foreign Exchange inflows, the establishment of the Industry in the country and one of the major contributions of FDI is the technology transfer.

The main purpose of the study is to explain the diversity in the export performance of Pakistan by taking into account the domestic factors affecting the supply of exports in Pakistan and foreign factors affecting the demand for Pakistani exports. The demand of exports is influenced by many factors. Primarily, geographic position of the country is very important, particularly a country is surrounded by a fast growing economies is expected to get more benefit in comparison with other countries located outside the region. Further components include international market access and trade barriers, which have same implications for trade as geographical position does. Finally, the infrastructure of the country is also expected to play a vital role. There are several components, which affects the export supply of a country. Internal market size together with geographical location of the country is an important factor, which may have implications for a country's export supply potential. Trade and economic policies of a country have some major affects through price component affecting a country's export supply capacity. The development component is also expected to affect a country's export supply in the form of

infrastructure facilities like National Highways of a country, Port services, Railway tracks, energy generating capacity and technology development.

1.1 Pakistan Export Performance

During the last one and half decade a lot of measures have been taken by the government of Pakistan to liberalize its trade and export policies in order to play its part to regain the economic growth in Pakistan. Due to the favorable policies in respect of export promotion, Pakistani exports were increased from 6.7 billion US dollar in the early nineties to 9.1 billion US dollar in 2002. According to the World Bank (2006). The share of manufacturing goods in Pakistan's GDP was sixteen percent in 2002, whereas share of manufacturing goods in the total export of Pakistan exceeds from 3.6 billion US dollar to 5.3 billion US dollars in the above mentioned period. Lorie and Iqbal (2005) reported that the growth rate of Real GDP of Pakistan had increased from 4% in nineties to six percent in 2003. In 1998 when Pakistan became an atomic power, Pakistan faced a steep decline in three consecutive years from 1998 to 2000. After the incident of 9/11 in 2001, Pakistan witnessed a major economic growth till 2005. This is mainly due to the inflow of foreign exchange either in the form of real investment or financial investment. The exports of Pakistan are mainly denominated in different sectors largely they belong to apparel and textile sector.

The World Bank (2006) reported that, Pakistani textile goods are largely exported to Hong Kong, China and Bangladesh. The leather goods are mainly exported to South Korea, Hong Kong and Italy. Fruits and vegetables are highly concentrated in the United Arab Emirates, Japan, Srilanka and India. Fishery products and Fishes are mainly concentrated in the USA, China, the UK and Japan; the exports of surgical instruments are mostly supplied to the USA and Germany. Lorie and Iqbal (2005) reported that, it can be seen from the measures taken by the government of Pakistan to improve the conditions for business in Pakistan. The share of FDI in the form of percentage to GDP has increased from 0.3 to 1 percent in 1999-2003 and 3 percent in 2003-2010. However, still we cannot claim that, we have done enough progress, when we compare progress of Pakistan with other countries lie in South Asia (China, Thailand and India). Still we need to improve

a lot of our areas for smooth execution of business; particularly the influence of government on many key commodities should be reduced, weak implementation of property right laws. The laws of labors are not encouraging for business community. The major issue, which has currently derailed all the sectors of Pakistan including business, is corruption. Corruption is still growing in Pakistan, which should be eliminated for the better economic growth or for trade purposes. The last key factor that is also need to be addressed, the physical infrastructure of the country which plays an important role in the exports supply of a country.

1.2 FDI Inflows of Pakistan

Over the past two decades, FDI in Pakistan has increased dramatically due to its better investment policies and friendly business environment. FDI inflows of Pakistan can be explained in terms of direct investment and portfolio investment. Until 1991, FDI inflows were not significant due to its inconsistent economic policies. The FDI inflows increased from $469.9 million in 1999-2000 to $798 million 2002-03 showing 65 percent increase and stood at $3521 million in 2005-06. In 2006-07 FDI reached to $5139 and in 2007-2008 FDI was $5409 but dropped to $2205 in 2009-10.

Fig. 1 FDI in Pakistan

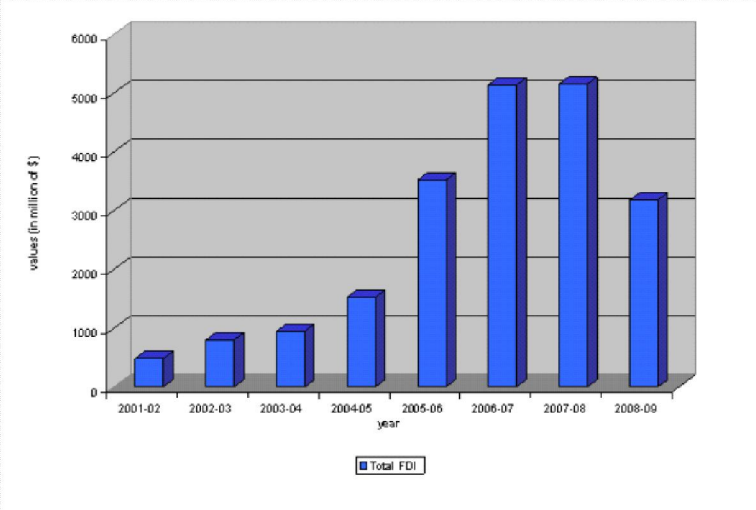


Table – 1.1 Foreign Direct Investment Flows

(Million Dollars)

FDI per Year	FDI	FDI as % of GDP	Capita ($)	FDI per Year	FDI	FDI as % of GDP	Capita ($)
1949-50	1.2	0.04	0.03	**1980-81**	35.0	0.30	1.20
1950-51	1.7	0.05	0.05	**1981-82**	98.0	0.15	0.50
1951-52	4.1	0.12	0.11	**1982-83**	42.1	0.15	0.56
1952-53	5.9	0.18	0.16	**1983-84**	48.0	0.23	0.79
1953-54	6.8	0.20	0.17	**1984-85**	70.3	0.46	1.58
1954-55	7.3	0.21	0.18	**1985-86**	145.2	0.32	1.14
1955-56	1.8	0.09	0.04	**1986-87**	108.0	0.42	1.66
1956-57	4.5	0.15	0.11	**1987-88**	162.2	0.53	2.08
1957-58	5.9	0.18	0.14	**1988-89**	209.0	0.54	2.08
1958-59	2.2	0.07	0.05	**1989-90**	216.2	0.54	2.27
1959-60	3.0	0.08	0.07	**1990-91**	246.0	0.69	2.99
1960-61	5.0	0.12	0.11	**1991-92**	335.1	0.60	2.69
1961-62	2.3	0.05	0.05	**1992-93**	306.4	0.68	3.02
1962-63	-0.6	0.01	0.01	**1993-94**	354.1	0.73	3.66
1963-64	2.5	0.05	0.05	**1994-95**	442.4	1.74	8.85
1964-65	37.1	0.61	0.72	**1995-96**	1101.7	1.10	5.48
1965-66	3.9	0.06	0.07	**1996-97**	682.1	0.97	4.82
1966-67	49.5	0.66	0.90	**1997-98**	601.3	0.75	3.62
1967-68	-1.4	0.02	0.02	**1998-99**	472.3	0.77	3.52
1968-69	59.0	0.70	1.02	**1999-00**	469.9	0.55	2.37
1969-70	72.4	0.72	1.21	**2000-01**	322.5	0.82	3.48
1970-71	90.1	0.03	0.07	**2001-02**	484.7	1.17	5.59
1971-72	8.1	0.02	0.03	**2002-03**	798.0	0.98	5.22
1972-73	-0.5	0.13	0.18	**2003-04**	949.4	0.97	6.34
1973-74	-6.3	0.09	0.16	**2004-05**	1,524.0	1.39	9.99
1974-75	14.9	0.08	0.16	**2005-06**	3,521.0	2.94	22.66
1975-76	22.5	0.07	0.15	**2006-07**	5,139.6	3.78	32.50
1976-77	10.7	0.20	0.49	**2007-08**	5,410.2	3.41	33.61
1977-78	35.5	0.19	0.48	**2008-09**	3,719.9	2.42	22.72
1978-79	36.0	0.12	0.37	**2009-10**	2,205.7	1.33	13.22
1979-80	28.0	0.13	0.44				

Source: Statistics & DWH Department, SBP

2. Literature Review

Warner and Kreinin (1983) found that prices of exports and exchange rates in different countries played a vital role in the determination of the export performance of any country. They used two different periods (Flexible exchange rate period and fixed exchange rate period) to determine the performance of the same model in two different exchange rate regimes. He had applied the OLS technique to analyze the behavior of exports. He stated that prices of exports and exchange rates in different countries played a vital role in the determination of the export performance of any country.

Khan and Goldstein (1978) applied the simultaneous equation model by using factors affecting the export demand side and export supply side by taking the sample from eight different countries. They found the negative link between export demand and export price variable further, they had found significant link between world income and export demand. Khan (1974) using OLS methodology carried out a research study to explain the export performance of solitary countries by using the annual data and employing the model for demand of exports through foreign factors, which comprised the quantum of exports as dependent variable and World inflation and income of world were taken as independent variable. He found that the prices of exported items played a crucial part in the export growth in the developing country.

Ahmad (2000) carried out a research study on the supply of exports to Bangladesh by employing different technique of Co integration along with Error correction Model and found positive link between price variable of exports for Bangladesh. He also reported the significant relationship between exchange rate and exports supply, local production capacity and export supply of Bangladesh. Bahamani – Oskooee (1986) had conducted a study on the same issue and presented results for cumulative export demand model for 7 under developed countries. He had taken a quantity of a country's export as dependent variable in relation with world income and relative export price variable were taken as an independent variable. He had applied Almon approach to determine the impact of foreign trade factors on a country's export performance. Findings of this study supports the result of studies in which, it was revealed that export performance of a country is affected by the relative prices of exports and exchange rates.

Sharma (2000) had carried out a research study on the export growth in India. He also explained the performance of Indian export growth by denominating the factors affecting the export growth in the form of export demand factors or factors affecting the demand of exports in India and in the form of export supply factors or factors that affect the supply of exports in India. He had applied 2-stage least square method and found negative and significant relationship between export demand and real effective exchange rate and export price variable. Here it is important to note that, he found insignificant coefficient for

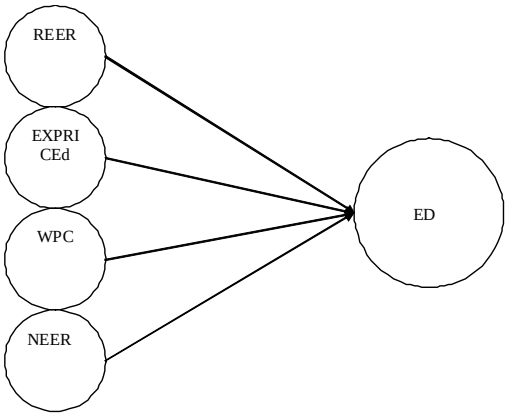
World income, which is in contrast with several studies discussed in this review and many studies conducted in different countries.

Hasan and Khan (1994) have carried out a research study in Pakistan on the same issue by taking external factors affecting the demand of exports and interior factors affecting the supply of exports by using 3-stage least square method. He found positive relationship between exports demand in Pakistan and found negative link with export price variable. On the other side, he had also found positively significant relationship between nominal exchange rate and exports demands in both cases.

Atique and Ahmad (2003) had conducted a study to explain the export growth of Pakistan by dividing the exogenous and endogenous factors in the form of export demand functions and export supply functions. Using OLS methodology he found with respect to export demand function, that exports of Pakistan increased, when real effective exchange rate of Pakistan decreased. Increase in World Economic Activity would raise the exports of Pakistan. They further reported with respect to export supply equation that relative prices of exports were estimated as insignificant variable, whereas potential out put and impact of wage rate had found significant variable in relation with supply of exports in Pakistan.

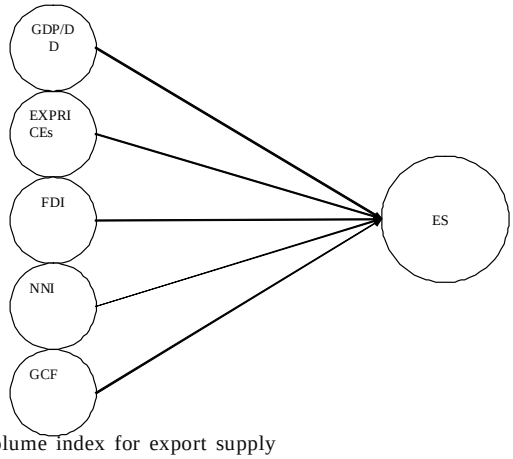
Afzal (2005) had carried out a study on the same topic in Pakistan in the same manner as previously Atique and Ahmad (2003) did by dividing the export supply factors and export demand factors. He had applied the Two Stage Least Square method to estimate the model for export demand and export supply of Pakistan. He came up with the results regarding export demand function, that export price variable and world income were found significant in the said study. On the other side, factors included for supply function of exports in Pakistan were found insignificant export price variable but coefficient of variable was found positive, production capability of Pakistani exports is inelastic in relation to relative prices of exports but on the other side it is highly elastic in relation to local production capability.

2.1 Theoretical Framework for Export Demand



Where,
ED= export demand for Pakistan
REER= Real Effective Exchange Rate
EXPRICEd= Unit Value of Pakistani Exports / World Consumer Price Index
WPC= World Production Capability as proxied by the aggregate GDP of the world
NEER= Nominal Effective Exchange Rate.

2.2 Theoretical Framework for Export Supply Model



Where,
ES= export volume index for export supply
GDP= Gross Domestic Product of Pakistan, which represent local demand
EXPRICEs= Unit Value of Pakistani Exports / Consumer Price Index ofPakistan.
FDI= Pakistan Foreign Direct Inflows
NNI= NNI is net national investment of Pakistan, which is Gross national investment less depreciation.
GCF= GCF is gross capital formation of Pakistan

3. Data & Methodology

In this research article the export performance of Pakistan is investigated with respect to domestic factors, influencing the demand side of Pakistani exports and foreign factors, affecting the supply side of Pakistani exports. From prior literature it can be assumed that REER, world income and relative prices of exports should be included in the same model or equation to examine the export demand factors that affects the export performance of Pakistan. Afzal (2005) had employed the model by using two factors, one is relative prices of exports and the other is real GDP. However, FDI inflows factor has been included in the export supply model in this study to evaluate the impact of FDI inflows on the Pakistani exports. The two other variables which have been used for the first time in Pakistan to study their impact on the supply of Pakistani exports are gross capital formation and net national investment. Following Afzal (2005) two Stage Least Square (2-SLS) Method was applied in the study. Autocorrelation and Spurious Regression are the major problems in time series data Afzal (2005). Granger and New Bold [(1974)] have suggested that *an R2 > d is a good rule of thumb to suspect that the estimated regression suffers from spurious regression*. Since autocorrelation is generally found in time series data, where necessary autocorrelation has been corrected. Therefore, it is assumed that disturbances follow first order autoregressive [AR (1)] scheme. Autocorrelation has no universal cure. Different methods suggested in Econometrics literature have their own limitations [Gujarati (1995)]. Several considerations in obtaining consistent estimates in the case of autocorrelation in 2SLS are discussed in Fair [(1970)].

$$ED = \beta 0 + \beta 1\, WPC + \beta 2\, NEER + \beta 3\, EXPRICEd + \beta 4\, REER \quad \text{———(1)}$$

$$ES = \beta 0 + \beta 1\, FDI + \beta 2\, EXPRICEs + \beta 3\, GDP + \beta 4\, NNI + \beta 5\, GCF \quad \text{——(2)}$$

Where in model 1,
ED represents export demand,
WPS is world production capability,
FDI is foreign direct investment,
NEER is nominal effective exchange rate,
EXPRICEd is Unit Value of Pakistani Exports / World Consumer Price Index,

In model 2,
ES is export volume index for export supply,
NNI is NNI is net national investment of Pakistan, which is Gross national investment less depreciation,
GCF is GCF is gross capital formation of Pakistan,
EXPRICEs is Unit Value of Pakistani Exports / Consumer Price Index of Pakistan,
GDP is Gross Domestic Product of Pakistan, which represents local demand,
FDI is Pakistan Foreign Direct Inflows.

3.1 Data

The time period of the data is from 1990-2010; we have used annual time series data to estimate the developed econometric models. For the purpose of estimation we have conducted detailed research to obtain the data; the data is collected from handbook of statistics on Pakistan Economy 2010, Economic Survey of Pakistan and International Financial Statistics (IFS). The data is collected from different sources depending on the availability and authenticity of the data, which is being used in this study. The export volume index for export supply, which is used as dependent variable is taken from International Financial Statistics (IFS). The data for other independent variable i.e. Real Effective Exchange Rate, Unit value of Export, World Consumer Price Index and the data for World Income (Weightage average of GDP for major trading partners of Pakistan) are also taken from International Financial statistics. The data for Consumer Price Index is taken from Handbook of statistics on Pakistan Economy 2010 and the data for GDP for Pakistan is taken from the Economic Survey of Pakistan.

4. Discussion of Results

This study builds on the work of Redding and Venables (2004). The study tries to explain the diversity in the export performance of Pakistan by taking into account the domestic factors affecting the supply of exports in Pakistan and foreign factors affecting the demand for Pakistani exports. However, this study has a different econometric approach from that used by Redding and Venables. Econometric

techniques are used to control the unobservable country heterogeneity possibly affecting the real values of countries' exports. Accounting for unobservable heterogeneity should allow the identification of any differences in the effect of and importance of export performance components, which are linked to the degree of development of the external sector itself. In other words, the techniques used here allow for the testing for non-linearities in the relationship between export performance and its components.

In table 1.2 Insignificant positive relationship was found between the demand of Pakistani export and relative prices for Pakistani export which means that demand for Pakistani export is not affected by the relative export prices. Similar result was found by Anwar (1985) who carried out a study on the same issue and did not get any significant link between export price variable and export demand. This result is in contrast with early studies carried out by Afzal (2005), whereby he found a negatively and significant link between the exports price

Table 1.2: Results of Two-Stage Least Squares For Export Demand Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-116.5878	89.21202	-1.306862	0.2097
EXPRICEd	8.993696	20.69874	0.434505	0.6697
REER	-1.637216	0.775861	-2.110193	0.0509
WPC	301.2290	105.2462	2.862136	0.0113
NEER	2.524154	0.063119	0.362522	0.7172
MA(1)	0.927800	0.060121	15.43224	0.0000

R-squared	0.802477	Mean dependent var	117.3890
Adjusted R-squared	0.753096	S.D. dependent var	41.88672
S.E. of regression	20.81328	Sum squared resid	6931.080
F-statistic	16.25078	Durbin-Watson stat	1.511827
Prob(F-statistic)	0.000017		
Inverted MA Roots	-.93		

variable and export demand. Further, Warnernen and Keinin (1983) also found that export price variable is one of the major source that affects the export growth of a country. Significant and negative relationship is found between export demand and Real Effective exchange Rate, which means that, appreciation of the Pakistani Rupee, decreases the export demand or in other words increase in Real Effective exchange Rate of Pakistan decreases the demand of Pakistani exports. The result is similar to the study of Joshi and Little (1994) who also found negative relationship between exchange rate and exports demands.

Table 1.3: Results of Two-Stage Least Squares For Export Supply Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.13605	26.09778	0.924832	0.3749
GDP	0.601820	0.248677	2.420088	0.0340
FDI	0.000523	0.002044	0.255873	0.8028
EXPRICEs	-10.01114	4.726148	-2.118245	0.0577
GCF	0.147893	0.220576	0.670487	0.5164
NNI	3.06E-10	1.42E-10	2.151901	0.0545
AR(2)	0.355101	0.278163	1.276594	0.2280
MA(2)	-0.979846	0.022319	-43.90274	0.0000
R-squared	0.991568	Mean dependent var		89.08316
Adjusted R-squared	0.986203	S.D. dependent var		37.19757
S.E. of regression	4.369301	Sum squared resid		209.9987
F-statistic	184.8001	Durbin-Watson stat		2.137312
Prob(F-statistic)	0.000000			
Inverted AR Roots	.60	-.60		
Inverted MA Roots	.99	-.99		

The result is also consistent with the findings of Atique and Ahmed (2003) in Pakistan in which, they reported that decrease in Real Effective exchange Rate increases the demand for exports in Pakistan. World Income is positively and significantly related to the export growth of Pakistan, which implies that with the increase in world income the export demand of Pakistan will increase. The findings are in line with the studies conducted by Atique and Ahmad (2003) and Afzal (2005) in which they reported that increase in World Economic Activity also increases the demand of Pakistani exports. Other studies

carried out on the underlying issue in India by Joshi and Little, 1994) found positive and significant relationship between World Income and demand for Indian exports. Furthermore the link between explanatory variable nominal exchange rate and export demand is insignificant.

In table 1.3 the Relative prices of Pakistani exports has insignificant association with export supply in Pakistan, which implies that there is a lack of evidence regarding the impact of export prices relative to domestic prices in Pakistan on the export supply of Pakistan. However positive association is found between domestic demand i.e., GDP and supply of export in Pakistan. The result is similar with Sharma (2000) in which he found a positive relation between export supply of India and local Demand Pressure. The relation between Foreign Direct Investment and export supply of Pakistan is insignificant and has a negative coefficient. This result is in agreement with the study carried out by Sharma (2000) in India whereby, he reported an insignificant relationship between Foreign Direct Investment and export supply in India, which shows that Foreign Investors invests in Pakistan with the objective to avoid trade barriers and this type of investment is not helpful for the export growth of the country. On the other hand some studies found contradictory results to our findings like by Njong (2008) carried out a study in Cameroon to explain the impact of Foreign Direct Investment on export growth of Cameroon, wherein he found positive and statistically significant coefficient for FDI, which means that with the increase in FDI inflows in Cameroon affected the export growth positively, which shows that Foreign Investors invests in Cameroon mainly due to attain the comparative advantage and this type of investment is very much helpful in the export growth of a country. Relative prices of Pakistani exports found statistically significant coefficient for export supply in Pakistan, which implies that increase in export prices of Pakistan relative to domestic prices in Pakistan decreases the export supply of Pakistan. Earlier studies conducted in Pakistan Atique and Ahmad (2003) had found positive relationship between supply of export in Pakistan and export price variable but they did not find statically significant coefficient for export price variable. Similarly, Afzal (2005) had also conducted a study in Pakistan on the same issue and found positive relationship between export supply and export price variable but he also did not find any statistically significant coefficient for export price variable. Whereas, according to our estimated results, we have found statistically significant and

negative relationship between exports price variable and export supply in Pakistan. This may be because of different time period being used in these studies. However, our finding supports the result concluded by Sharma (2000) in which, he found significant and negative relationship of relative prices of exports in relation to export supply in India. The results also support the findings of Warner and Kreinin (1983) and Bahamani – Oskooee (1986). The variables gross capital formation has insignificant positive association with supply of Pakistani exports, and as the result suggests is not the most important determinant of Pakistan supply of exports. Thus it means that Pakistan's supply of exports is not dependent on gross capital formation. Furthermore we have also found highly significant positive correlation between net national investment which is explanatory variable and supply of Pakistani export. Thus when investment in the country increases it will bring an increase in the supply of exports, as it does in Pakistan.

Table 1.4: Correlation Matrix Supply Model

		DD	FDI	PEX/PCP	GC	NNI
GDP	Pearson Correlation	1	.773(**)	-.720(**)	-.006	.927(**)
	Sig. (2-tailed)		.000	.000	.980	.000
	N	21	21	21	21	21
FDI	Pearson Correlation	.573(**)	1	-.511(*)	.198	.858(**)
	Sig. (2-tailed)	.000		.018	.389	.000
	N	21	21	21	21	21
EXPRICs	Pearson Correlation	-.420(**)	-.511(*)	1	.102	-.600(**)
	Sig. (2-tailed)	.000	.018		.661	.004
	N	21	21	21	21	21
GCF	Pearson Correlation	-.006	.198	.102	1	-.052
	Sig. (2-tailed)	.980	.389	.661		.824
	N	21	21	21	21	21
NNI	Pearson Correlation	.327(**)	.658(**)	-.600(**)	-.052	1
	Sig. (2-tailed)	.000	.000	.004	.824	
	N	21	21	21	21	21

Table 1.5: Correlation Matrix Demand Model

		REER	PEX/WCI	WY
REER	Pearson Correlation	1	.132	-.062
	Sig. (2-tailed)		.570	.789
	N	21	21	21
EXPRICs	Pearson Correlation	.132	1	.364
	Sig. (2-tailed)	.570		.104
	N	21	21	21
WPC	Pearson Correlation	-.062	.364	1
	Sig. (2-tailed)	.789	.104	
	N	21	21	21

Table 1.4 and 1.5 shows the correlation matrix of the explanatory variables included in the supply model and the demand model; it is clear from the results that no multicollinearity is found between the explanatory variables because there is no serious correlation in any of the explanatory variables. According to Bremen and Kenny (1998) there will be multicollinearity between explanatory variables if the correlation between any two variables is greater than 0.80.

5. Conclusion

The purpose of this article is to investigate different factors affecting the demand of Pakistani exports and supply of exports. Factors affecting the demand of exports include real effective exchange rate, nominal exchange rate, world production capability, world export price variable, whereas factors influencing supply of exports include, net national investment, gross capital formation, local production, FDI, Pakistan export price. The period of the study is from 1990 to 2010. The data is gathered from various sources including the State Bank of Pakistan, Karachi Stock Exchange, Handbook of statistics on Pakistan Economy, Economic Survey of Pakistan and International Financial Statistics (IFS). Two Stage Least Square (2-SLS) Method was applied in the study. Results show that, export demand decreases with increase in Real Effective Exchange Rate. Insignificant relationship was found between the demand of Pakistani exports and export price variable and nominal exchange rate. This study also explains the positive and significant correlation between the demand of Pakistani export and World Income. On the other side, positive link is found between local demand measured by GDP and supply of export. Insignificant relationship was found between Foreign Direct Investment and export supply but with negative coefficient. The variables gross capital formation and net national investment has significant positive association with supply of Pakistani exports.

5.1 Future Recommendations

- In Pakistan the inflow of FDI is not very good in spite of its growth in recent years, and in spite of exports it is pushing up the imports demand.
- In order to make policies for FDI inflow the authorities of Pakistan requires defining their priorities. And those areas

needs to be identified and priorities must be set which attract more FDI.

- The Pakistan TOT and decrease in fiscal deficit will only be improved if those sectors in which Pakistan has a comparative advantage direct the flows of FDI. Furthermore the government needs to improve the law and order situation and the infrastructure resources, reduce corruption and improve port services. So due to these steps Pakistan's image will improve and FDI inflow will increase.
- The researcher in the future needs to do a study to capture the sectoral specificity, because the analysis in this study is carried out at an aggregate level.
- In this we have also not taken time into account. If the data are available the researcher needs to compare results across time. However without making it a panel analysis, it should also be possible to integrate time into the cross-sectional analysis itself.

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MARKET CONCENTRATION IN MANUFACTURING, FINANCIAL AND SERVICE SECTORS OF PAKISTAN

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Abstract:

The objective of this study is to estimate market/seller concentration for Pakistan's manufacturing, financial and services sectors for the period 2011 and to compare these results with estimates of previous studies. To explore economic power in Pakistan's economy aggregate concentration has also been computed. Herfindahl-Hirshman (HI) index and CR3 ratio methods have been used to compute market/seller concentration and aggregate concentration. Our estimates show a persistent high concentration ratio in the textile composite, fuel, leasing modaraba, insurance, glass and ceramics electrical goods and Vanaspati sectors, while we see a slight increase in the concentration of Textile spinning, jute, sugar, paper &board, banking and chemical sectors. The persistent high market concentration has caused a decline in efficiency, social welfare and higher prices.

Keywords: Market /Seller Concentration, Three Firm Ratio, Herfindhal Index, Aggregate Concentration Ratio.
JEL Classification: D 4400

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1. Introduction

Market control by a few firms is disapproved by economic theory on account of its adverse affects. A firm follows the selfish motive of profit maximization incurring a social cost to society. If the market is controlled by a few numbers of firms, there is a strong possibility that firms will cooperate with each other rather than to compete. According to Oligopoly theory there exists a positive relationship between market power and seller concentration, as the degree of concentration increases, the ability of sellers to coordinate the price behavior increases, hence seller concentration makes collusion easier

The main objective of the measurement of concentration is to get an understanding about the economic and the market power of the economy. These estimates help governments in the formulation of anti-trust and competition policies.

The legal possession of unconstrained resources and wealth in a few hands results in accentuating economic and market power in Pakistan. Concentration not only has an economic impact, but it gives rise to political power to large industrial families, which is used to further enhance their economic power {White (1974)}.

Eminent economists such as Kamien and Scwartz (1975), Mansfield et.al (1971),Schere and Ross (1991), Shephard(1997) and Wizarat (2003) agree that high concentration levels adversely affect Research & Development (R&D) and innovation and Efficiency, profits and prices. Thus Market power gives rise to negative social effects.

Not much work has been done in Pakistan on aggregate and market concentration. Sobhan (1965) measured for the first time the concentration for the years 1959-1960, in Pakistan. According to his estimates, 75 industrial units or 2.1% of manufacturing sector produced

a high 43.8% of all value added. Papanek's (1967) estimated industrial economic power in Pakistan in 1959 had revealed that sixty industrial groups controlled 60.6% of all private industrial assets and 43.5% of all private industrial sales and 15.6% of total private sales of the industrial sector.

In 1968, Mahboobul Haq presented his famous argument that 22 largest families in Pakistan owned 66% of the total industrial effort of the country, 70% of the total insurance funds and 80% of the total bank assets. White (1974) argued that in 1968 in Pakistan, 43 families controlled 53% of the total assets of non-financial firms listed on the Karachi Stock Exchange. In the banking sector 7 industrial families controlled 7 banks and these accounted for 60.3% of all bank deposits. Excluding the deposits of government-controlled banks and foreign banks, these 7 banks accounted for 91.6% of all deposits and 84.4% of all earning assets of private Pakistani-controlled banks. Wizarat (2003) measured aggregate and market concentration levels for the manufacturing, financial and services sectors of firms listed on the Karachi Stock Exchange for two points of time 1992 and 2000. The estimates reveal that in the 18 manufacturing industries overall concentration level increased from 69.75% in 1992 to 78.74% in 2000 in terms of CR3, while in terms of HI the overall increase was from 0.2464 to 0.3402. In the financial sector the overall concentration has increased from 49.91% to 60.04% in the corresponding periods using CR3, while according to HI the overall concentration in the financial sector has declined slightly from 0.1946 to 0.1931. In the services sector according to CR3 the concentration level declined from 93.93% to 80.71%, while in terms of HI the concentration level increased from 0.4233 to 0.5606 during 1992 to 2000. The figures on aggregate concentration in the financial, manufacturing and services sectors show a substantial increase from 79.2% in 1992 to 95.6% in 2000. Ashfaq Khan (2010) in his unpublished M.Phil. thesis found that transport and communication, paper and board, tobacco, jute, microfinance and vanaspati and allied industries were highly

concentrated during the study period. Banking, chemical and fuel and energy were moderately concentrated. While engineering, sugar and allied, textile spinning, textile composite and cement industries were not concentrated. Aggregate concentration levels based on selected industries were high during the entire period of his study.

The objective of this study is to compute market/seller concentration for Pakistan's manufacturing, financial and services sectors for the period 2011 using CR3 and Herfindahl-Hirshman (HI) index as there was room for further research after the publication of latest Balance Sheet Analysis 2011 (BSA). As obvious from above literature review, Similar work has also been done by Wizarat (2003) while Ashfaq (2010) estimated these ratios only for manufacturing and services sector. We have selected CR3 and Herfindahl-Hirshman (HI) index measures in order to compare our results with the estimates of Wizarat (2003) and Ashfaq (2010).

Following the introduction, this study is organized as follows. Section II discusses methodology and data sources. Section III presents estimated results on market/seller concentration and compares it with previous studies as mentioned earlier. Section IV is about estimates on aggregate concentration and Section V concludes this study.

Methodology and Data:

Different methods like n-firm **concentration** ratio, Herfindahl-Hirshman Index, Entropy index, Variance of Logarithms and Lorenz curve measures are employed to compute industrial and aggregate concentration. Davies (1979) suggested not using Lorenz curve due to its inefficiency. This study follows the strategy of Wizarat (2003) and uses Herfindahl-Hirshman Index and concentration ratio (CR3).

1. Herfindalh-Hirshman Index: HI is the sum of the squares of market shares of all the firms in the industry

$HHI = S_1^2 + S_2^2 + S_3^2 + \ldots\ldots\ldots + S_N^2 \quad 1/N < HHI < 1 \qquad (1)$

Where

HHI =Herfindahl-Hirshman Index

N = total number of firms in an industry

S_i^2 = share of fixed assets of each firm in total industry fixed assets squared

Normalized Herfindahl index is also employed to compute industrial concentration. The value of normalized HHI ranges from 0 to 1:

$HHI_0 = (H - 1/N)\ D\ 1 - 1/N \quad 0d''HHI_0\ d''1 \qquad (2)$

Where

HHI_0 = normalized Herfindahl-Hirshman Index

H = Herfindahl-Hirshman Index

N = total number of firms in an industry

Table: 1 Critical levels for Herfindahl-Hirshman Index[1]

Range of HHI	Level of concentration
HHI < 0.1	Un-concentrated
0.1 < HHI < 0.18	Moderately concentrated
HHI > 0.18	Highly concentrated

2. Concentration Ratio: If we order firms by market share in descending order — firm 1 is the largest, 2 is the second largest, etc, then S_1 e" S_2e"…….S_ie"……..S_N. The n firm concentration ratio is the sum of the market shares of the largest firms:

$CRn = S_1 + S_2 + S_3 + \ldots\ldots\ldots\ldots\ldots + S_n \qquad 0 \leq CRn \leq 100 \qquad (3)$

Where

CR_n= top 3 firm concentration ratio

S_i = share of fixed assets of top 3 firms in industry fixed assets.

[1]Brostein G. et al (2007) Identifying Growth opportunities using information analytics: A case of five industries. System and information engineering symposium 2007. Charlottesville

The value of concentration ratio ranges from 0 to 100 percent. The critical values for concentration ratio are given in table 3.2 below[1], which are for 4-firm concentration ratio. In the present study the results obtained will be interpreted in terms of 3-firm concentration ratio.

Table: 2 Critical values for 4-firm concentration ratio

Range of 4-frim concentration ratio	Level of concentration
0% to 40%	Low concentration
40% to 60%	Medium concentration
60% to 100%	High concentration

3. Aggregate Concentration

Aggregate concentration is measured in terms of the top 100 firms in the manufacturing and services sectors.

Aggregate concentration will be measured as:

$$AC = S_1 + S_2 + S_3 + \ldots\ldots\ldots\ldots + S_n \qquad 0 \leq AC \leq 100 \qquad (4)$$

Where

AC= aggregate concentration

n=100 (largest 100 firms)

Data for computing market and aggregate concentration have been taken from the Analysis of Balance Sheet for the selected companies listed in Karachi Stock Exchange. In 2008, fixed assets of 430 firms in 14 manufacturing sectors were used. For the sake of comparison, we have also taken these 14sectors. According to Balance Sheet Analysis 2011 these sectors pertain to 356 firms.

Results

[2] Shepherd, William G. "Causes of Increased Competition in the U.S. Economy, 1939-1980." Review of Eco- nomics and Statistics 64 (November 1982): 613-626.

Market concentration was estimated for the year 2011 for manufacturing, financial and services sector in Pakistan. As Ashfaq's study excluded financial sectors except banks we have also calculated CR3 for financial sectors for the year 2008.

Table 3 presents comparative analysis of different manufacturing sectors in Pakistan in 2000, 2008 and 2011 using concentration ratio (CR3). There has been a significant increase in the firm concentration of textile composite, fuel, leasing companies, electrical goods, and Vanaspati sectors, while we see a slight increase in the concentration of Textile spinning, jute, sugar, glass & ceramics, paper &board, banking and chemical sectors. The transport and communication and modarba sectors recorded a significant drop of 12% since 2008.

Table: 3 Analysis of Different Manufacturing Sectors in Pakistan in 2000, 2008 and 2011

Industry	2000[1]		2008[2]		2011*	
	No of Firm	CR3-2000	No of Firm	CR3-2008	No of Firm	CR3-2011
Textile Spinning	28	30.27	24	31.49	19	34.27
Textile Composite	9	75.66	160	17.7	131	32.5
Jute			6	92.38	4	98.7
Sugar	7	52.26	36	31.2	36	33.27
Vanspati	2	100	9	72.22	4	99.83
Cement	13	56.07	23	37.62	19	37.96
Engineering	8	78.3	42	33.32	22	42.06
Fuel & Energy	19	66.7	28	46.37	18	61.64
Transport & Communication	6	98.72	12	96.43	13	84.73
Paper & Board	8	89.24	10	95.27	6	97.88
Banking	16	51.05	37	35.87	38	37.73
Chemical	8	92.35	39	53.18	43	58.43
Glass & Ceramics	4	88.74	6	73.63*	8	74.403
Electrical Goods	4	100	8	89.46*	8	91.64
Modarabas	15	56.5	23	71.5*	26	59.85
Leasing Cos	15	66.8	8	84.15*	9	91.64
Life Insurance			5	72.96*	7	65.18
Non-Life Insurance			33	48.41*	38	46.66
Tobacco	2	100	4	99.74*	3	100
Total Firms	164		513		452	

[1]: Wizarat 2003,
[2]: Ashfaq 2010,
*: present study estimates

In the financial sector, modarabas leasing and life insurance companies have consistently very high concentration ratio. Whereas in the banking sector and non-life insurance sector we found moderate concentration as shown separately in table 4 also. The concentration level in leasing sector increased from 84.1 to 91.64 from 2008 to 200, while it was 66.8 in 2000. Though modaraba, life insurance and non-life insurance sectors show a decline in the level of concentration during the same time period yet the overall concentration level in the financial sector is consistently high.

Table: 4						
Industry	2000[1]	2000[1]	2008*	2008*	2011*	2011*
	No of Firm	CR3-2000	No of Firm	CR3-2008	No of Firm	CR3-2011
Banking	16	51.05	37	35.87	38	37.73
Modarabas	15	56.5	23	71.5	26	59.85
Leasing Cos	15	66.8	8	84.15	9	91.64
Life Insurance	--	--	5	72.96	7	65.18
Non Life Insurance	--	--	33	48.41	38	46.66

1: Wizarat (2003), *: present study estimates

Table 4 shows comparable HI

According to HI measure, the concentration level has increased for jute, sugar, vanaspati, fuel &energy, paper &board, glass & ceramics, electrical goods and leasing sectors since 2008. While it has dropped for textile composite, cement, engineering, transport and communication, modaraba, life and non-life insurance and banking sector. This shows a fall in 5 sub sectors of manufacturing and financial sectors since 2008.

CR3 and HI measures provide conflicting results about the concentration level in different manufacturing sectors. But HI measure is expected to provide a relatively more reliable picture of concentration level. Table 6 compares financial sector on the basis of HI measure form 2000 to 2008 to 2011. It shows increase in concentration level of leasing and modaraba sectors while a relative fall in HI measure for banking sector from 2000 to 2011 and for overall insurance sector from 2008 to 2011.

Table 5 shows comparable HI

Table: 5	**2000[1]**		**2008[2]**		**2011***	
Industry	**No of Firm**	**HI-2000**	**No of Firm**	**HI-2008**	**No of Firm**	**HI-2011**
Textile Spinning	28	0.086	24	0.06824	19	0.0747
Textile Composite	9	0.2508	160	0.2207	131	0.05454
Jute			6	0.343877	4	0.60759
Sugar	7	0.1488	36	0.54724	36	0.617
Vanspathi	2	0.722	9	0.21188	4	0.3421
Cement	13	0.1408	23	0.81048	19	0.08926
Engineering	8	0.2214	42	0.64845	22	0.089003
Fuel & Energy	19	0.1857	28	0.10131	18	0.16044
Transport & Communication	6	0.9353	12	0.4657	13	0.31685
Paper & Board	8	0.5649	10	0.5719	6	0.84387
Banking	16	0.137	37	0.72904	38	0.078298
Chemical	8	0.4332	39	0.1342	43	0.15761
Glass & Ceramics	4	0.324	6	0.2169*	8	0.2246
Electrical Goods	4	0.5126	8	0.4117*	8	0.4746
Modarabas	15	0.145	23	0.2135*	26	0.1562
Leasing Cos	15	0.171	8	0.3327*	9	0.658
Life Insurance**			5	0.2587*	7	0.0233
Non-Life Insurance**			33	0.1078*	38	0.092
Tobacco	2	0.603	4	0.52155	3	0.5204
Total Firms	164		509		449	

1: Wizarat 2003, 2: Ashfaq 2010, *: present study estimates **: Not included in previous study

Table: 6	2000[1]		2008*		2011*	
Industry	No of Firm	HI-2000	No of Firm	HI-2008	No of Firm	HI-2011
Banking	16	0.137	37	0.72904	38	0.078298
Modarabas	15	0.145	23	0.2135	26	0.1562
Leasing Cos	15	0.171	8	0.3327	9	0.658
Life Insurance			5	0.2587	7	0.0233
Non Life Insurance			33	0.1078	38	0.092
Total Firms	164		106		118	

1: Wizarat (2003), *: present study estimates

Comparison of Aggregate Concentration Levels

Aggregate concentration was estimated for the publicly incorporated sector using equation 5. These estimates belong to manufacturing and services sector firms listed in Karachi Stock Market (KSE). Table 7 reveals an interesting picture, Aggregate concentration levels by {Wizarat (2003)}, show that aggregate concentration level of top 100 firms (registered on the Karachi Stock Exchange) were 79.20% in the year 1992, and for the year 2000 this figure approaches 95.60%. During the first decade of the liberalization era, this is an extraordinary increase in aggregate concentration {Wizarat (2003)}. Ashfaq estimates of the aggregate concentration level of the top 100 firms of KSE are from 85% to 86% during 2001-2008. Our estimates for the year 2011show aggregate concentration of 79%. Comparing these results with the previous estimates, we find that although the aggregate concentration levels have declined, but aggregate concentration level has been high by any standard. This study excludes financial sector in computing aggregate concentration and that might be one of the causes of declining aggregate concentration levels.

Table 7

No	Years	CR100
1	1992[1]	79.2
2	2000[1]	95.6
3	2001	86.09
4	2002[2]	86.43
5	2003	86.02
6	2004	85.21
7	2005	85.36
8	2006	85.16
9	2007	86
10	2008[2]	86.45
11	2011[3]	79.12

1 : Wizarat (2003), 2 : Ashfaq (2008), 3: present study

Conclusion

This study estimates market concentration and aggregate concentration levels for the year 2011 and compares them with studies done in the past, namely the work done by Wizarat (2003) and Ashfaq (2010). Our estimates show that there is a high firm concentration in textile composite, fuel, leasing modaraba, insurance, glass and ceramics electrical goods and Vanaspati sectors, while we see a slight increase in the concentration of Textile spinning, jute, sugar, paper &board, banking and chemical sectors. The transport and communication sector recorded a significant drop of 12% since 2008. According to HI measure, the concentration level has increased for jute, sugar, vanaspati, fuel &energy, paper &board since 2008. While it has dropped for textile composite, cement, engineering, transport and communication and banking sector. This shows a fall in 5 sub sectors of manufacturing and financial sectors since 2008. Previous estimates of the Aggregate concentration level of the top 100 firms of KSE are from 85% to 86% during 2001-2008. Our estimates for the year 2011show aggregate concentration of 79%. The persistent high market concentration has been an impediment in promoting R&D culture in Pakistan. Persistently high level of firm concentration has obvious negative effect on income distribution. Vulnerable economy and deteriorating law & order are also important factors in this regard. Hence efforts through government regulations and facilitation are required in order to check the growing concentration in different sectors of Pakistan.

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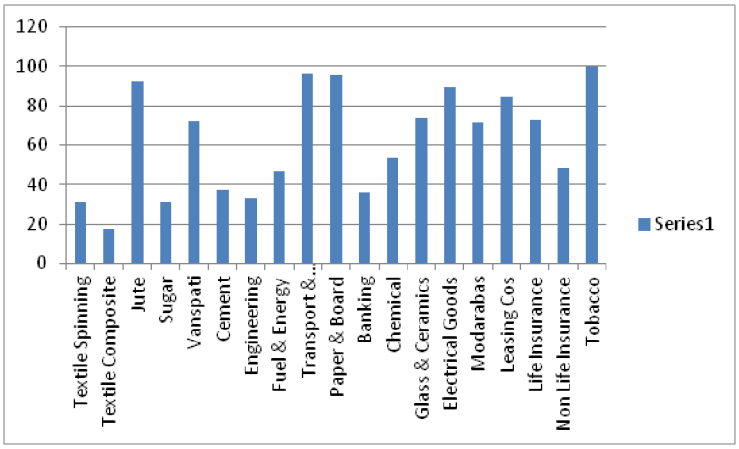
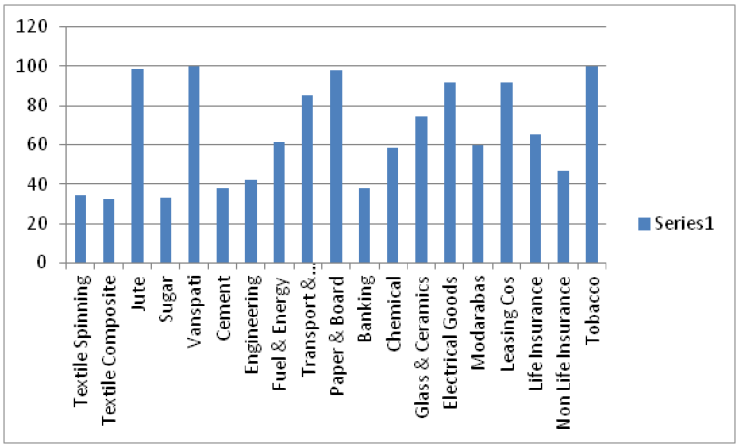
Appendix

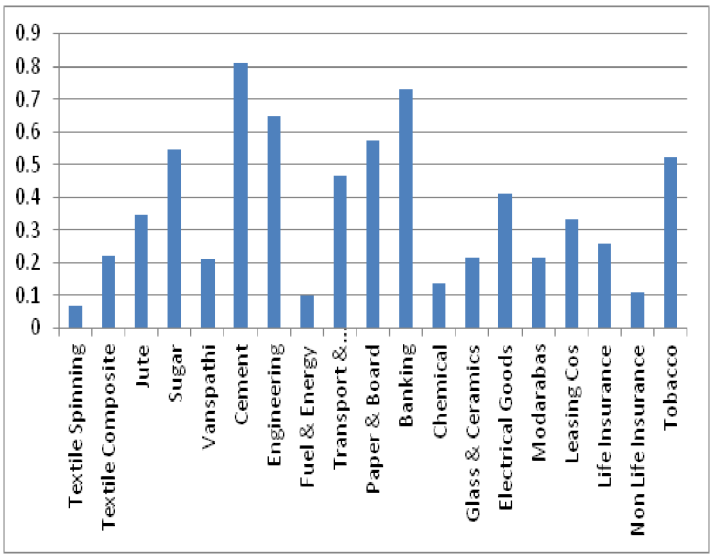
Graph A-1: CR3 2008 Estimates



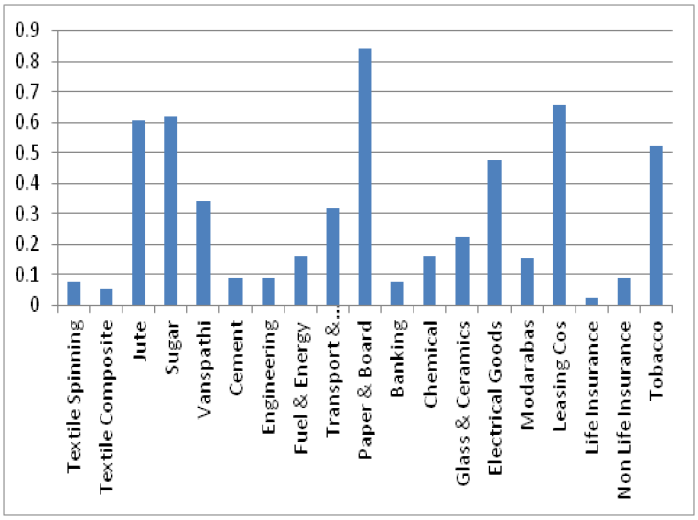
Graph A-2: CR3 2011 Estimates



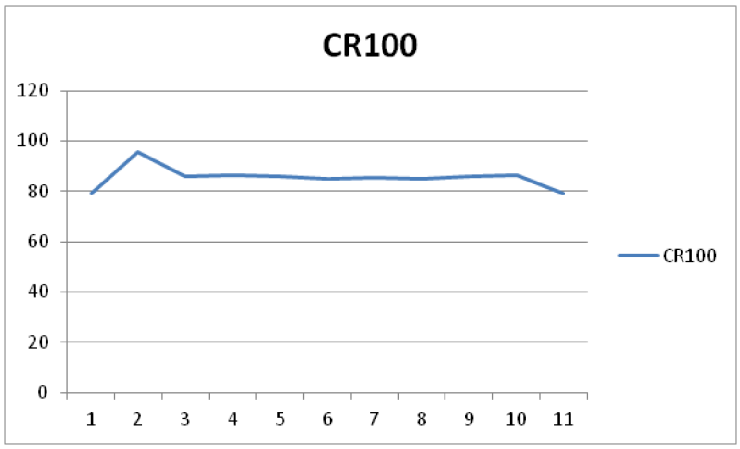
Graph B-1: HI Measure 2008 Estimates



Graph B-2: HI Measure 2011 Estimates



Graph C-1



TOTAL INVESTMENT, FDI AND ECONOMIC GROWTH IN PAKISTAN: AN ARDL CO INTEGRATION ANALYSIS

Irfan Ullah[1], Nisar Ahmad[2] and Sofia Anwar[3]

Abstract

The relationships among total investment, foreign direct investment (FDI) and growth are examined in this study for Pakistan. The ARDL technique is used to analyze these relationships during the period of 1974-2012. The ADF-test and Philips-Peron test are used to check the unit roots for stationary of the time series data. The economic growth is found as a significant determinant of total investment in both periods; the short run as well as long run. Therefore, it is suggested for economic policy makers to devise those economic policies which enhance the process of growth and development in the country. The coefficient of FDI inflows is not found significant in short run and the long run periods. It may be due to the high share of FDI to services sector than commodity producing sector in Pakistan.

Keywords: Total investment, FDI inflows, economic growth, ARDL.
JEL Classification: C30, E10,F43, 0400

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1. Introduction

Investment is considered a key determinant of GDP growth in any economy. It is opined that economies which allocate a high proportion of their gross domestic product to capital investment may successed in sustaing higher economic growth as compared to economies which allocate less (UNCTAD, 1999). In a closed economy, investment is generally financed through domestic savings, but most of the developing economies are facing savings-investment gaps. During the 1980s and the 1990s, restructuring and transition of economies took place in most of the world; therefore, it was possible to increase foreign flows of capital. The transnational corporations (TNCs) are the main source of international flows of capital. These flows of TNCs comprise of FDI inflows and portfolio investment.

The total investment is a sum of domestic investment and foreign investment. The domestic investment is generally financed through domestic savings and foreign investment by transnational corporations (TNCs) and multinational corporations (MNCs). There are two main types of FDI: the first is the Greenfield investment and the second type is the cross-border mergers and acquisitions (M & As). The Greenfield investment comprises of new investment projects by TNCs and helps in increasing capital formation in the host economy. Whereas, in the cross-border M&As, only ownership transfers from domestic firms to foreign firms and brings no change in capital formation at the time of mergers but it may increase capital formation in the recipient country through different channels of FDI .

The FDI not only bridge the savings-investment gap but it is also a more stable source than other foreign financial resources for growth and development in any economy. Mostly, it is based on longer-terms than bank lending and portfolio flows (UNCTAD, 1998). The reason of less volatility of FDI as cited in UNCTAD (1999) is that it becomes a part of physical capital and less prone to reversals in

unfavorable financial situations than bank financing and portfolio investment. Another advantage of FDI inflows is that it does not create debt. The profits earned by TNCs can repatriated only when a project can yield returns. The TNCs may be reinvested their profits in the host country and it is called reinvested-FDI.

In Pakistan, like other developing economies, the savings rate is not very high and FDI is considered an important source to bridge savings-investment gap. During the 1970s and 1980s, FDI inflows were meager but after restructuring of the economy of Pakistan, the FDI inflows increased steadily during 1990s. In the first decade of 2000, the total inflows of FDI in Pakistan were about $25.015 billion in which $21.974 billion was Greenfield investment and $2.805 billion was privatization proceeds.

The FDI inflows concentrate in a few sectors of Pakistan's economy such as, oil and gas, financial business, power and communication sectors. The major share of FDI inflows goes to services sectors and the share of FDI inflows towards commodity producing sector of Pakistan economy are nominal. Within the services sectors, communication (IT & telecom) and financial business have received a major chunk of FDI inflows during the time period 2001-2009 (Pakistan Economic Survey, 2008-09).

The objective of the study is to explore the relationships among the total investment, FDI inflows and economic growth in Pakistan over the period of 1974-2012 in the short run as well as the long run. This study also contributes to the specific study of the dynamic linkages between total investment, FDI inflows and economic growth in Pakistan.

2. Literature Review

Borensztein et al., (1998) used cross-country regression framework for the period of 1970-1989 explains the impact of FDI

inflows on growth of 69 developing countries. It was found that FDI facilitated the transfer of technology from rich to developing economies which contributed to increase GDP growth rate larger than domestic investment in the host country. The authors also found that the FDI inflows and human capital complement each other and the interaction term of FDI and human capital was more positively significant than an only FDI term in the host country. They concluded that human capital at a minimum threshold level was necessary to gain positive effects from foreign direct investment.

Aitken and Harrison (1999) analyzed the efficiency of firms and found out technological spillovers from foreign firms to domestic firms. A richer data set of over 4000 Venezuelan plants between 1976 and 1989 was used to find out the productivity effects of foreign firms on domestic firms in Venezuela. The results showed that the foreign equity participation within the plant had a positive effect on productivity than domestic plants as foreign owned plants had 10.5 per cent more output than domestic plants.

Zhang (2001a) analyzes the relationship between GDP growth rate and FDI inflows in developing countries. The Johansen co integration technique was used for the analysis of the long run relationship whereas Error Correction Model (ECM) was used to estimate the short-run relationships. GDP growth and FDI long run relationship was found in case of five countries and other remaining six countries had no long run relationship.

Zhang (2001b) used cross-sectional and panel data of 28 regions of China to analyze the contribution of FDI in the growth of economy for the period of 1984-1998. The entire period (1984-1998) was broken down into three sub periods to analyze structural changes over time in China. The regression estimates supported the impact of FDI on economic growth in case of China. The FDI not only contributed China's economic growth through direct effects but it also has positive

externality effects. The coastal regions received the largest share of FDI and had a higher growth rate of GDP than inland regions of China.

Chakraborty and Basu (2002) estimated FDI and growth relationships in the short run and the long run in case of India for the time period 1974-1996. The ECM and co integration methodologies were used to find the out short run as well as the long run relationships among these variables. It was concluded that FDI had a positive relationship with GDP and an inverse relationship with the proportion of import duties in tax revenue. It was also concluded that FDI displaced labor force in India.

Athukorala (2003) tested the FDI-led growth hypothesis and collected response from civil society and foreign firms about the FDI in Sri Lanka. The Vector Autoregressive (VAR) and ECM were used for analysis over the time period 1959-2002. It was found that FDI had statistically insignificant effect on GDP growth rate and domestic investment and trade liberalization had positive effect on GDP growth rate in the long run. The civil society and foreign firms response to the importance of foreign direct investment on economic development was positive.

Qi (2007) examined the causal relationship among economic growth, total investment and inward FDI for a panel of 47 countries by using a time series data over the period of 1970-2002. The estimated results were heterogeneous and mixed countries to countries and regions to regions. The main policy implications of his findings were that FDI or domestic investment enhanced GDP growth rate significantly in the process of the development of a country or a region and it happened only under some conditions.

Yang (2007) analyzed the relationship between GDP growth rate and FDI for a panel of 110 countries from different economic regions over the period of 1973-2002. The FDI impacts on growth were different over time and across regions. He found that FDI had a

statistically significant positive relationship with economic growth for the period of 1973 to 1987 in Latin America, but negatively in the Middle East. The OECD and ECA (Europe and Central Asia) had positive effects of FDI on GDP growth rate, but Africa faced a negative relationship between growth and FDI for the period of 1988-2002. The study also found no statistically significant relationship between growth and FDI in South Asia and East Asia regions.

Mughal (2008) analyzed the effects of FDI on GDP growth rate of Pakistan for time series data of 1961-2005. The endogenous growth model with FDI was used in the study. The results of his study explained that FDI inflows influenced the economic growth in a strongly positive way, whereas FDI had statistically insignificant relationship with domestic investment in the short-run. Human capital appeared to have no significant effect on foreign direct investment inflows. Domestic investment had strong positive effects on both GDP and FDI inflows.

Ang (2009) analyzed the cointegration relationship among FDI, private domestic investment (PDI) and public investment (PUB) in Malaysia. The trivariate VAR model was used in the study for the time series data of 1960-2003. He found the evidence that PUB and FDI crowds-in PDI in Malaysia. He concluded that one percentage point increase in PUB and FDI caused in 0.281 and 0.985 percentage points increase in PDI respectively which showed that FDI had greater impact on private domestic investment than PUB.

Falki (2009) examined the impact of FDI on GDP growth rate in Pakistan by using the data for the time period of 1980-2006. The Ordinary Least Square was used to estimate the regression and found negative and statistically insignificant coefficient of FDI. Whereas, the domestic capital was statistically significant and one per cent change in domestic capital could change economic growth of about 0.4 percentage points. The elasticity of export was 0.04 which was also statistically insignificant.

Shah et al., (2012) examined the consequence of foreign capital inflows on domestic investment in case of Pakistan during the period of 1990-2010. It was found that only FDI contributed to stimulate home investment, while portfolio and loans had an insignificant role in stimulating domestic investment. It was also concluded that domestic investment significantly contributed to increase the volume of portfolio investment and foreign direct investment.

3. Data and Methodology

The time series data of gross fixed capital formation (GFCF), FDI inflows and growth rate of gross domestic product (GDPG) are used in this study over the period of 1974-2012. These series are used as proxies for total investment, investment by foreign firms and economic growth respectively [Van Loo (1977); UNCTAD (1999); Kim and Seo (2003)]. The time series data of gross fixed capital formation and GDP growth rate is obtained from the World Banks' online World Development Indicators, 2013 and the foreign direct investment inflows are obtained from UNCTAD's online World Investment Report, 2013. The GFCF and FDI inflows are at current prices in US dollar and these variables are further converted into real variables dividing by the consumer price index (2005=100) and finally at the stage of model specification, these variables are converted into natural logarithm form. The description of the variables is provided in table1.

Table 1: Description of Variables

Variables	Description
LRGFCF	Natural log of real gross fixed capital formation (US$ million)
LRFDI	Natural log of real foreign direct inflows (US$ million)
GDPG	Growth rate of GDP (in per cent)

The bound test approach developed by Pesaran and Shin (2001) is used in this study to analyze the co integration between total investment, the FDI inflows and the GDP growth rate. The important features of this approach are as follows: It is most suitable for small samples. It is applicable whether the regressors are stationary

at the level, *I(0)* or at the first difference, *I(1)*, or mixed of these orders of integration. The other advantage of this approach is that variables can assume different optimal lags selected by information criteria, which is not possible in other co integration techniques.

4. Empirical results

4.1 Results of Unit Root Tests

The ADF test and Phillips-Perron (PP) test are applied to check the stationarity of the variables in this study. The unit roots tests were used to verify that there should be no variable with second order of integration, *I(2)*. The bound test for co integration is only applicable in the cases of *I*(0), *I*(1) or mixed. The results of stationarity tests are shown in table 2. The ADF-test shows LRGFCF, LRFDI and GDPG are stationary at first difference. Whereas, the Phillips-Pherran (P-P) test shows that LRGFCF and LRFDI are integrated at first difference and GDPG is stationary at level.

Table 2: Results of Unit Root Tests

ADF-Test (intercept and no trend)					PP-Test (intercept and no trend)	
Variable	At level	At 1st difference	Critical Values		At level	At 1st difference
LRGFCF	-2.33	-3.79**	1 per cent	-3.63	-2.17	-3.60**
GDPG	-2.68	-6.10***	5 per cent	-2.94	-4.38***	-11.69***
LRFDI	-1.73	-3.48*	10 per cent	-2.61	-2.92*	-7.31***

Note: (***), (**) and (*) show significance level at 1 per cent, 5 per cent and 10 per cent respectively

4.2 Results of Bound Test for Co integration

The bounds test approach is used in ARDL framework to find out the long run relationship among LRGFCF, LRFDI and GDPG in the study. The unrestricted Error Correction Model (ECM) in ARDL (p,q,r) framework is as:

$$\Delta LRGFCF_t = \alpha_0 + \sum_{i=1}^{p} \beta_i \, \Delta LRGFCF_{T-i} + \sum_{i=0}^{q} \gamma_i \, \Delta LRFDI_{t-i} + \sum_{i=0}^{r} \delta_i \, \Delta GDPG_{t-i} +$$

$$\theta_1 LRGFCF_{t-1} + \theta_2 LRFDI_{t-1} + \theta_3 GDPG_{t-1} + \varepsilon_t \qquad (1)$$

Here, Δ is used for the first difference operator, the coefficients of first part such as: β_i, γ_i and δ_i represent the short run dynamics and θ_1, θ_2, and θ_3 represent the long-run relationship between LRGFCF,LRFDI and GDPG. The bounds test is used to find out the presence of long-run relationships among these variables. The null hypothesis of no long run relationship (no co integration) is as:

$$H_0: \theta_1 = \theta_2 = \theta_3 = 0$$

And test against alternative hypothesis is as:

$$H_a: \theta_1 \neq 0, or\ \theta_2 \neq 0, or\ \theta_3 \neq 0$$

The variable edition test is used to calculate F-statics and compare with F-critical values of lower and upper bounds that is *I(0)* and *I(1)* at 5 per cent significance level included intercept and no time trend. There are three possible outcomes based on F-statistcs:

(i) If $F_{stat} > F_{critcal}$ of upper bound, the co integration will be existed,
(ii) If $F_{stat} < F_{critcal}$ of lower bound, the absence of co integration, and
(iii) If F-value lies between the bounds, the co integration will be inconclusive between the variables.

The results of F-statistics for the variable addition test are given in table 3. The variable addition test is repeated for three alternative equations in which dependent variables are LRGFCF, LRFDI and GDPG respectively. The results of bound test show that the co integration exists in two cases: in the first case, LRFDI and GDPG are the long-run forcing variables for LRGFCF and in the second case; GDPG is explained by LRGFCF and LRFDI in the long-run. In the third case, no co integration is found when LRFDI is dependent variable and LRGFCF and GDPG are its explanatory variables.

Table 3: Results of Bound Test for Long-run Relationship

Dependent Variables	F-Statistics	Lag	F-critical Values		Conclusion
			I(0)	I(1)	
$F_{(LRGFCF/LRFDI,GDPG)}$	$F_{(3,19)}$= 8.86	3	3.793	4.855	Co integration
$F_{(LRFDI/LRGFCF/GDPG)}$	$F_{(3,19)}$=1.52	3	3.793	4.855	No Co integration
$F_{(GDPG/LRGFCF,LRFDI)}$	$F_{(3,19)}$=6.61	3	3.793	4.855	Co integration

Note: The critical values of lower and upper bounds are taken from Table CI (iii) of Pesaran et al., (2001)

4.3 The Long-run Results

The bound test confirms the existence of co integration between LRGFCF, LRFDI and GDPG. After establishing co integration relationship the following long run model is estimated.

$$LRGFCF_t = \alpha_1 + \sum_{i=1}^{p} \beta_i LRGFCF_{t-i} + \sum_{i=0}^{q} \gamma_i LRFDI_{t-i} + \sum_{i=0}^{r} \delta_i GDPG_{t-i} + \varepsilon_t \qquad (2)$$

In the long run ARDL (p,q,r) β_i, γ_i, and δ_i are the long run coefficients and p, q and r are the lag order of the LRGFCF, LRFDI and GDPG respectively. The lag order is selected by using the Schwarz Bayesian Information criterion (SBC), which is most appropriate criterion for small size sample. The optimal lag order of the model is ARDL (3,0,1) which is selected by microfit 4.0 software developed by Pesaran and Pesaran (1997) . The results of the long run model are presented in table 4. The long run coefficients of LRFDI and GDPG are 0.0087 and 0.1530 respectively. The long run estimates of this study show that the economic growth (GDPG) is positive and significant forcing factor of total investment.

Table 4: Results of Long-run Coefficients of ARDL (3, 0, 1)

Regressorsion	Coefficient	Standard Error	T-Ratio [Prob]
LRFDI	0.0087	0.0414	0.2099[.835]
GDPG	0.1530	0.0276*	5.5366[.000]
C	4.4437	0.1828*	24.3068[.000]

Note: (*) shows significant at 1 per cent level.

Appendix table 1 shows the forign direct investment in Pakistan by types. In the first decade of 2000, the total inflows of FDI in Pakistan were about $25.015 billion in which $21.974 billion was Greenfield investment and $2.805 billion was privatization proceeds. Appendix table 2 explains the country wise foreign direct investment in Pakistan whereas the appendix table 3 provides informations about foreign direct investment in different sectors of Pakistan.

4.4 Results of the Error Correction Model

The Error Correction model in the ARDL (p,q,r) framework provides the short-run relationships between variables. It also provides the speed of regaining equilibrium after disequilibrium in the short run. The following ECM model is estimated.

$$\Delta LRGFCF_t = \gamma_1 + \delta_1 (ecm)_{t-1} + \sum_{i=1}^{p} \alpha_i (\Delta LRGFCF)_{t-i} + \sum_{i=1}^{q} \beta_i (\Delta LRFDI)_{t-i} + \sum_{i=1}^{r} \eta_i (\Delta GDPG)_{t-i} + \varepsilon_t \quad (3$$

In the equation 3, the δ_1 is the Error Correction term and α_i, β_i and η_i are the short run coefficients of LRGFCF, LRFDI and GDPG respectively. The results of the ECM are shown in table 5. The coefficient of the error correction term is -0.373 which lies between 0 and -1 according to the theory. It is significant at the 1 per cent significance level and shows a moderate speed of convergence which is about 37.3 per cent to equilibrium in a year after the initial shock in the short run. The short run coefficients of LRFDI and GDPG are 0.003 and 0.027 respectively. The coefficient of GDPG is significant at 1 per cent significance level and the coefficient of LRFDI is positive but statistically insignificant during the study period.

Table 5: Results of Error Correction Model (ECM) based on ARDL (3,0,1)

Regressor	Coefficient	Standard Error	T-Ratio [Prob]
DLRGFCF1	0.206	0.124	1.661[0.107]
DLRGFCF2	0.224	0.123	1.817[0.079]
DLRFDI	0.003	0.015	0.211[0.835]
DGDPG	0.027	0.007	4.182[.000]
DC	1.661*	0.356	4.663[.000]
ecm(-1)	-0.373*	0.071	-5.275[.000]

Note: (*) shows the significant at 1 per cent level

4.5 Diagnostic Tests Analysis

The other advantage of ARDL methodology is that it also provides the diagnostic analysis of the model. The most important diagnostic tests are serial correlation, functional form, normality and heteroscedasticity. The results of the diagnostic tests are shown in table 6.

Table 6: Results of Diagnostic Tests

Test Statistics	LM Version	F Version
Serial Correlation	CHSQ(1)= 1.962[0.161]	F(1, 28)= 1.614[0.214]
Functional Form	CHSQ(1)= 1.136[0.286]	F(1, 28)= 0.912[0.348]
Normality	CHSQ(2)= 1.194[0.551]	Not applicable
Heteroscedasticity	CHSQ(1)= 1.905[0.168]	F(1, 34)= 1.899[0.177]

R^2 =0.931, R-bar Squared=0.9171, DW-statistic=2.2521

and Durbin's h-statistic= 0.035[.972]

The results show that all the diagnostic tests satisfy the model. The value of R^2 is 0.931 which means that the model is explained about 93 per cent by the GDPG and LRFDI. The Durbin's h-statistic is .035, which shows the absence of autocorrelation in the estimated model.

4.6 Stability Analysis of the Model

The cumulative sum of recursive residuals (CUSUM) and Cumulative Sum of Square of Recursive Residuals (CUSUMSQ) are

used for stability analysis in ARDL formulation. The upper and lower bounds at 5 per cent significance level are used for stability analysis.

Figure 1:Cumulative Sum of Recursive Residuals

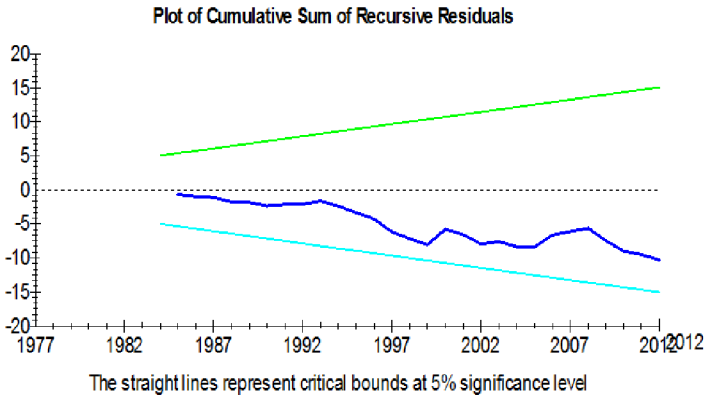
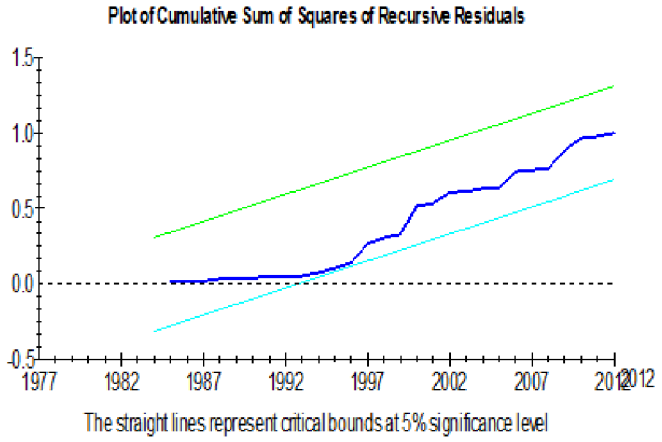


Figure 2:Cumulative Sum of Square of Recursive Residuals



Conclusion and Policy Implication

The short-run and the long-run impacts of FDI inflows and economic growth on total investment are estimated in this present study using ARDL (p,q,r) framework during the period of 1974 to 2012. The bound test approach found the existence of the long run relationship among total investment, FDI inflows and economic growth in Pakistan.

The coefficient of LRFDI for both the long run and the short run are 0.0087 and 0.003 respectively, which are statistically insignificant. The statistically insignificant effect of FDI inflows on total investment may be due to the high share of FDI to services sector than commodity producing sector. In 1990s and early years of 2000s Pakistan has privatized certain state owned enterprises (SOEs) and in the process of privatization and M&As, there was only transfer of ownership from domestic firms to TNCs and no change in the existing capital stock.

The estimated model is best fitted and the value of R-bar Squared explains that t about 93 per cent model is explained by economic growth and FDI inflows. All other diagnostic tests also satisfy the model. The value of error correction coefficient is -0.373 and according to the theory. It shows a moderate speed of adjustment after any shock in the given model.

she economic growth is found a significant determinant of the total investment during both the short run and the long run. Therefore, it is suggested for policy makers to adopt those economic policies which will helpful to maintain the average growth rate about 6 per cent in the country. In our region, India and China are maintaining the average GDP growth rate of about 10 per cent for last many years and the inflows of FDI towards China and India are also the highest in our region. The foreign direct investment has exponential growth only during 2004-2007. The total inflows of FDI during the period 1974-

2013 are about $150.6 billion, in which $24.714 billion are only in the first decade of 2000s. There is still need to increase the inflows of foreign direct investment in Pakistan.

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APPENDIX

Appendix Table 1: Foreign Investment in flows in Pakistan ($Million)

Year	Greenfield Investment	Privatization Proceeds	Total FDI	Private Portfolio Investment
2001-02	357.00	128.00	485.00	-10.00
2002-03	622.00	176.00	798.00	22.00
2003-04	750.00	199.00	949.00	-28.00
2004-05	1,161.00	363.00	1,524.00	153.00
2005-06	1,981.00	1,540.00	3,521.00	351.00
2006-07	4,873.20	266.40	5,139.60	1,820.00
2007-08	5,276.60	133.20	5,409.80	19.30
2008-09	3,719.90	0.00	3,719.90	-510.30
2009-10	2,150.80	0.00	2,150.80	587.90
2010-11	1,634.8	0.00	1,634.8	344.5
2011-12	820.7	0.00	812.6	(46.9)
2012-13	14473	0.00	14473	119.5
Total	24,794.3	2,805.60	27,5899	2,822.0

Appendix Table 2: Country Wise FDI Inflows ($ Million)

Country	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
USA	1,309.3	869.9	468.3	238.1	227.7	223.0
UK	460.2	263.4	294.6	207.1	205.8	632.3
U.A.E	589.2	178.1	242.7	284.2	36.6	19.9
Japan	131.2	74.3	26.8	3.2	29.7	30.7
Hong Kong	339.8	156.1	9.9	125.6	80.3	242.6
Switzerland	169.3	227.3	170.6	110.5	127.1	149.0
Saudi Arabia	46.2	(92.3)	(133.8)	6.5	(79.9)	3.2
Germany	69.6	76.9	53.0	21.2	27.2	5.0
Korea (South)	1.2	2.3	2.3	7.7	25.4	25.8
Norway	274.9	101.1	0.4	(48.0)	(275.0)	(258.4)
China	13.7	(101.4)	(3.6)	47.4	126.1	90.6
Others	2,005.2	1,964.2	1,019.6	631.3	289.7	283.6
Total including Pvt. Proceeds	5,409.8	3,719.9	2,150.8	1,634.8	820.7	1447.3
Privatization Proceeds	133.2	0.0	0.0	0.0	0.0	0.0
FDI Excluding Pvt. Proceeds	5,276.6	3,719.9	2,150.8	1,634.8	820.7	1447.3

Appendix Table 3: Sector Wise FDI Inflows ($ Million)

Sectors	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Oil & Gas	634.8	775.0	740.6	512.2	629.4	559.6
Financial Business	1,864.9	707.4	163.0	310.1	64.4	314.2
Textiles	30.1	36.9	27.8	25.3	29.8	10.0
Trade	175.9	166.6	117.0	53.0	25.3	5.7
Construction	89.0	93.4	101.6	61.1	72.1	46.0
Power	70.3	130.6	(120.6)	155.8	(84.9)	28.4
Chemical	79.3	74.3	112.1	30.5	96.3	(47.6)
Transport	74.2	93.2	132.0	104.6	18.7	44.1
Communication (IT&Telecom)	1,626.8	879.1	291.0	(34.1)	(312.6)	(385.7)
Others	764.5	763.4	586.3	416.3	282.6	872.6
Total including Pvt. Proceeds	5,409.8	3,719.9	2,150.8	1,634.8	820.7	1447.3
Privatization Proceeds	133.2	0.0	0.0	0.0	0.0	0.0
FDI Excluding Pvt. Proceeds	5,276.6	3,719.9	2,150.8	1,634.8	820.7	1447.3

IMPACT OF CLIMATE CHANGE ON MAJOR CROPS OF PAKISTAN: A FORECAST FOR 2020

Mirza Asjad Baig[1] and Shahid Amjad[2]

Abstract:

The study evaluates the impact of global climate change on major agricultural crops production of Pakistan. A time series data from the period 1966-2009 was used to achieve the objectives. The data obtained from Pakistan Bureau of Statistics. The study employs Vector Auto Regression (VAR) representation to analyze the impact of global climate variability on production of major crops in Pakistan. On the basis of the past data, this research captures the trend for the climate change affect on major crops yield for the phase 2010-2020. The results reveal that change in global climate has an adverse impact on major crops production in Pakistan. In 2020, additional increase in the level of temperature would increase the production of major crops, whereas water availability has positive impact on major crops while excessive rainfall affects major crops production in Pakistan. Global warming will raise the occurrence and strength of extreme events i.e. flood, drought, cyclone that would harm the agriculture production and also affect the water balance in future. The performance of Pakistan agriculture sector is dependent on surface water irrigation that is under increasing stress.

Keywords: Green House Gases, Global Warming, Crop production, Vector Auto Regressive (VAR) Model.
JEL Classification: Q 1100

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1. Introduction

The global climate has been changing continuously over millennia but the last few decades have witnessed massive emissions of the greenhouse gases due to increased anthropogenic activities i.e. burning of fossil fuel, industrial processes, land degradation, deforestation (IPCC, 1990, 2007; Farooqi et al., 2005). Countries which lie in Asiatic region are especially prone to the impacts of increased concentrations of greenhouse gas emission and the potential increased frequency and devastation caused by storms, floods, droughts, heavy rains, together with potential rise in sea level affects water balance and agriculture productivity (Mendelssohn et al., 2000; Farooqi et al., 2005). Global Climate change impacts economic activity makes the agriculture sector extremely vulnerable.

The greenhouse gases consist of Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O) and water-vapours which causes the global warming (Pervez et al, 2010). CO_2 is usually emitted by burning of fossil fuels, wastes, wood etc. Methane is formed as a bi-product of biodegradation of organic matter (composting), from coal mining, exploration of gas and oil and transportation. Nitrous Oxide (N_2O) is emitted through industrial and agricultural activities (Pervez et al, 2010). Carbon Dioxide concentration has potentially increased from 280 parts per million (ppm) (pre industrial era) to 380 ppm as of recent due to anthropogenic activities (Pervez et al, 2010). Greenhouse gases emissions are escalating at a pace of 23 ppm per decade, since the last 6.5 million years (Stern, 2006). Rosegrant et al. (2008) explained that sectors contribute towards atmospheric concentration of GHGs as percentages are 63% energy sector, 13%, agriculture 3% industry land use 18% forestry and 3% from the waste generated.

The atmospheric gases play an important role in maintaining the overall earth's average temperature at level of 15°C (Edwards, 1999) whereas higher level of carbon dioxide emissions and increased concentration of greenhouse gases traps additional heat energy so

increasing the overall earth temperature (Brown 1998). Tisdell (2008) explained that the major penalty of global warming may appear in the form of more repeated floods and drought, food scarcity, non sustaining weather situation, introduction of new pest and diseases, sea level rise, etc.

The global climate change has become critical to the agriculture activities and for the sustainable development of any country (Adejuwon, 2004). Richard et al. (1998) explained that the main determinant of agriculture productivity are climatic factors such as high temperature, precipitation and occurrence of extreme events like droughts, floods, and wind storms that directly affect crop and livestock yields. Climate can alter the time period required for maturation of crop. Climate changes can impact the erosion process of the fertile top soil, increase in the frequency of pest attacks, number of crops cultivated each year, increase in the harvest period and availability of water for irrigation purposes.

Agricultural productivity is mainly influenced by weather (short-term) and climate factors (long-term). E.g. in 1987 weak monsoon system caused huge reduction in crops yield in Bangladesh, India, and Pakistan, contributing to wheat importation by Pakistan and India (WFI, 1988). Many countries which lie within the tropical and sub-tropical region are likely to be more susceptible to warming because of additional raise in temperature that will distress marginal water balance and damage agricultural (crop) sector (Santer et al., 1996; CICERO, 2000; Mendelssohn et al., 2000; McCarthy et al., 2001; Obioha, 2008). Climate change enhances the vulnerability to agricultural zones such as storms, floods and droughts, in turn exposing a country to the threat of socio-economic losses.

This paper discusses the theoretical issues as well as some empirical results of past studies and forecast climate variability and agriculture productivity in Pakistan.

1.1 Study Objectives

- To evaluate the climate effects on agriculture (major crops) in Pakistan. More specifically, the impact of change in climate

variables (temperature, precipitation, water availability) on major crops production.

- To analyze the future trend of temperature, precipitation and water availability by 2020.

1.2 Scope and Limitation

Based on the empirical studies, this study takes into account the past 44 years of data of three essential independent variables of climatic change namely atmospheric temperature, precipitation and water availability. Soil condition data was not considered due to non-availability of past information. The current research considers production data of Major Crops, but it does not identify which individual major crop (Rice, Wheat, Cotton, Maize, and Sugarcane) is more affected in terms of reduced or increased output.

2. Methodology

In order to evaluate impact of climatic and agriculture (Atmospheric temperature, precipitation and water availability) on major crops, the data from Pakistan statistical year book were used. In this study, Vector Autoregressive (VAR) model was used to evaluate the affect of the climatic (atmospheric temperature and precipitation) and agriculture (water availability) variables on major crops output Model was applied (Pervez et al, 2010). The forecast for agriculture output (major crops) is also predicted for 2020.

2.1 Model

VAR (p)-Model, with p variables, is given as (Roland Füss, 2008)

$$\mathbf{Y_t = A_1 y_{t-1} + A_2 y_{t-2} + \ldots\ldots + A_p y_{t-p} + e_t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{(1)}$$

In above model, the atmospheric temperature, precipitation and water availability were incorporated with appropriate lag as explanatory variables to determine the impact on output (major crops). The model (1) becomes[1].

$$Ym_t = \beta_o + \pi_1 ym_{(t-1)} + \ldots\ldots + \pi_p ym_{(t-p)} + \beta_{11} \text{Atmospheric Temperature}_{(t-1)} + \ldots\ldots + \beta_p \text{Atmospheric Temperature}_{(t-p)} + \alpha_{21} \text{Rainfall}_{(t-1)} + \ldots\ldots + \alpha_p \text{Rainfall}_{(t-p)} + \lambda_{31} \text{Water Availability}_{(t-1)} + \ldots\ldots + \lambda_p \text{Water Availability}_{(t-p)} + e_t \quad (2)$$

Ym, β_o, t, P and e_t represents total major crops in '000' tones (Wheat, Rice, Maize, Cotton and Sugarcane), Intercept, Time period, n^{th} value of lag and disturbance term. All coefficients of explanatory variables are represented by pi, beta, alpha, and gamma symbols.

2.2 Data Collection and Procedure

In this study, the data was used from 1966 to 2009 spanning a period of over 44 years' for time series data for empirical investigation. The data on Major crops, atmospheric temperature, precipitation and water availability were taken from Pakistan statistical year book, 2010-11. Averages of Climatic variables (atmospheric temperature and precipitation) data of Pakistan were taken from different cities i.e. Karachi, Lahore, Multan, Islamabad, Peshawar, Quetta and Jacobabad[2]. In this study, major crops (dependent variable) include Wheat, Rice, Maize, Cotton and Sugarcane.

3. Results

3.1 Major Crops

The results of the ADF (Augmented Dickey-Fuller) test are given in table-1, two variables (major crops and water availability) are non-stationary at conventional level of significance whereas average temperature (T) and average precipitation (R) variables are stationary.

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2 Damodar Gujarati, Basic Econometrics 4th Economy Edition, pp. 874-881.

2 Data of given Cities were only available in Pakistan Statistical Year Book

Table-1: Results of the ADF Unit Root Statistics

SNO.	Variables	LEVEL	1st Difference	Conclusion
1	Output(major crops)	0.6569	0.0000	I(1)
2	temperature	0.0022	0.0000	I(0)
3	Precipitation	0.0001	0.0000	I(0)
4	Water availability	0.6970	0.0000	I(1)

Granger Causality test in table-2, suggests that there is no causality among the variables but water availability (W) affects the major crops variable where as other explanatory variables do not granger cause major crops (y_m) in the model (2) .

Table-2: Pair wise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Probability
T does not Granger Cause YM	42	0.29578	0.74569
YM does not Granger Cause T		3.11924	0.05599
R does not Granger Cause YM	42	1.11867	0.33751
YM does not Granger Cause R		0.05857	0.94320
W does not Granger Cause YM	42	5.67828	0.00707
YM does not Granger Cause W		1.01859	0.37101

The statistical values of t-statistics for core variables i.e. average temperature, average precipitation and water availability are not significant enough and value of F-statistics make all the lag terms of model (2) statistically significant. The coefficient of determination (R-squared) value is 96% of model (2) which shows the goodness of fit of model. VAR model considered with lag 1, 2 and 4 on the basis of lag selection criteria as mentioned in table-3. Therefore VAR model with 3 lags (1, 2 and 4) for the study were preferable as compared to other lag values.

Table-3: Results from Vector Auto regression (VAR) model

Sample (adjusted): 1970 2009
Included observations: 40 after adjustments
Standard errors in ( ) & t-statistics in [ ]

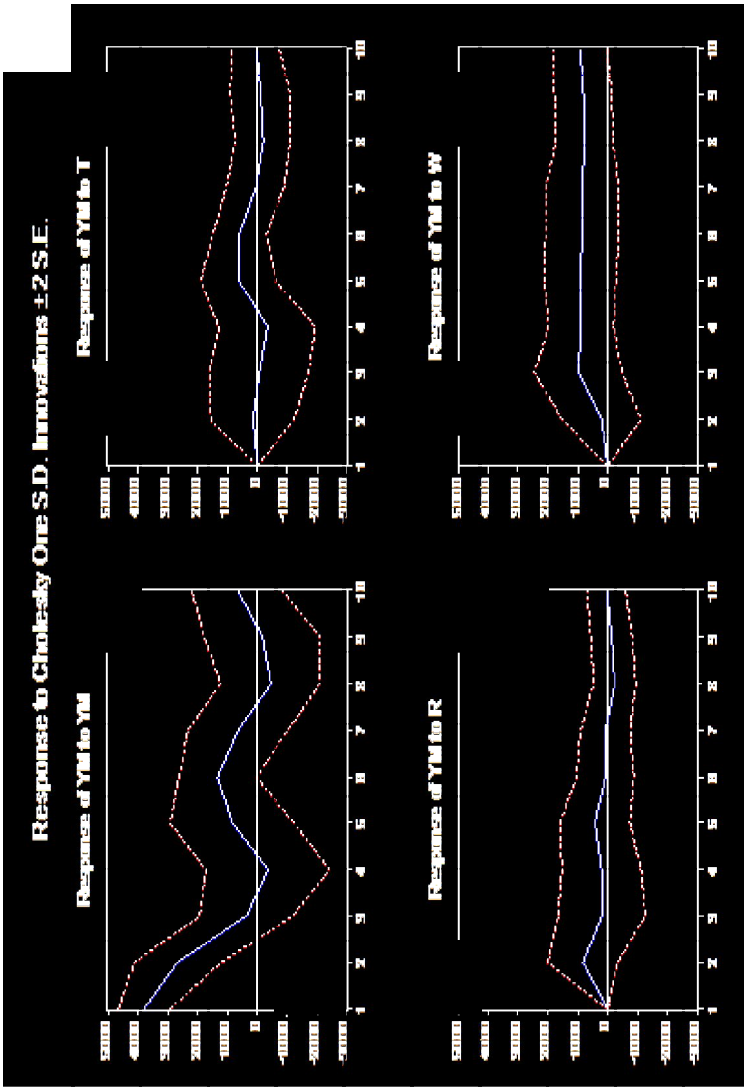
	YM	T	R	W
YM(-1)	0.598668	2.16E-05	0.001079	0.000264
	(0.17632)	(2.0E-05)	(0.00473)	(0.00016)
	[3.39531]	[1.08322]	[0.22793]	[1.62114]
YM(-2)	-0.233510	-2.35E-05	-0.004979	-0.000243
	(0.19257)	(2.2E-05)	(0.00517)	(0.00018)
	[-1.21260]	[-1.07653]	[-0.96316]	[-1.37029]
YM(-4)	0.358633	1.91E-05	-0.002410	-3.18E-06
	(0.16115)	(1.8E-05)	(0.00433)	(0.00015)
	[2.22544]	[1.04583]	[-0.55694]	[-0.02136]
T(-1)	834.8908	-0.091362	46.07940	-2.293093
	(1740.86)	(0.19730)	(46.7363)	(1.60631)
	[0.47958]	[-0.46307]	[0.98594]	[-1.42755]
T(-2)	-960.1493	0.071598	32.82863	-0.598872
	(1713.79)	(0.19423)	(46.0095)	(1.58133)
	[-0.56025]	[0.36863]	[0.71352]	[-0.37871]
T(-4)	2617.698	-0.255244	61.25287	1.066237
	(1876.36)	(0.21265)	(50.3741)	(1.73134)
	[1.39509]	[-1.20028]	[1.21596]	[0.61584]
R(-1)	9.145232	-0.001711	0.044351	-0.014077
	(7.10361)	(0.00081)	(0.19071)	(0.00655)
	[1.28741]	[-2.12560]	[0.23256]	[-2.14764]
R(-2)	-5.517416	-4.99E-05	0.469147	0.000465
	(8.42551)	(0.00095)	(0.22620)	(0.00777)
	[-0.65485]	[-0.05227]	[2.07407]	[0.05982]
R(-4)	5.580329	-0.000287	-0.147557	-0.004464
	(7.23853)	(0.00082)	(0.19433)	(0.00668)
	[0.77092]	[-0.34925]	[-0.75931]	[-0.66838]
W(-1)	65.71251	-0.002420	10.83312	0.661204
	(202.439)	(0.02294)	(5.43480)	(0.18679)
	[0.32460]	[-0.10549]	[1.99329]	[3.53979]
W(-2)	124.6230	-0.031790	1.839169	0.289576
	(229.338)	(0.02599)	(6.15697)	(0.21161)
	[0.54340]	[-1.22311]	[0.29871]	[1.36843]
W(-4)	4.958252	0.035723	-9.295704	0.037182
	(217.646)	(0.02467)	(5.84308)	(0.20082)
	[0.02278]	[1.44826]	[-1.59089]	[0.18515]
C	-65269.50	29.85205	-3077.855	53.31500
	(64470.0)	(7.30655)	(1730.80)	(59.4871)
	[-1.01240]	[4.08566]	[-1.77828]	[0.89624]
R-squared	0.969513	0.535295	0.427443	0.983033
Adj. R-squared	0.955963	0.328759	0.172973	0.975493
Sum sq. resids	3.90E+08	5.014631	281390.7	332.3991
S.E. equation	3802.618	0.430961	102.0876	3.508714
F-statistic	71.55146	2.591782	1.679740	130.3642
Log likelihood	-378.6345	-15.22715	-233.9299	-99.10668
Akaike AIC	19.58172	1.411357	12.34650	5.605334
Schwarz SC	20.13061	1.960243	12.89538	6.154220
Mean dependent	58458.58	23.48500	445.6550	111.9070

Cholesky impulse response function checks the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables. Table-4 shows that one standard deviation shock in major crops (y_m) production in one period increases its production up to 3802.618 points whereas in second period one standard deviation shock in major crops (y_m), average temperature (T), average precipitation (R) and water availability increase major crops (y_m) production up to 2676.12, 149.35, 833.5 and 213.0 points respectively. The one standard deviation shock in variables including major crops (y_m), average temperature, average precipitation create negative impact on major crops production in 4, 8 and 9 period.

Table-4: Results of the Impulse Response Function

Period	YM	T	R	W
1	3802.618	0.000000	0.000000	0.000000
	(425.146)	(0.00000)	(0.00000)	(0.00000)
2	2676.124	149.3537	833.5457	213.0112
	(724.238)	(700.912)	(580.877)	(656.650)
3	372.2923	-56.64034	199.5797	986.9359
	(784.089)	(830.874)	(726.106)	(738.582)
4	-350.1791	-330.0187	214.7996	893.0123
	(1035.03)	(809.468)	(660.299)	(540.535)
5	838.2804	636.1440	423.4163	924.8498
	(1041.77)	(632.758)	(582.158)	(600.443)
6	1331.335	598.1690	88.52224	855.8424
	(647.232)	(441.685)	(481.408)	(614.552)
7	640.9277	53.46019	80.59887	857.1003
	(840.942)	(491.696)	(413.206)	(609.089)
8	-436.2001	-194.1187	-228.9171	782.0815
	(831.261)	(466.852)	(353.877)	(473.454)
9	-176.0444	-105.2047	-121.8210	827.3191
	(972.331)	(509.616)	(349.569)	(480.592)
10	664.3526	37.52896	34.70759	920.6488
	(767.433)	(405.692)	(320.545)	(441.063)

Ordering: Major Crops, Average Temperature, Average Precipitation and Water Availability


Response to Cholesky One S.D. Innovations ±2 S.E.
Response of YM to YM
Response of YM to T
Response of YM to R
Response of YM to W

As shown in Table-5, there is a percentage variation in the Major crops' production due to average temperature, average precipitation and water availability. In all ten period, most of the percentage variation of the shock in major crops (y_m) is explained by its own variable whereas less than 10% variation shock in major crops is explained by the average precipitation and average temperature.

Table-5: Results of Percentage response of Variance Decomposition

Perio	S.E.	YM	T	R	W
1	3802.618	100.0000	0.000000	0.000000	0.000000
2	4731.176	96.59365	0.099654	3.103992	0.202706
3	4851.774	92.44017	0.108390	3.120814	4.330624
4	4961.336	88.90067	0.546121	3.171943	7.381263
5	5172.705	84.41002	2.014832	3.588052	9.987093
6	5443.109	82.21412	3.027303	3.266860	11.49171
7	5548.171	80.46444	2.923021	3.165410	13.44713
8	5627.985	78.79912	2.959671	3.241710	14.99950
9	5693.467	77.09256	2.926126	3.213353	16.76796
10	5805.785	75.44798	2.818183	3.093799	18.64004

Ordering: Major Crops, Average Temperature, Average Rain, and Water Availability

The data in table-6 reveals that temperature has a positive impact on major crops of Pakistan while precipitation has a negative impact keeping the other factors constant while water has a positive impact. The production of major crops (Ym) based on VAR model in 2010, 2015 and 2020 would be 85,344.74, 89,338.06 and 93,661.74 thousand tons respectively. As increased in the average temperature by 2°C, 4°C and 5°C the production of major crops would be increased by 5, 10 and 13 percent respectively with the constant increase in rainfall by 10% in 2020. Water availability has a positive impact on major crops production if average temperature and average precipitation remains constant then there would be 3% increased in the major crops production if 10% increases in water availability in 2020. Average temperature has a positive impact on major crops include wheat, rice and cotton which are C3 crops and are benefited by increase in the temperature.

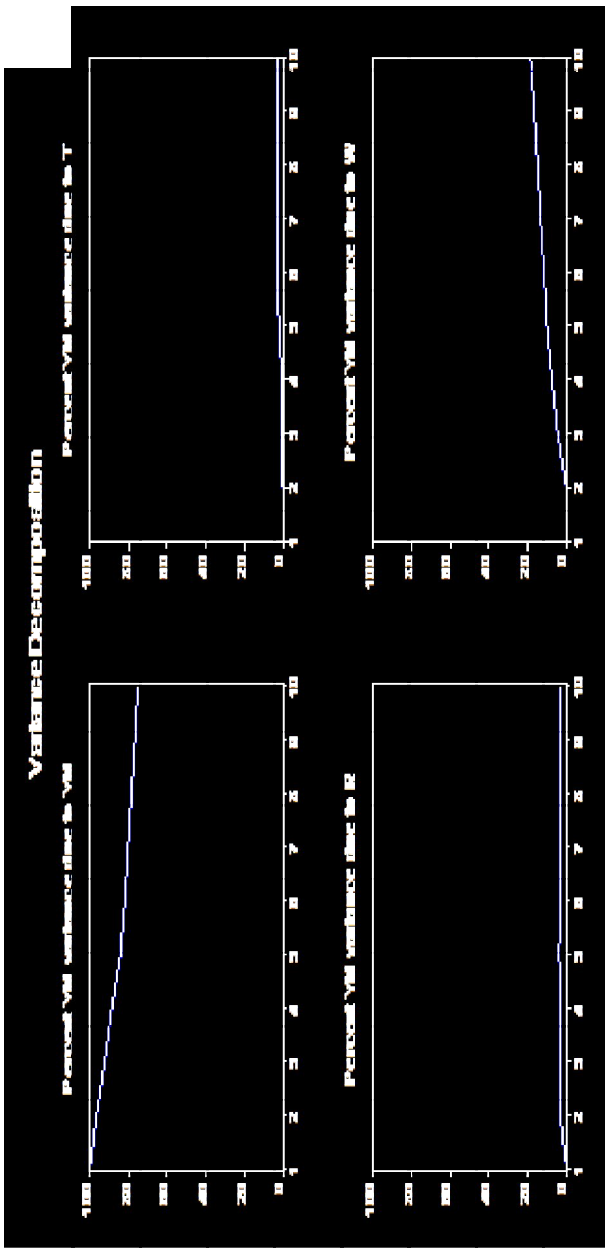


Figure- 2: Results of the Variance Decomposition

Table-6: Major Crops forecasting for 2020 based on assumptions using VAR Model

Major Crops forecasting for 2010-2020 using VAR model		production (000)	UNIT	production % change
Forecasting for 2010		85,344.74	tones	-
Forecasting for 2015		89,338.06	tones	4.7%
Forecasting for 2020		93,661.74	tones	4.8%
Major Crops Forecasting for 2020 based on assumptions using VAR model				
Scenarios	Cases	production (000)	UNIT	production % change
If 'T' & 'R' increase	Case 1: If temperature increases by 5°C and precipitation increases by 10%	105505.38	tones	13%
	Case 2: If temperature increases by 4°C and precipitation increases by 10%	103012.94	tones	10%
	Case 3: If temperature increases by 2°C and precipitation increases by 10%	98028.068	tones	5%
If 'T' increases only	Case 1: If temperature increases by 2°C and precipitation remains constant	97233.571	tones	4%
If 'R' increases only	Case 1: If temperature constant and precipitation increases by 10%	93043.189	tones	-1%
If 'R' decreases only	Case 1: If temperature constant and precipitation decreases by 10%	92203.763	tones	-2%
If 'T' increases & 'R' decreases	Case 1: If temperature increases by 2°C and precipitation decreases by 10%	97188.642	tones	4%
If 'T' decreases & 'R' increases	Case 1: If temperature decreases by 2°C and precipitation increases by 10%	88058.310	tones	-6%
If water availability change only	Case 1: If 'T' and 'R' constant remain but water availability reduces by 10%	90688.492	tones	-3%
	Case 2: If 'T' and 'R' remain constant but water availability increases by 10%	96262.587	tones	3%

4. Discussion

In the present study, Vector Auto-Regression (VAR) model was employed to determine the impact of climate change on major crops production in Pakistan. In this study, past 44 years climatic and crops information used that is available in Pakistan statistical year book, 2010-11. The results envisage adverse climate change impact on major crops production in Pakistan. Pakistan's agriculture production system is mostly based on irrigated flows. 60-80% of the water is derived from snow/ice melt coupled with SW monsoons during the summer period. Continued shifts in climate change leading to global warming may lead to reducing the water reserves which would create shortage problem in future. The production of major crops (Ym) based on VAR

model in 2010, 2015 and 2020 would be 85,344.74, 89,338.06 and 93,661.74 thousand tons respectively which means that from period 2010 to 2020 there would be 4-5% growth. As the average predicted atmospheric temperature, if increased by 2^{o}, 4^{o} and 5^{o}C, the production of major crops would be also increase by 5, 10 and 13 percent respectively. Precipitation has a negative impact keeping the other factors constant. The water availability has a positive impact major crops production, if there is an increase in 10% water then there would be 3% increased in the major crops production in 2020.

At the end of current century, the global average temperature is expected to rise by 1.1-6.4°C under diverse scenarios of global warming (IPCC, 2007a). According to IPCC (2007) yield may be reduced from rain-fed agriculture in some African countries by up to 50 percent by the year 2020 whereas Lobell et al. (2008) shows that as a result of climate change, yield could fall by 30 percent in central and south Asia by 2050, the findings of this paper also forecast agriculture production in Pakistan due to varying climatic variables under different projected scenarios of temperature and precipitation as given in table 6. The outcome of UNFCCC (2007) also supports the findings of this study that output of major crops such as rice, maize and wheat has gone down in past decades due to less availability of water. The global climate change would have an adverse impact on Pakistan agriculture crops production supporting the results of Matthews et al. (1994a, 1994b), Zhang (1993), Jin et al. (1994), ADB (2009), Usman et al. (2011). According to Pervez et al. (2010), there would be no significant negative impact of climate change on production of wheat in Pakistan which also supports the results of the present study. Zia Mustafa (2011), indicates that with 1°C rise in atmospheric temperature in Pakistan, wheat yield is estimated to decline by 6-9% but the findings of present work, the VAR forecast shows that an additional rise in temperature will increase production of major crops (Wheat, Rice, Cotton etc). Climate variation and changes can have significant affect on agricultural output, forcing farmers to implement and adapt new

practices to changed climatic conditions in the near future. Climate variability increases such as higher temperature, changes in precipitation can influence agriculture, forestry (Bryant, 1997).

According to the vulnerability index, Pakistan is ranked 12th globally whose financial losses are estimated around $5 billion where productivity of grassland and crop and livestock yields are likely to be severely impacted by changes in climate factors i.e. temperatures variability, less availability of surface water and changes in rainfall patterns (Lead Pakistan, 2008). Pakistan's agriculture contribution toward gross domestic product (GDP) was reduced by 20.9 % in 2011-12 from 53% in 1949-50, and manufacturing contributed 18%, however the major sector of Pakistan economy is still agriculture. It makes available fiber and food to the increasing population of the country. Therefore, it is a major contributor to food-security as well as supporter to the foreign earnings, currently 44.7% of Pakistan's labor force is employed in the agriculture sector (GOP, 2012). King (2004) postulates that agricultural productivity is mainly influenced by the climate factors. It is the major issue that has been faced in present day and is more rigorous than the threat of terrorism.

5. Conclusion

In conclusion VAR forecasted results indicate temperature has a positive impact on major crops production. However, climate change enhances the vulnerability of agricultural sector, such as severe storms, floods and droughts, in turn exposing the country to the threat of socio-economic losses. Pakistan agriculture sector needs an adaptation strategy in order to deal with emerging hazard of climate change. Policy makers should also focus investments on infrastructure development i.e. water reservoirs, canals, dams to handle the extreme disaster events Water conservation management and the irrigation system must be improved to support the agriculture growth.

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IMPACT OF CO_2 EMISSIONS: EVIDENCE FROM PAKISTAN

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Abstract:

This study highlights the link among the four economic factors such as CO_2 per capita, GDP per capita, Energy Consumption and population growth in Pakistan with the help of Auto Regressive Distributed Lag (ARDL) econometric technique based upon time series data over a period of 41 years from 1970-2010. Initially, it is observed that all the variables have a unit root at 1% level of significance through Augmented Dickey Fullen Test (ADF). The econometric results reveal that energy consumption, GDP per capita, and population growth have a long run relationship as analyzed by Auto Regressive Distributed Lag ARDL test of co-integration. It is found that 1% increase in GDP per capita, population, and energy consumption will raise the CO_2 emission per capita by 0.46%, 9.70%, and 0.005% respectively. This paper also observed uni-directional causality among CO_2 per capita, GDP per capita, population growth and energy consumption variables whereas the parameters are stable i.e. lie under the critical bound at 5% level of significance in Pakistan.

Keywords: CO_2 Emissions, GDP per capita, ARDL, Granger Causality, Unit Root

JEL Classification: C32, Q42, F43

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1. Introduction

Global Climate Change as a result of global warming recently has become the most important issue worldwide. Global warming depends on the emission level of greenhouse gases (GHGs) and the worse effect of these gases usually is being faced by developing countries (Tiwari, 2011a). According to Intergovernmental Panel on Climate Change (2007), the average global temperature between 1.1 and 6.4 ^{0}C would rise within the next 100 years and it has also been mentioned that additional increase of 2^{0}C temperature would hamper the ecosystems and would raise the sea level that would adversely affect the people living in coastal zones (Lau *et al.,* 2009). Carbon Dioxide (CO_2) is one of the major greenhouse gases (GHGs) usually discharge throughout due to the burning of fossil fuels, wood, carbon and wastes (Pervez et al, 2010). Basically, human is responsible for the emergence of carbon dioxide newly developed world because CO2 concentration has shot up to 380 ppm from 280 ppm due to individual activities (burning of fossil fuels, industrial process, and land degradation, deforestation for urbanization and agriculture purposes) since the pre-industrial period (Pervez et al, 2010; IPCC, 1990, 2007). The atmosphere plays a vital role in maintaining the earth overall standard temperature at the level of 15^{0}C (Edwards, 1999) where as higher level of carbon dioxide emission which enhances the concentration of GHGs also increases the earth temperature (Brown 1998).

The high level of CO_2 concentration in the atmosphere can have both positive and negative consequences (Easterling *et al.*, 2007). CO_2 emissions create direct impact on water and land quality whereas it plays a vital role in the human body and is an essential substance for human survival. CO_2 is also playing a fundamental role in plants photosynthesis cycle and also improves the water efficiency requirement for plants (Zare et al., 2012). CO_2 concentration is more than 60% in the atmosphere, responsible for global warming (Amin et al., 2012; Halicioglu, 2009) which will further increase the intensity and frequency of extreme events such as droughts, heavy rains, extreme

flood, water uncertainty, high temperature, soil degradation etc. which will affect socio economic sustainability of the country.

The contribution of various sectors in the atmospheric concentration of GHGs in form of percentages are 63%, 13%, 18% and 3% for energy sector, agriculture, industry land use, forestry and waste respectively (Rosegrant et al, 2008). The purpose of Kyoto Protocol is to reduce the emissions level of GHGs to mitigate the risk of extreme events due to global climate change. Kyoto Protocol objectives are policy and quantitative approach. It is necessary for developed countries to reduce their emissions by 5% on average below 1990 levels to 2012 from 2008 as described by first quantitative objective. Policy objective include improvement in energy consumption and carbon sinks as well as promoting sustainable forms of agriculture sector with respect to climate change (Afshin, 2010). The protocol agreed that renewable energy is one of the key solutions of global climate change and to the increasing demand for energy (Tiwari, 2011a).

The link between economic development and environment degradation has widely been taken into consideration. According to Environmental Kuznets Curve (EKC) hypothesis, assume that environmental degradation and income per capita have inverted U-shaped link between them.

Grossman and Krueger (1993) explained that the level of pollution increased along with economic output but later reduced as GDP rose further whereas Selden & Song (1994) and Grossman & Krueger (1995) suggested that inverted U-shaped relationship between pollutions and income per capita exist by using higher quality data (Carson, Jeon and McCubben, 1997).

The greenhouse effect is the major source of enhancing the overall earth temperature, through emission of gas due to maximum

use of fossil fuels as a major contributor to pollution leading to change in climate. Another trouble that is of exact concern to the agriculture and human health relate to environmental deprivation through global warming, huge waste and effluents particularly in rivers, canals and wetlands, which may lead to environmental disaster in years to come, particularly in developing countries. In Pakistan, the climate change pressures generated direct impact on different sectors including water availability, crops pattern, forests, biodiversity, livestock, costal zones, etc. Pakistan is one of the developing countries with a GDP growth rate of 3.7% and per capita income around $1368 (GoP, 2013) is facing the environmental degradation issues and is contributing CO_2 emissions around 1%[3] of the world's total CO_2 emissions. In Pakistan, population and energy consumption are increasing enormously and can be considered as a potential pollution place where pollution intensive activities take place due to less effective environmental policies and standards. Pakistan is consuming more than 98% non-renewable (Fossil fuels) energy which is polluting the environment (Sheikh, 2010).

The relationship among the economic growth, energy consumption, trade openness and carbon dioxide emissions determined by Shahbaz et al., 2010 but the current study incorporated the population factor instead of trade openness to investigate the co-integration as well as causality among the variables with respect to Pakistan data.

The rest of the paper is organized as follows: Literature review in Section II will consider theoretical issues & empirical outcomes of some previous work. In Section III, IV & V objective, methodology and empirical results will be discussed. Section VI would discuss the results and conclusion.

[3] The value obtained from the World Bank Website

2. Literature Review

Several studies have been conducted to investigate the dynamic relationship among the variables i.e. CO_2, GDP, energy consumption, trade openness by using Bi-Variate or Multi-Variate framework (Jorgenson & Wilcoxen, 1993; Xepapadeas, 2005; Ang, 2007, 2008; Soytas et al., 2007; Halicioglu, 2009; Jalil & Mahmud, 2009; Zare et al., 2012; Aviral, 2011; Arouri et al., 2012; Majid & Elahe, 2011; Shanthini & Perera, 2010).

Song et al. (2008), Dhakal (2009), Jalil and Mahmud (2009) and, Zhang and Cheng (2009) found Environmental Kuznets Curve (EKC) existence in China. Fodha and Zaghdoud (2010) findings suggested that EKC exists between SO_2 and economic growth but not for CO_2 emissions in Tunisia on the basis of environmental Kuznets Curve hypothesis by using time series data from 1961-2004 with the support of cointegration test.

Akbostanci et al. (2009) investigated the relationship between per capita income and CO2 emissions in case of Turkey based on time series data from 1968-2003 with the help of cointegration technique and also concluded that EKC doesn't exist means due to rapid growth in economy reduced the CO_2 emissions automatically. Asafu and Adjaye (2000) examined causal relationship between income and energy consumption using cointegration and error correction modeling techniques and found Bi-Variate causality between energy consumption and economic growth for Thailand and Philippines whereas unidirectional causality determined from energy to income for Indonesia and India.

Kraft and Kraft (1978), Masih and Masih (1997), Aqeel and Butt (2001), Wolde-Rufael (2006), Narayan and Singh (2007), Reynolds and Kolodzieji (2008), Chandran et al. (2009), Narayan and Smyth (2009), and Yoo and Kwak (2010) determined that economic growth is caused by energy consumption for the USA, Taiwan, Korea, Pakistan,

African, Fiji, the Soviet Union, Malaysia, the Middle East, and Sout America respectively.

Several researches have been carried out in panel studies and country case to analyze the relationship between CO_2 emissions, economic growth and energy consumption. Lotfalipour et al. (2010) investigated a unidirectional causality running from economic growth and fossil fuel consumption to CO_2 emissions in Iran case, using time series data from 1967-2007 through Toda-Yamamoto technique. Tiwari (2011e) found energy-led-growth hypothesis during his study among the CO_2 emissions, economic growth and energy consumption factors by using Structural Vector Autoregressive (SVAR) framework for Indian economy.

Ang (2007) determined the long run relationship for French economy among the factors such as CO_2 emissions, economic growth and energy consumption, using cointegration and vector error correction modeling techniques over 41 years' time series data results revealed that economic growth exerts a causal influence on growth of energy use and growth of pollution in the long run. Ang (2008) analyzed the long run relationship among the emission, output, and energy consumption during the period 1971-1999 through causality test and concluded that increase in economic activity lead to increase the CO_2 emissions and energy consumption in Malaysia.

Apergis and Payne (2009) found that energy consumption is positively linked with CO_2 emissions and EKC hypothesis confirmed by using the VECM for six Central American Economies. The same results were concluded for the ASEAN countries (Lean and Smyth, 2010; Apergis and Payne, 2010). Apergis and Payne (2010) found that energy consumption and economic growth granger causes CO_2 emissions while bivariate causality found between energy consumption and CO_2 emissions; and between economic growth and energy consumption. Chen (2009) documented that CO_2 emissions are directly linked with industrialization due to high consumption of energy.

EKC represented a link between economic growth, energy consumption, trade openness and carbon dioxide emissions over the period of 39 years' from 1971-2009 through ARDL approach. Initially economic growth associated with high emission of CO_2 and emissions tends to decline as threshold level of economic growth achieved. Researchers also found a positive impact of energy consumption and economic growth on CO_2 emissions in case of Pakistan. Energy consumption increases pollution in the both short and long-term (Shahbaz et al., 2010).

3. Study Objective

The main focus of the study is to analyze the long run relationship among the variables i.e. CO_2 per capita emissions, GDP per capita, energy consumption, and population with the support of co-integration (ARDL-Approach) and granger causality tests.

4. The Model and Data

In most of the empirical studies, the co-integration among the CO_2 emission, energy consumption, Gross domestic product, trade openness, has been investigated (Jorgenson & Wilcoxen, 1993; Xepapadeas, 2005; Ang, 2007, 2008; Soytas et al., 2007; Halicioglu, 2009; Jalil & Mahmud, 2009; Zare et al., 2012; Aviral, 2011; Arouri et al., 2012; Majid & Elahe, 2011; Shanthini & Perera, 2010).

Therefore, this study considers Carbon Dioxide (CO_2) per capita emission, Gross Domestic Product (GDP) per capita, Energy Consumption (EC) and population growth variables in order to find out the long run relationship and granger causality among the variables. Previous studies didn't consider the population factor to explain the environmental degradation of countries as Pervez et al (2010) and IPCC (1990, 2007) explained that human liable for emerging carbon dioxide newly developed world because CO2 concentration has enlarged due to individual activities (burning of fossil fuels, industrial process, and land degradation, deforestation for urbanization and agriculture purposes) since the pre-industrial period.

4.1 Model

The specific form of model as described by pesaran et al., (2001) used for study is as follows:

$$\text{“}CO_{2t} = b_0 + \sum_{i=1}^{p} \delta_i \text{”} CO_{2t-i} + \sum_{i=0}^{q} b_i \text{”} Y_{t-i} + \sum_{i=0}^{r} \alpha_i \text{”} E_{t-i} + \sum_{i=1}^{s} \varepsilon_i \text{”} P_{t-i} + \gamma_i CO_{2\,t-1} + \gamma_i Y_{t-1} + \gamma_i E_{t-1} + \gamma_i P_{t-1} + \mu_t \quad (1)$$

The specific form of model (1) with the log form can be represented for estimation purpose as:

$$\text{“}LCO_{2t} = b_0 + \delta_i \text{”} LCO_{2t-i} + b_i \text{”} LY_{t-i} + \alpha_i \text{”} E_{t-i} + \varepsilon_i \text{”} P_{t-i} + \gamma_i LCO_{2\,t-1} + \gamma_i LY_{t-1} + \gamma_i E_{t-1} + \gamma_i P_{t-1} + \mu_t \quad (2)$$

Carbon Dioxide emissions per capita, Gross Domestic product per capita, energy consumption, and population growth are represented by CO2, Y, E, and P respectively[4]. All the signs such as $\delta, b, \alpha, \varepsilon$, and γ are coefficients of their respective variables whereas “ shows variables are integrated to order (0) means differentiated. Disturbance term, intercept and time period represented by e, b_o and t respectively.

4.2 Data

In this study, time series data from the period 1970-2010 are used in order to analyze empirical results. The data regarding all the variables were gathered from World Bank data source.

4.3 Methodology

In order to determine the long and short run relationship among the variables, firstly Augmented Duckey Fuller test (ADF) is used to analyze the order of integration. Secondly, ARDL approach is used to find out co-integration exist among the variables as described by Pesaran et al., (2001). Error Correction Term (ECT) would be introduced to determine the short run dynamics if co-integration exists

[4] Unit of Co2/capita in million tons (MT), GDP/capita in local currency (LC), population growth and energy consumption (coal, oil, petroleum, and natural gas products) % of total energy consumption.

in model (2). Lastly, Granger Causality test is used to find out the direction (uni or Bi) of causality among the variables.

5. Estimation Results

5.1 Unit Root Test

ADF test is used in order to determine the level of integration of the variables. As shown in Table-1, the outcomes of unit root test reveals that all the variables have a unit root at 1% level of significance. Therefore, first difference requires making series stationary.

Table 1: Results of Augmented Dickey-Fuller (ADF)

Variables	P-value at level	P-value at difference
CO_2	0.9976	0.0000
GDP	0.9932	0.0014
Energy consumption	0.9808	0.0005
Population	0.9050	0.0185

5.2 Co-integration Test

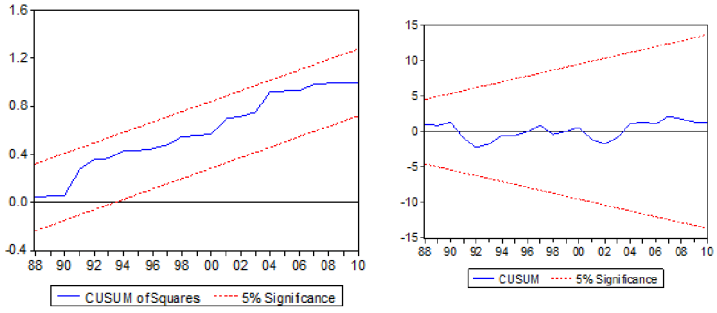
Model (2) is used to estimate the long and short run relationship among the variables based on time series data from 1970-2010. As mentioned in Table-2, parameters[5] such as ð, b, á, and ë are referring to short run whereas parameter[5] 'ã' is representing the long run relationship. The model (2) with the lags (1, 2, 8, and 3) is appropriate based on least Akaike information criterion (AIC). The model (2) is best fitted with given lags (1, 2, 8, and 3) to determine the co-integration. Therefore, all parameters are stable hence model is appropriate for the study as shown in Figure-1. Though population effect is high and significant at 5% level of significance with a long lag of 8. Which is a very delayed effect.

[5]See Model (2) in section 3.1.

Table 2: Results of Auto Regressive Distributed Lag (ARDL)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.481350	2.776164	-2.334642	0.0287
DLCO2(-1)	-0.242421	0.137515	-1.762866	0.0912
DLGDP(-2)	0.467589	0.235741	1.983489	0.0594
DP(-8)	9.701311	4.283062	2.265041	0.0332
DEC(-3)	0.005569	0.004717	1.180667	0.2498
LCO2(-1)	-0.735736	0.229955	-3.199474	0.0040
LGDP(-1)	0.598516	0.258980	2.311055	0.0301
P(-1)	-7.639347	1.885078	-4.052535	0.0005
EC(-1)	0.006177	0.003479	1.775408	0.0891
Adjusted R-squared	0.617490	S.D. dependent var		0.033753
S.E. of regression	0.020875	Akaike info criterion		-4.668234
Sum squared resid	0.010023	Schwarz criterion		-4.255995
Log likelihood	83.69174	F-statistic		7.255443
Durbin-Watson stat	2.280871	Prob(F-statistic)		0.000085

Figure 1: CUSUM & CUSUM Square Stability Test



As shown in Table-3, it is found that F-statistics is greater than upper region I (1) means reject the null hypothesis of no co-integration[6]. Therefore, long run relationship exists among the variables i.e. $CO_{2/capita,}$ $GDP_{/capita}$, population growth, and energy consumption. Therefore, error correction term will introduce to analyze the short run dynamics.

Table 3: Results of Co-integration Test (Wald Test)

H0: No Co-integration exist (coefficients[7] are equal to zero) Ha: Co-integration exist (coefficients are not equal to zero)			Critical Values[8] 5% level of significance	
Test Statistics	Value	Probability	I(0)	I(1)
F-Statistics	6.162507	0.0016	3.23	4.35

The results of Error Correction model given in Table-4 reveal that gross domestic product (GDP) per capita, population growth, and energy consumption are linked positively with CO_2 per capita emissions in Pakistan. It is found that 1% increase in GDP per capita, population growth, and energy consumption will lead to raise the CO_2 per capita emission by 0.46%, 9.70%, and 0.005% respectively. The sign of Error Correction Term coefficient is negative and statistically significant, suggested that 73.5% error in CO_2 per capita would be corrected from short run to long run each year in Pakistan.

Cumulative Sum (CUSUM) and Cumulative Sum of Square test are applied to analyze the stability of short and long run parameters. As shown in Figure-2, parameters are between the critical bounds at 5% level of significance and are therefore stable.

[6] As suggested by pesaran et al., (2001).

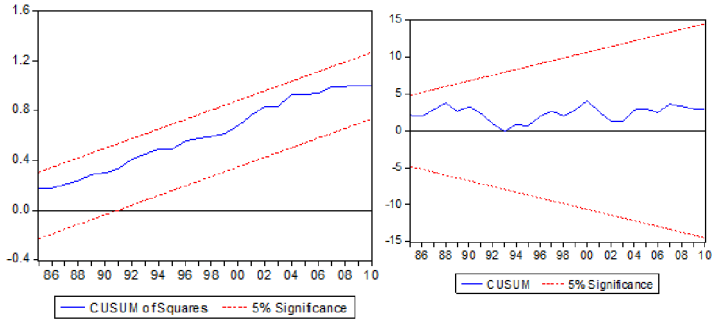
[7] Long run Coefficients are taken from Model (2) as suggested by pesaran et al., (2001).

[8] This study used the critical values of Pesaran et al. (2001) for the bounds *F*-test.

Table 4: Results of Short Run Dynamics[9]

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.481012	1.234626	-5.249372	0.0000
DLCO2(-1)	-0.242444	0.116923	-2.073528	0.0482
DLGDP(-2)	0.467598	0.189741	2.464403	0.0207
DP(-8)	9.700111	3.344671	2.900169	0.0075
DEC(-3)	0.005569	0.004011	1.388341	0.1768
ECT(-1)	-0.735700	0.139370	-5.278755	0.0000
R-squared	0.716202	Mean dependent var		0.032731
Adjusted R-squared	0.661625	S.D. dependent var		0.033753
S.E. of regression	0.019634	Akaike info criterion		-4.855734
Sum squared resid	0.010023	Schwarz criterion		-4.580908
Log likelihood	83.69174	F-statistic		13.12289
Durbin-Watson stat	2.280887	Prob(F-statistic)		0.000002

Figure 2: CUSUM & CUSUM Square Stability Test



[9] ECTt-1 obtained from the long-run equilibrium relationship as suggested by pesaran et al., (2001).

5.3 Granger Causality Test

The results Table 5 presents Granger Causality Test results in abbreviation setting, reveals that GDP per capita and energy consumption affect the CO_2 per capita whereas population growth doesn't cause CO2 per capita. There is uni-directional causality found among CO_2 per capita, GDP per capita, population growth, and energy consumption.

Table 5: Results of Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Probability
GDP does not Granger Cause CO2	40	31.0058	2.4E-06
CO2 does not Granger Cause GDP		2.09046	0.15664
POP does not Granger Cause CO2	40	0.09589	0.75855
CO2 does not Granger Cause PGR		7.36308	0.01005
EC does not Granger Cause CO2	40	3.99414	0.05305
CO2 does not Granger Cause EC		0.54690	0.46425

6. Discussion

Lotfalipour et al. (2010) investigated an unidirectional causality among the variables i.e. economic growth, fossil fuel consumption and CO_2 emissions in Iran case whereas this study also found unidirectional causality among the same variables. Ang (2007, 2008) determined the long run relationship for French and Malaysian economy among the factors such as CO_2 emissions, economic growth and energy consumption, results revealed that increase in economic activity lead to an increase in the CO_2 emissions and energy consumption which also support the results of this study for Pakistan case. Apergis and Payne (2009) found that energy consumption is positively linked with CO_2 emissions whereas this study also found a positive link between the same variables. This study found that energy consumption and economic growth granger causes CO_2 emissions match with the result of Apergis and Payne (2010). Shahbaz et al. (2010) found a positive impact of energy consumption and economic

growth on CO_2 emissions in case of Pakistan that supported the outcomes of this study.

The study found co-integration (Long-run relationship) among the four economic factors such as CO_2 per capita, GDP per capita, Energy Consumption and population growth in Pakistan with the help of ARDL econometric technique over the period 1970-2010. The results reveal that GDP per capita and energy consumption affect the CO_2 per capita (Uni-directional causality) whereas CO_2 per capita only causes the population growth. It is also found that 1% increase in GDP per capita, population growth, and energy consumption will lead to raise the CO_2 emission per capita by 0.46%, 9.70%, and 0.005% respectively. CO_2 is one of the greenhouse gases which emits more due to human activities and are responsible for global warming which will lead to increasing the frequency and intensity of extreme events such as floods, cyclone heavy rains and droughts. The sign of Error Correction Term coefficient (-0.735700) is negative and statistically significant, suggested that 73.5% error in CO_2 per capita would be corrected from short run to long run each year in Pakistan. The parameters of error correction model are stable. Therefore, the study recommends that government should design the effective policy and focus on new alternative energies which must be environment friendly to control the CO_2 emissions in order to maintain the earth surface temperature that would be helpful to avoid the extreme events occurrence in Pakistan.

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ANNEXTURE

Table: Descriptive Statistics

Description	*GDPCapita*	*CO2/Capita*	*Energy consumption*	*Population Growth Rate*
Mean	22957.83	0.60	50.12	0.03
Standard Error	937.65	0.03	1.48	0.00
Median	23244.33	0.59	52.00	0.03
Standard Deviation	6003.91	0.21	9.50	0.01
Sample Variance	36046933.3	0.05	90.21	0.00
Kurtosis	-0.90	-0.97	-1.46	-1.15
Skewness	0.25	0.34	-0.29	-0.40
Range	20151.82	0.69	28.00	0.02
Minimum	14437.09	0.30	35.00	0.02
Maximum	34588.90	0.99	63.00	0.03
Sum	941270.88	24.43	2055.00	1.12
Count	41	41	41	41

DETERMINANTS OF DIVIDEND PAYOUT IN POWER AND CEMENT SECTORS

Abdul Jabbar Kasim[1] and Muhammad Ajaz Rasheed[2]

Abstract:

The paper attempts to provide an insight into the determinants of dividend payout in power and cement sector listed companies, in Pakistan. Both the cement and power sectors are engines of growth for the Pakistani economy. In the case of cement there is potential of foreign exchange earnings. The power sector continues to provide support for running the industry wheel. We started with the view that higher efficiency, rising net profitability, higher operating cash-flow to debt ratio and current ratio bring better dividend pay-outs. Our results suggest that efficiency in the power and cement sectors is positively related to dividend pay-outs. Profitability is negatively related to dividend pay-outs, higher profitability does not guarantee higher dividend pay-outs both in the cement and power sectors. Further operating cash flow to debt ratio is positively related to dividend pay-outs. Current ratio and higher return on assets is also positively related to payout. Albeit such results do not depict any significant relationship, in the case of developed economies. The findings add meaningful dimension to the financial literature on dividend policy and its determinants.

Keywords: Dividend Policy, Pakistan, Cement, Power, Payout, Fixed Effect Model, Panel data, Efficiency, Firm Profitability, Leverage, Current Ratio, Working-capital.
JEL Classification: G 1100

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I. Introduction

The question of payout has not been answered and addressed to the extent that it brings sort of comfort to the academicians, researcher, investment bankers and stock advisors and what have you to arrive at a safe conclusion as to the determinants of dividend payout. In this realm a lot of work is still been undertaken to dig out convincing facts. Till this juncture it is an on- going process.

Starting from the perspective of business analysts and stock advisors who mainly tread the path that increasing sales, growth in asset size results in increase bottom line figure that is Profit after tax (PAT) hence more likelihood of shareholders receiving a good payout. Even within the precincts of factors impacting on dividend payment there have been contrasting conclusions. Researchers have tested findings with the same hypothesis, yet within the country over a period of time results have been quite different. As a corollary of which the fact finding missions work is still in the works. The academicians toe this line as well.

The main thrust of corporations making a payout or otherwise largely depends whether or not the business entity is good and astute at revenue generation, and this is the genesis, no firm worth its name can legitimately think of payout without generating a reasonable bottom line. Studies have shown positive as well as negative relationships between return on assets, increase in revenue level, net profitability (PAT), operating cash flow to debt ratio, current ratio and dividend policy.

On the decision regarding payout a lot of factors come in to play before a final decision is arrived at: basically the need for the business entity to retain funds (internal funds) to support its growth and momentum or to dispense cash payment, once it has cash in the kitty. But this all comes to companies that have good efficient performance year on year basis.

Bancel, F., et al. (2009) research on European firms points out that the payouts also depend on the life cycle of the business. As such the payouts differ to a large extent across sectors, from a low of 4.0 percent, (equity investment instruments) to a high of 54.4 percent (tobacco) in 2006. Tobacco (average payout of 60.5 percent between 1994 and 2006) and utility firms (electricity and gas, water, and multiple utilities' average payout was 47.5 percent and 45.7 percent, respectively) have the highest dividend payouts.

In the corporate world senior financial executives have a wider canvass to cover and think continuously whether retaining or payout is the optimal solution. They are further pushed by the fact as to what should be the calibration between retention and payout. A growing business needs more funds and hence retention can be advocated on umpteen grounds. However, shareholders right for a cash return cannot be kept on back burner.

Firms retain earnings for future growth and opportunities and rely on internal funds as these funds are relatively cheaper than borrowed funds. This can be an important reason for retention when the company finds significant opportunities for growth and expansion and the shareholders need to understand this on the same keel as well. However the shareholder and management, by and large, have different perspective and even have different backgrounds.

The Board and Senior Executives have to make a 360 degree evaluation, every 365 days (at the end of each financial year of the company). What have we earned (an insight and also the diagnosis of performance mostly to take corrective action)? Coupled to this is the key question as to what we bring for the shareholder who have reposed faith in us. The text books on Finance put two aspects in this realm: Retain or Payout. This is easier said than done. Albeit many theories and research point out that a good payment track record augur well for the company. "The amount of dividend is determined

by the board of directors, as advised by financial managers, and presented to the board for approval". Such dividends are normally paid out of the post tax profits of the company (Pike and Neale, 2006).

Dividends differ from sector to sector depending whether the company is in the service sector or manufacturing or high-tech companies. Also companies with stable revenue pattern, without major variations, maintain a low regular dividend payout, to attract investors that prefer regular constant dividend.

The main thrust of the board and senior management is to endeavor to add to shareholders wealth. One of the factors that influence shareholders investment decision is a consistent payout on a long-term basis. Dividends decisions likely influence and impact stock prices and as a corollary has a bearing on the total shareholders' value.

Baker et al. (2001), research states that there is an impact on share price in the short-run in case companies omit or pass dividends. On the other hand Michaley et al. (1995) suggest that omission of dividend has negative impact in the short-run as well as in the long-run. Boards are very keen on the impact the decision to retain or payout brings on the total capitalization of the company. Hence on every payout decision, there is a 360-degree evaluation. This decision making is a hard nut to crack: hard facts and astute decisions are litmus test. A study by Ihejirika Peters .O and Nwakanma Prince C (2012) of Nigerian firms show significant impact on payout due to Return on Equity (ROE), Life cycle stage (LCS) and Size.

Firms that have a low but consistent dividend policy attract shareholders that need payout on a constant basis. In this respect companies that sustain free cash-inflows and sustained revenue generation can payout reasonably decent dividend (Naceur Ben Samy et.al , 2006).

Companies also reward the shareholders through share repurchase or buy-back. Payouts in the shape of dividends have been the likely choice by most corporations. Buy-back (return to shareholders) has surfaced in the mid of 1980s. Companies mostly in USA go for repurchases/buyback of shares as such companies' find that such method augurs well for the shareholders in general. Buy-back is supported on underpinning as it provides a significant tax advantage: Buy-backs result in capital gains, these gains, usually have a lower tax rate compared to ordinary tax.

The Dividend Puzzle:

Not able to lay- hand on the determinants of dividend payout, many authors have authored papers on the subject. Is the Dividend Puzzle Solved? Maria Rosa Borges (2008) explains this through highlighting (i) the agency theory and (ii) the lifecycle theory.

"The harder we look at the dividend picture the more it seems like a puzzle with pieces that just don't fit together" Fischer Black

Corporate dividend policies are dependent on a variety of factors and situation. Some of these can take the form of negative covenants in the bank borrowing and bonds issues. Firms have to abide by these covenants. Usually bank borrowing and bond issue might require firm not to pay divided for a couple of years until they reach a sustainable cash-flow level. Hence such negative conditions are to be observed and complied while the firm decides on a payout.

According to Brealey and Myers (2002) "dividend policy has been kept as the top ten puzzles in finance. The most pertinent question to be answered here is that how much cash should firms give back to their shareholders? Should corporations pay their shareholders through dividends or by repurchasing their shares, which is the least costly form of payout from tax perspective? Firms must take these important decisions period after period (some must

be repeated and some need to be revaluated each period on regular basis.)".

A company facing strain on cash-flow, although showing good PAT might be restricted to take a decision on payout. In Companies Ordinance 1984, Pakistan, for instance the law prohibits payment of dividend by borrowing.

On the basis of the above discussion, the authors, objective is to present study that examine the determinants of dividend payout (measured as dividend payout per share) for two major sectors i.e. Cement and Power sector in KSE listed companies for the period of 2001 to 2010.

II. Literature Review

We started our review with Miller and Modigliani(1961), (the theory of irrelevance) who advocated that the dividend policy is irrelevant for the valuation of the firm, on the basis of some assumptions? What MM thought as irrelevant has become very relevant in the realm of dividend policy.

For generating investors' confidence companies follow an established policy criterion. Hence decisions are based on long-term shareholders value rather current results as solely influencing factor Lintner J. (1956) such research has been widely referred and published.

Corporate dividend policies are dependent on a variety of factors and situation. Some of these can take the form of negative covenants in the bank borrowing and bonds issue. Whereby borrowers need to comply with a required debt-equity ratio and not make payout until and unless a stable cash-flow is assured Van Horne, (1977) and Weston and Brigham (1981).

Dhrymes and Kurz (1964) work on electric utilities shows that many factors impact dividend decision making. Further, electricity utilities payouts are more influenced by sales achieved than by the profit

levels. Some companies, depending upon sectors, have strong correlation in growth in Revenue and dividend payout, whilst others might not have the same intensity of relationship.

Rozeff (1982), Lloyd et al. (1985) and Collins et al. (1996) all show significantly negative relationship between historical sales growth and dividend payout. Whereas D, Souza (1999) study shows a positive but insignificant relationship..

Naceur Ben Samy et.al (2006), study shows that stable earnings combined with high profitability propels the company to make larger payouts.

Al-Malkawi(2007) study underscore that high debt structure results in negative payout..

A study by Roomi M. A., Chaudhry N. I., and Azeem M.(2011) of KSE non financial sectors show that firms earning and posting of high profits are good in payouts.. Rozeff (1982), Lloydhe (1985) results clearly demonstrate that Tunisian firms rely on both current earnings and past dividends to fix their dividend payment On the Determinants and Dynamics of Dividend Policy.

On the other hand shareholders wait, annually, to receive some rewards for their investment. If there is no payout shareholders give a sacrifice and this must be fully supported by corporate managers in enhance PAT or higher payout in future.

Only PAT cannot assure a payout, even the companies with same PAT, may not likely declare same payout or one even might not declare at all. Dividend or payouts are majorly influenced by free cash flow availability. Hafeez Ahmed Attiya Y. Javid (2009). Profit after tax figure is not a sure signal for a dividend payment. D. and Obsovo, I. (2008),

There is also a tax consideration while companies announce cash dividends. In Pakistan there is a 10% withholding tax, (a burden on shareholder) while capital gains in the past so many years did not attract tax. Today also capital gains in Pakistan are taxed at a negligible rate to keep the interest of investors in the stock market. Hence shareholders in such environment likely prefer capital gains over payouts

Baker and Powell (2000) survey of NYSE-listed firms study shows: that dividend determinants are industry specific and anticipated level of future earnings is the major determinant. Our study shows that power sector has a positive relationship vis a vis efficiency and profitability and payout. Whereas, in the case of cement sector, Efficiency and Profitability have statistically insignificant relationship to payouts, thus corroborating with Baker and Powell study that dividend determinants are industry specific.

Corporate dividend policies are dependent on a variety of factors and situation. Some of these can take the form of negative covenants in the bank borrowing and bonds issues.

Companies, depending upon sectors, have strong correlation of growth in revenue and dividend payout while others might not have the same intensity of relationship.

Baker, Farrelly, and Edelman (1985) study of listed NYSE companies reveals that there are various factors impacting on the payout decision, usually the ensuing earning levels and what you have paid in the past. While cash-flow is also an influencing factor yet research has shown that firm's profitability augurs well for more payout Hafeez Ahmed Attiya Y. Javid (2009).

Corporate managers find it prudent that firm must first look at the current obligations whilst deciding payout and hence firm pay

more when the cash flow availability, following payment of current debts is sufficient for a cash payout.

One of the underpinning factors for any increase in payout is prior year operating results. As the managers, do not want that ensuing year's payout to be lesser than the current. Retained earnings and plough back of earnings for effective utilization of internal funds influence the payout. If there is need for asset expansion and sales growth, companies will look first to availability of internal funds. Once the companies have comparatively less internal funds use, more of such earnings go to shareholders, also called residual theory of dividend.

The results also show that managers are concerned about the continuity of dividend when setting dividends payouts H.Kent.et.al (1999). Past payouts are carried forward in case of power sector that is: companies that have paid dividend in the past years by and large continue to do so.

Da Silva; Marc Goergen et al (2005) on the issue of dividend policy and governance studied (manufacturing, wholesale/retail trade, and utilities). The results inter-alia, show that managers are concerned about the continuity of dividends when setting dividend payments.

Retained earnings and plough back of earnings for effective utlization of internal funds influence the payout. If there is need for asset expansion and sales growth, companies will look first to availability of internal funds. Once the companies have comparatively less internal funds use, more of such earnings go to shareholders, also called residual theory of dividend. Santhi Appannan and Lee Wei Sim (2011) .

Debt has considerably negative impact on dividend payout in certain sector companies. Wan Razazila et.al (2004). Hu and Liu, (2005) shows a positive correlation between Payout and current earnings, on the flip side an inverse relationship between the debt to total assets and dividends.

III. Hypothesis:

Efficiency (total asset turnover):

H1: High efficiency i.e. total asset turnover ratio increases the likelihood of higher dividend pay-out per share.

Use of resources effectively (efficiency i.e. Sales/Total assets) will likely generate internal resources for the company. The decision to pay or retain will follow after achieving an efficiency benchmark that is effective use of total asset of the company to generate internal funds. It is important to underscore that profitability is the outcome of efficiency. Business entities that do not run either fade away, or are labelled as non-performers, in turn find it difficult to generate resources to stay afloat.

Efficiency in fact is the driver that influences liquidity, growth and sustainability of the firm and provide the needed cashflow thus likely enabling companies to make generous and consistent payout. Mostly companies with stable sales are more likely to pay constant dividend. Dhrymes and Kurz (1964) study shows that payout corroborate with level of sales.

Profitability

H2: Increase in profitability increases the likelihood of increase in dividend pay-out.

Another important indicator is profitability it has major impact on payout. Most research papers support this hypothesis: for instance: Tunisian firms where current earnings and past dividends are relied for fixing payouts. Also highly profitable firms with more stable earnings can afford larger dividends. M. A., Chaudhry N. I., and Azeem M.(2011)

There are various factors impacting on the payout decision, usually the ensuing earning levels and what you have paid in the past. While cash-flow is also an influencing factor yet research has shown that firm's profitability augurs well for more payout. The study by Adaoglu (2000), Amidu and Abor (2006) and Belans et al (2007). Firms having steady profitability pay dividends, and there exist a positive relationship between profitability and dividend payment. Hu and Liu, (2005), study depicts that current earnings (profitability) has a positive correlation with cash payout. Mohammad Nasr and Shammyla Naeem (2007) research shows a positive relationship between profitability and dividend. Amidu Mohammed and Abor Joshua (2006), study also depicts the positive relationship between profitability and payout Goergen et al. (2005) study on 221 German firms shows that net earnings were the key determinants of dividend changes.

Cash-flow to Debt

H3: Increased cash-flow to debt ratio increases the likelihood of increased dividend pay-out.

Allied to the profitability is the cash-flow to debt ratio, if the firms have cash-flows such availability influence cash payout. Highly profitable firms with more stable earnings can afford larger free cash flows and thus pay out larger dividends.

Only Profit After Tax (PAT) cannot assure a payout, even the companies with same PAT, may not likely declare same payout or one even might not declare at all. The fact of the matter is that dividend or payouts are function of free-cash flow availability. Hafeez Ahmed Attiya Y. Javid (2009)

Also, Franck Bancel et.al (2009) (Cross-Country Determinants of Payout Policy: Europeans Firms) found out Tobacco and utilities firms generate considerable cash flows and do not need to reinvest in their business relative, to other industrial companies. High-tech firms such as software and computer services firms (16.1 percent), technology and hardware equipment firms (16.5 percent), and pharmaceutical and biotechnology firms (20.0 percent) have the

lowest payouts. These firms invest a large part of their cash flows in research and development or other assets.

Anil and Kapoor (2008) conducted a study on determinants of dividend payout ratio in which their results show that the cash flow from operation is most important factor in Indian Information Technology sector and they conclude that firms which have high liquidity position gives more dividend and vice-versa. Profitability, age, and size of the firm also influence payouts appear to be determinant aspect of corporate dividend policy in Jordan, Al-Malkawi, H. A. N. (2007) when profitability is high it means free cash flow increases so firm afford to high dividend payment or payout ratio. Belans et al (2007) study shows that firms having positive and unrestrained liquidity pay divided; as such there exists a positive relationship vis a vis firm's liquidity and payout.

Current Ratio:

H4: Increased current-ratio increases the likelihood of increased dividend pay-out.

Often the current ratio or working capital management gives the pulse reading of a company, the ability to meet current obligations right on time and to ensuring adequate liquidity is one sign of efficient management. Hence current ratio is a function of working capital management. A negative working capital means higher proportion of current liability compared to current asset.

While an occasional negative working capital may not be an indication of company failure to effective manage working capital (other things remaining the same). Essentially the company in the long-run need to maintain, by and large, a positive working capital that is ratio of 1:1 or 1.5:1.(depending upon the size and the sector) It is inappropriate to deduce that a higher current ratio is the road to

success. On the flip side a higher current ratio reflects inefficiency in the realm of working capital management.

The results of study by Okpara, G, C (2010) of Nigerian listed companies' shows that three factors that is: earnings, current ratio and last year's dividends impact significantly on the dividend payout and dividend yield in Nigeria. Ross (2009) research states that the survival and sustainability of the company hugely depends on the effectiveness of the management of working capital. Mismanagement of Working Capital can result in extensive stain on a company to meet its current obligation.

Lazaridis and Tryfonidis (2006) have found significant positive relationship between profitability and efficient working capital management. According to (Van Horne 1969), a firm highly constrained on its liquidity is risking its current obligations. Sagan (1955) in his

IV Data Source

Our data is based on the annual audited accounts of the companies which we have taken from the website of Central Bank of Pakistan (State Bank of Pakistan), which provides historical financial data/records of 10 years and more. Till the writing of this paper the SBP website only has provided data for the years 2001-2010, we have consistently relied on this source as such the results of year 2011, of the listed companies have not been included in the paper[1]. The State Bank of Pakistan (SBP) publishes "Financial Statements Analysis of Companies (Non-Financial) Listed at Karachi Stock Exchange". The publication contains analysis of financial statements of Non-financial institutions for the period 2001-06. An updated version of this publication, reported the data for the period of 2005-2010. We have taken data for the period of 2001-2004 from the earlier publication and for the period of 2005-2010 the data was taken from the later publication.

[3]Data for 2011 has been released by SBP in February 2013.

Our study is confined to impact of internal factors on the performance of the companies. We have excluded, in our study, the impact of GDP, interest rates, currency parity and fuel prices.

We have selected the Power and Cement sector due to the fact that both the cement and power sectors are engine of growth for the Pakistani economy. In case of cement there is potential of foreign exchange earnings. The power sector continues to provide support for running the wheel of industry. The investment and increase in public sector spending (infrastructure building), is hugely dependent on cement and power sectors.

This study includes eighteen (18) cement firms and thirteen (13) firms from power industry. The SBP publication includes slightly higher number of firms. We have studied only those firms whose data was published in SBP's both publications. In case of some companies results were not published this is due to the reasons: (a) companies commenced business after 2001 or somewhere in the middle of the period in the range of 2001-2010 (b) some companies have either merged or closed their business operation.

V. Research Variables

Dividend pay-out: dividend per share which is calculated by total dividend announed divided by number of ordinary shares outstanding for a certain period of time.

Efficiency: Efficiency is arrived at by dividing the total sales/revenue, in a given period of time usually one year, by the total assets of the comapny used for generating sales revenue.

Profitability: profitability refers toProift After-Tax as a percentages of sales.

The Cash Flow to Total Debt ratio: measures the length of time it will take the company to pay its total debt using only its cash flow. This ratio is used as a "what-if" scenario as a basis to compare company results and performance to other companies. A high, or increasing Cash Flow to Total Debt ratio is usually a positive sign, showing the company is in a less risky financial position and better able to pay its debt load.

Current ratio: the current ratio is obtained by dividing the total current assets to the total current liabilities. This indicates how well a company could pay its current liabilities with all of its current assets. An acceptable current ratio varies by industry. Generally speaking, the more liquid the current assets, the smaller the current ratio, For most industrial companies, 1.5 is an acceptable current ratio.

VI. Descriptive Statistics of Cement and Power Industry.

Cement Industry basic facts:

Cement industry annual installed capacity is estimated at 44.22 million tons of cement. Cement manufacturers has faced increases in input costs, unsustainable prices of energy that constitutes more than 55% of total production cost, Hence smaller units have been hit hard due to rising input cost and with inefficiency due low capacity utilization have suffered losses.

The unique feature is that in cement sector, out of the 18 companies under the research five companies represent almost 56% of the installed production capacity.(www.apcma.com). Particularly the profitable five units have made substantial capital expenditure in year 2008-2010 to achieve efficiency and economy in fuel cost to improve the bottom line. The other 13 units remaining are not able to improve on fuel cost have markedly run into losses and hence dragged the total performance of the industry downwards. Current ratio has

also moved within a narrow band, the cement sector by and large in Pakistan has no liquidity issues as in the case of Power Sector.

The mean efficiency has not varied widely and remained within a decent band. The mean in the year 2010 was 0.3883 which was the lowest during the period. Mainly attributable to underperformance of other 13 companies. Dividend distribution in the cement sector is more attractive, compared to Power Sector. The five companies as mentioned earlier have resources to inject owners' fund and also raise debt at comparatively low costs. Not facing the apparent circular debt problem, the cement sector has more vibrancy in performance.

Dividend distribution in the cement sector is more attractive, compared to Power Sector. The big five as mentioned earlier have resources to inject owners' fund and also raise debt at comparatively low costs. Not facing the apparent circular debt problem, the cement sector has seen more vibrancy in performance.

Power Sector basic facts:

The power sector in Pakistan is beset with a unique issue which comes in the shape of the inter-corporate Debt, as power generation companies fail to clear their dues to fuel supplier. The fuel suppliers in turn are hard pressed and are not regular on their payment commitments towards refineries and international fuel suppliers.

Similarly, the IPPs, (Independent Power Producers) because of the delay in the payment from the Government are highly stretched to make payment to the fuel suppliers, as a corollary of which they are constrained to meet their obligations poor capacity utilization who markedly impacts their profitability..

Table 1: Cement and Power sector average performance for the period of 2001-2010

	Year	efficiency	Profitability	Cflow_to_debt	current_ratio	Return on asset	Divident Per Share	EPS_a_tax	Cash flow per Share
Cement	2001	0.7402	-.0579	.0917	.9228	-.0549	.3989	-2.98	-.3733
	2002	0.6507	-.0322	.1879	.8133	-.0188	.2827	-2.48	5.8108
	2003	0.6353	-.0684	.0333	.8185	-.0570	.3409	-4.74	-2.3057
	2004	0.685	.0578	.2341	.6379	.0438	.5814	1.78	3.8558
	2005	0.6457	.1144	.	.8435	.0734	.4291	3.51	.
	2006	0.5951	.1480	.	.9622	.0983	.6283	5.38	.
	2007	0.4785	-.0572	.	.9284	.0063	.6260	1.58	.
	2008	0.4657	-.2935	.	.5687	-.0424	.3958	-2.45	.
	2009	0.4931	-.2378	.1892	.7409	.0029	2.4323	1.55	4.2327
	2010	0.3883	-.5812	.0808	.6075	-.0597	2.4808	-2.34	1.8300
Power	2001	0.5221	-.0212	.1849	1.5344	.0055	.8049	-1.14	1.3898
	2002	0.5514	-.0079	.1957	1.5384	.0128	1.1244	1.63	5.5841
	2003	0.6065	.0784	.2449	1.4072	.0382	1.6187	2.08	4.2084
	2004	0.5663	.0539	.2559	1.5524	.0423	.8453	2.88	4.9339
	2005	0.5138	-.2855		1.4527	-.0045	1.0108	1.07	.
	2006	0.522	-.2970	.	2.2825	-.0288	1.0348	-.43	.
	2007	0.5022	-.2548	.	6.3892	-.0205	.8077	-.40	.
	2008	0.6215	-.2487		3.3171	-.0288	.9458	.34	.
	2009	0.6499	-.2778	.8643	4.4811	-.0032	1.2838	1.19	7.7454
	2010	0.6477	-.2302	.1778	3.5285	.0005	1.2460	1.93	4.1480

The Power sector is highly leveraged, as they need to fund they permanent working capital through borrowing, as opposed to this cement sector is not facing any issue of circular debt. This is depicted by the fact that current ratio (mean) is significantly higher that (standard of 2:1 being a good benchmark, can be less depending on the industry/sector. The highest mean current ratio during the period under review is 5.38 which is quite out of the norm. The basic reason being that there is a significant amount of Receivables in the current asset portion, thus numerator increasing at higher proportion compared to denominator, essential the Receivables are moving with very slow recovery, which is a particular feature of power sector in Pakistan. Mean efficiency of power sector has moved in a very narrow band, not fluctuating widely neither a high upswing nor a high downswing. The power sector remains challenged, to operate at a better efficiency due to liquidity issue which mar its progress as due to procure raw material to run its wheels.

Giving another dimension to our study we have judged the ranking of the companies in cement and power sector based on five factors giving equal weight to each factor. Table 2, shows the ranking of Cement and Power Sector companies. In this list are those companies whose means on the five factors have been positive during 2001-2010, that is: Efficiency, Profitability, Cashflow to debt, current ratio and DPS. These high ranking companies have impact on the result of the over-all sector. Since their positive (means) considering all five factors over the years have infuenced the overall sector results in a positive manner. On the other hand the remaining companies not so relatively good on perfromance (having one or more negative (mean) has dampen the sector result. In the cement sector the dividend per share mean ranges from 10.1 to zero. Similarly in case of Power sector the dividend per share mean ranges from 5.8 to zero. Hence demeaning and camofluaging the comparatively better results of the good perfromers, when overall sector performance is seen.

Table2: Cement and Power sector Ranking of Companies on Key variables for the period of 2001-2010

	Efficiency	Profitability	Cashflow to Debt	Current ratio	Dividend per share	Efficiency	Profitability	Cashflow to Debt	Current ratio	Dividend per share	Score	Rank
Cement												
Attock Cement Pakistan Ltd	1.140	0.160	0.920	1.440	10.110	0.228	0.032	0.184	0.288	2.022	2.754	1
Charat Cement Company Ltd.	1.050	0.060	0.350	1.350	1.500	0.210	0.012	0.070	0.270	0.300	0.862	3
D.G. Khan Cement Company Ltd.	0.400	0.100	0.110	1.670	0.710	0.080	0.020	0.022	0.334	0.142	0.598	5
Fauji Cement Company Ltd.	0.500	0.050	0.020	1.280	0.100	0.100	0.010	0.004	0.256	0.020	0.390	8
Lucky Cement Ltd.	0.620	0.150	0.480	0.900	3.910	0.124	0.030	0.096	0.180	0.782	1.212	2
Al-Abbas Cement Industries Ltd.	0.430	-0.120	0.030	0.500	0.100	0.086	0.000	0.006	0.100	0.020	0.000	
Bestway Cement Ltd.	0.480	0.100	0.150	1.410	0.450	0.095	0.020	0.025	0.282	0.090	0.520	7
Dadabhoy Cement Industries Ltd.	0.340	-0.680	-0.040	0.550	0.000	0.068	0.000	0.000	0.110	0.000	0.000	
Dandot Cement Company Ltd.	0.590	-0.460	-0.090	0.260	0.000	0.118	0.000	0.000	0.052	0.000	0.000	
Dewan Cement Ltd. (Pak and Cement	0.280	-0.030	0.010	0.900	0.000	0.056	0.000	0.002	0.180	0.000	0.000	
Fecto cement Ltd.	1.480	0.010	0.110	1.050	0.800	0.295	0.002	0.022	0.210	0.160	0.690	4
Gharibwal Cement Ltd.	0.570	-0.230	-0.070	0.800	0.050	0.114	0.000	0.000	0.160	0.010	0.000	
Kohat Cement Company Ltd.	0.980	0.050	0.390	0.930	0.350	0.195	0.010	0.078	0.186	0.070	0.540	6
Lafarge Pak. Cement Ltd. (Pakistan	0.150	-0.140	0.040	0.260	0.000	0.030	0.000	0.008	0.052	0.000	0.000	
Maple Leaf Cement Factory Ltd.	0.520	0.000	0.150	0.850	0.150	0.104	0.000	0.025	0.170	0.030	0.000	
Mustehkam Cement Ltd.	0.080	-0.150	-0.050	0.430	0.000	0.016	0.000	0.000	0.086	0.000	0.000	
Pioneer Cement Ltd.	0.460	-0.010	0.040	0.410	0.130	0.092	0.000	0.008	0.082	0.026	0.000	
Zeal Pak Cement Factory Ltd.	0.480	-0.650	0.080	0.780	0.000	0.095	0.000	0.016	0.156	0.000	0.000	

Table2 continue on next page . . .

Table2: Cement and Power sector Ranking of Companies on Key variables for the period of 2001-2010

	Efficiency	Profitability	Cashflow to Debt	Current ratio	Dividend per share	Efficiency	Profitability	Cashflow to Debt	Current ratio	Dividend per share	Score	Rank
Power												
Altern Energy Limited	0.190	-0.570	0.100	0.630	0.000	0.038	0.000	0.020	0.126	0.000	0.000	
Generteck Pakistan Ltd.	0.390	-1.090	0.020	0.510	0.000	0.078	0.000	0.004	0.102	0.000	0.000	
Ideal Energy Ltd.	0.510	-0.460	0.640	7.970	0.590	0.102	0.000	0.128	1.594	0.118	0.000	
Japan Power Generation Ltd.	0.410	-0.100	0.010	0.700	0.000	0.082	0.000	0.002	0.140	0.000	0.000	
Karachi Electric Supply Company Ltd	0.560	-0.280	-0.090	0.730	0.000	0.112	0.000	0.000	0.146	0.000	0.000	
Kohinoor Energy Ltd.	0.680	0.200	1.560	3.630	2.050	0.132	0.040	0.312	0.726	0.410	1.630	2
Kohinoor Power Company Ltd.	0.720	-0.050	0.150	4.620	0.100	0.144	0.000	0.030	0.924	0.020	0.000	
Kot Addu Power Co. Ltd.	1.000	0.150	0.270	1.310	5.880	0.200	0.030	0.054	0.262	1.176	1.722	1
Nishat (Chunian) Ltd.	0.970	0.060	0.250	0.910	1.250	0.194	0.012	0.050	0.182	0.250	0.696	5
S.G. Power Ltd.	0.300	-0.040	0.300	9.600	0.150	0.060	0.000	0.060	1.920	0.030	0.000	
Sitara Energy Ltd.	0.840	0.040	0.420	1.650	1.580	0.168	0.008	0.084	0.330	0.316	0.976	4
Southern Electric Power Co. Ltd.	0.380	0.050	0.130	0.470	0.310	0.076	0.010	0.026	0.094	0.062	0.268	6
The Hub Power Company Ltd.	0.650	0.190	0.240	1.670	3.670	0.130	0.038	0.048	0.334	0.734	1.324	3

VII.Methodology

Considering the above hypothesis and the nature of data that has both cross-section and time-series properties we applied panel data analysis. We can express the dividend pay-out hypothesis in terms of econometric relationship for the panel data as given below:

$$D_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 P_{it} + \beta_k Z_{it} + \mu_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where D_{it} is the dividend per share of the i^{th} firm at the time t, E_{it} is the efficiency of the i^{th} firm at the time t, P_{it} is the profitability of the i^{th} firm at the time t , Z_{it} is all the other financial indicators of the i^{th} firm at the time t, and μ_{it} is the residual error term. We use fixed effect panel model that have constant slopes but intercepts differs according to the cross-sectional unit in our case firm. The Fixed Effect models assumed that disturbances are homoscedastic with the same variances across time and cross-sections. This assumption may be restrictive for panel data, where cross-sectional units – firm, may be a different size and consequently exhibit different variations (Baltagi 2005). Earlier described our sample was restricted to the period of 2001-2010. Since SBP do not provide observed firm's data during all these years (reason may be firm listed after 2001 or delisted in KSE during the period), we could not apply random effect model. In this case we have applied Estimable Generalized Least Square (EGLS) method with cross-sectional weight. In this procedure Cross-section weights and Period weights allow for heteroskedasticity in the relevant dimension (see EViews 7 User's Guide II, page 649).

We have tested four models. The first model relates our main/ core relationship that explains, when firm decides for dividend pay-out they must consider the efficiency and the profitability of the firm. The second model considers the third variable i.e. cash flow to debt ratio, if firm has increasing Cash Flow to Total Debt ratio, is in a less risky financial position and better able to pay dividend. The third model includes another important variable that is current ratio indicator for deciding dividend behaviour, main component of current asset basically include Cash+ Accounts Receivables +Inventory. The fourth model includes return to asset. An increasing asset productivity ratio is generally a positive sign, depicting that the company is making/ sustaining earnings with less proportional increase in its total assets, thus there increased likelihood of dividend pay-out.

VII.Results

Table-3a and Table-3b exhibits the results obtain by using Panel EGLS (Cross-section weights) method for the Power and Cement industry using four different models. The selected dataset do not provide sufficient evidence to reject null-hypothesis H1. In the case of Model-1, Model-2 and Model-4 Efficiency is significantly related to dividend pay-out per share. However, only in model-3 it is insignificant. In all of the four models higher efficiency in the Power and Cement industry leads to on average higher dividend pay-out per share. Dhrymes and Kurz (1964) study have shown that dividend pay-outs are more in line with sales level than with profits levels for electric utilities. In our results we have taken efficiency which is level of sales in relation to total assets.

Our results do not support hypothesis H2. In Power and Cement, all four models profitability is negatively related to dividend pay-out per share.

The results support H3. In Cement industry Model-2 and model-3 shows cash flow to debt ratio is significantly and positively related to dividend payout per share. Model-4 shows positive relationship of cashflow to debt ratio with dividend payout per share but in this case it is insignificant.

Hypothesis H4, is supported in model_3. Current ratio is highly significant in explaining the variation in payout in both Cement and Power sectors. In the Cement sector our findings show that higher the current ratio, higher is the payout. However, in the power sector the higher the current ratio the lower the payout. Table-1 explains this contrasting result underscoring that the cement sector has higher cash flow from operations than the power sector. Because of the higher availability of free cash flow the cement sector companies has higher dividend pay-out. Corroborating with Anil and Kapoor (2008), Al-Malkawi, H.A.N. (2007) also Belans et. Al. (2007). On the other hand power sector in comparison very high current ratio. The higher current ratio is due to stuck up receivables which leaves little cash flow from operations for making pay-out. Which, prima facie, reflects inefficient working capital management. However this is due to external factor and national issue of circular debt.

Table 3a : Cement Sector

Dependent Variable: Dividend pay-out per share			
Independent Variable	Model-1	Model-2	Model-3
C	0.8006***	1.1318***	0.6967***
	(0.028291)	(0.015644)	(0.061858)
EFFICIENCY	0.2151***	0.0425***	0.0615
	(0.052402)	(0.013142)	(0.043098)
PROFITABILITY	-0.0254***	-0.0082	-0.0579***
	(0.008272)	(0.008424)	(0.015701)
CFLOW_TO_DEBT		0.1268**	0.4532**
		(0.054111)	(0.189248)
CURRENT_RATIO			0.4314***
			(0.057546)
R^2	0.2237	0.2805	0.6677
Adj R^2	0.1213	0.0911	0.5747
Jarque-Bera	125.6495	26.86681	4.020303
Probability	0.000000	0.000001	0.133968

Table 3b: Power Sector

Dependent Variable: Dividend pay-out per share			
Independent Variable	Model-1	Model-2	Model-3
C	1.0979***	1.1340***	1.2142***
	(0.01503)	(0.015644)	(0.016572)
EFFICIENCY	0.0736***	0.0370	0.1076**
	(0.026645)	(0.013142)	(0.053329)
PROFITABILITY	-0.0032	0.0055	-0.0859
	(0.003586)	(0.008424)	(0.065397)
CFLOW_TO_DEBT		0.3475***	0.3978***
		(0.054111)	(0.084983)
CURRENT_RATIO			-0.0678***
			(0.017659)
R^2	0.6747	0.8539	0.8556
Adj R^2	0.6317	0.8133	0.8120
Jarque-Bera	21.71362	0.936243	1.010069
Probability	0.000019	0.626177	0.603485

IX. Conclusion:

Cement

During the period under review the sector has witnessed a roller-coaster ride. Beginning with good demand and addition of capacity, cement sector performed well in years 2001 -2008. Capacity utilization of the cement sector was the highest in 2007-08, at 82%, but thereafter has slipped.

Lack of allocation of PSDP (public sector development programme and construction demand of private sector (in some years) resulted in accentuated pains. Gradually the companies found opportunity of exports and improved capacity utilization. This resulted in improved efficiency. As a result the mean dividend per share has shown considerable improvement in the years 2009-2010. Particularly in these years export earnings and higher capacity utilization by the

ranked companies Table 2, has pulled up the results. Some sectors companies (although very few perform well) and have attracted investors through good payouts and higher market values.

Power

The atypical issue of power sector in the shape of circular debt surfaced in the year 2006. This according to the expert was nonexistence of cost effective electricity tariffs. This grew to the extent of creating real pain, resulting in the sobering impact on the efficiency and sustainability of most of the units that fall within the sector. End result was sobering impact and murk.

Companies ranked as performers Table 2, has play a significant role in improving the mean results of the power sector. The high ranked companies EPS and DPS are substantially attractive compared to other listed companies (all sectors) on Karachi Stock Exchange. However the mean benchmarks are impacted by the poor performance of the companies which have negative performance on one or more of the 5 factors, on which we have based the ranking. Normally the investors look for EPS and DPS as key indicators of companies' performance.

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DO HUMAN RESOURCE PRACTICES AFFECT EMPLOYEE PERFORMANCE?

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Abstract

HR practices have been considered as a major tool to enhance employee performance. This research explores the impact of major HR practices an enhanced Employee Performance (EP) at banks operating in Lahore, Pakistan. Four HR Practices have been selected for this research study that includes Merit based Recruitment and Selection; Performance based Compensation, Organizational Commitment and Training & Development. Results support the proposed theoretical model that link HR Practices and EP at three banks located in Lahore, Pakistan. The study concludes that all testable variables have a positive relationship with employee performance. Pakistani banks are therefore recommended to adopt the stated HR practices to enhance EP which in turn can enhance company performance.

Keywords: Recruitment and Selection, Training and Development, Organizational Commitment, Compensation and Employee Performance

JEL Classification: Z 000

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1. Introduction

Human resource is an important and critical area of management and HR practices are an important area of research since the last few years. HR practices increase the level of employee performance and the employees feel more comfortable and secure where HR practices are implemented. HR practices played an important role in the performance of organizations, particularly in the banking industry.

In the current competitive market, success is less dependent on capital and more on innovation, speed and acceptability. The effect of human resource management on a firm's performance has received considerable importance in the last 25 years showing effective connection between HR practices and a firm's performance (Qureshi et al., 2010). Thus HR is interlinked with all the managerial functions involved in the practices of recruitment & selection, training & development, organizational commitment and compensation and these practices increase the potential of employees in the banking sector.

Research in Human Resource Management (HRM) is a decade old phenomenon for local industry nevertheless research about HRM functions (Ali and Jadoon, 2012) and HR Practices (Qureshi, 2010) and Contextual HRM (Khilji, 2002) provide reasonable insight on HRM and its implications for business environment. Khilji concludes that the gap between stated policies and real practices of HRM are causing employee's frustration because application of international HRM models may not be imported because of their alien nature.

The scheme of this article consists of four sections, first section includes the literature review, second presents the theoretical framework, third involves the research thesis and the fourth section includes conclusion, managerial implications and future research directions.

2. Brief Literature Review

Historically HR universal Practices bundle (Huselid, 1995) like selection, training and development, performance appraisals, rewards and compensation in international setting where the HRM has already tested and adopted for achieving competitive advantage with and through people. Nonetheless in Pakistan, Family owned businesses are dominated but they have stated recognizing the significance of HRM in Pakistan. Realization of HR practices and their strategic use is increasing gradually and visionary companies are using these practices in competing with other firms (Ali and Jadoon, 2012). HR practitioners are struggling to meet the emerging challenges of new values of knowledge workers who have necessitated a new paradigm of practices for attraction and retention of talent for organizational sustainability (Khilji, 2002).

This research explores specifically the relationship of HR Practices and employee performance. Many variables are measured under the HR practices but this research consists of four HR practices that include recruitment & selection, training & development, organizational commitment and compensation. The reason for selecting these four practices is that in the developing regions physiological needs (Compensation and organizational commitment) have a significant impact on employee performance.

2.1 Human Resource Practices and Employee relationship in Banking Sector

Employee performance has received an important status in organizational behaviour research during the past decade (Wright, Gardner and Moynihan, 2003). Since last many years particularly in banking industry the research on human resource practice has played a significant and important role in management and firm performance. Much involvement of HR practices lead to competitive benefits and

performance of a firm (Farndale et al, 2011). This study is an effort to answer the main question of "What role adopting HR practices can play to improve Employee Performance?"

The banking industry in Pakistan is important for the economy, it is the symbol of self-reliance, national security, and plays a vital role in generating government revenue. Pakistan inherited a weak banking network in 1947 and later on in 1970s nationalization of banks in Pakistan did not give an edge to banking sector as planned. In 1990s privatization and restructuring in banking sector made a well-developed banking network having different financial institution with a central bank (state bank of Pakistan) and different commercial banks (Qureshi et al., 2010).

2.2 Complex Resource based View

Fundamental theory in the back of this research is resource based view. Resource base view argues that a firm's competitive advantage can be achieved through its internal resources instead of the external factors that the organization is facing. It has already been established that the concepts of complexity align well with RBV. Traditionally, complex resource based perspective is grounded in four fundamental assumptions of any organizational resource (Hart, 1995). Firstly Resource must add positive value e.g. in HR context employee can add value by marketing, making strategies or even by entering data in company's database. Secondly, resource must be unique, for HR concepts, although every employee has unique set of skills aptitude and knowledge, while across organizational structure employees are not equally important, e.g. in Pakistani settings, in software house it may be easy to hire a Software engineer but in the US economy it might not be an easy task, at the same time retention of software engineer may be problem for local organization but for the US firm it might not have been an issue. Thus uniqueness of resource varies from one setting to another. Thirdly, resource must be imperfectly imitable e.g. software engineer may develop an HR module

successfully using specialized technology, nonetheless the same person may not be useful from other software house dealing in online education products, Thus different business environments will dictate organizations accordingly. Finally the resource shall not be substituted with another resource of competing firm, puts an additional challenge for firms competing in same business e.g. an experienced CEO of telecom company may be useful and be hired by another firm to enter in local business, at the same time it will be an opportunity for the firm's HR department to every time develop new resource (i.e. CEO) and be market leaders at lower HR cost. When we link this theory with organizational practices, we can conclude that firms apply various HR practices by considering their unique resources and environments and these add up to their organization's value, however wether that added value results in sustainable competitive advantage depends upon a host of other factors. We have tried to link this added value in terms of employee performance in this study.

2.3 Employee Performance

Employee performance within an organization can be defined with a variety of ways including their behaviour, attitude and motivation to achieve goals (Ali and Jadoon, 2012). Many of the past research conclude that HR practices are found to be weakly related with performance (Wright and Kehoc, 2008), and various examples about HR practices and employee performance show a positive relation. Research also examines the negative effect of HR practices and their impact on employee performance (Khilji, 2002). HR considered employees as important factors to achieve organizational goals and objectives and to attain a competitive edge over competitors (Wrightet al., 2003). Although employee performance is considered to be an important factor in organizations, few studies did not find a direct effect of HR practices and employee performance (Qureshi et al., 2010).

Many Studies have found that HR practices of staffing, training, involvement of employees and incentives have a positive relation with employee performance and increases the productivity of the firm (Ali and Jadoon, 2012; Qureshi et al., 2010). Several researches have also examined the relationship between HR practices and employee performance. Different concepts have been discussed to explain the low level of performance of HR practices affect employee performance and a general tendency shows that HR practices have positive impact on individual performance.

This study discusses various examples depicting the relationship between the HR practices and their impact on Employee Performance and a positive relation is reflected between these two variables. This section focuses on important variables discussed under prior research. The dependent variable (DV) is Employee Performance also stated as individual performance and the Independent Variables (IDs) include Recruitment & Selection (R&S), Training &Development (T&D), Organizational Commitment (OC) and Compensation & Rewards (C&R).

The following part of the literature review now specifically focuses on elaborating the four independent variables and proposing the hypotheses related to them.

2.4 Recruitment & Selection

Recruitment & Selection is the method through which companies hire the most suitable candidate for the required job in least cost (Sheehan, Holland, & De-Cieri, 2006). Recruitment is the process of searching the best candidate for the job (Wright & Kehoe, 2008). Selection is the process that involves a chain of steps through which candidates are screened for thejob (Sheehan, Holland, De Cieri, 2006). Various studies have been identified significant positive relationship between R&S and Employee performance, as an example

Khan (2012) identified significant and positive effect of Recruitment on Employee Performance. Thus the first hypothesis is stated as under.

H1: Transparent Recruitment & Selection practice ensures Employee Performance in company.

2.5 Training & Development

Training & development and studying their relations are helpful tools to improve individual employee performance and are one of the HR practices that effect organizational results in the shape of improved employee behaviours (Khilji, 2004). Training & Development is a process of sharpening the employee skills and at the same time helps change the attitude and behaviour in order to enhance the performance level of employees (Naris &Ukpere, 2009). Training activities lead to better performance within an organization(Qureshi et al., 2010). T&D is an activity that increases the individual's performance and acts like a pasture that contains all those activities that increase the performance of a group to achieve its goals in an organization (Khilji, 2004). Historic studies (e.g. Naris &Ukpere, 2009) identify a relationship between T&D and employee performance.

H2: Adopting Training & Development practice in Company enhances Employee Performance.

2.6 Organizational Commitment

DeConinck, & Bachmann, (2012) state that Organizational Commitment (OC) is the method through which the commitment of any employee is calculated in some tangible terms. OC can be defined as an evaluation of employee success and failure in their task, and in achieving their goals (e.g. Farndale et al., 2011). OC is the judgement of employee strength and weakness and evaluation of employee for promotion;it is also a part of managing the career development. Fair organizational commitment increases the level of employee motivation

and gears them to work effectively to achieve the organization goals and objectives (e.g. Taing et al., 2011). Organizational commitment indicates power that motivates employees to stay and work effectively to achieve the organization goals. Progressive organizations recognise the individual's identity in organization. Research study has also suggested that commitment has negative relation with absenteeism. Concept of commitment has a long history but commitment is defined as an individual's perception that they are bound to a given target (Wright and Kehoc, 2008). Organizational Commitment's relation with employee performance is also found positive and significant by various studies (DeConinck, & Bachmann, 2012).

H3: Employee's Organizational Commitment enhances Employee Performance in the company.

2.7 Performance based Compensation

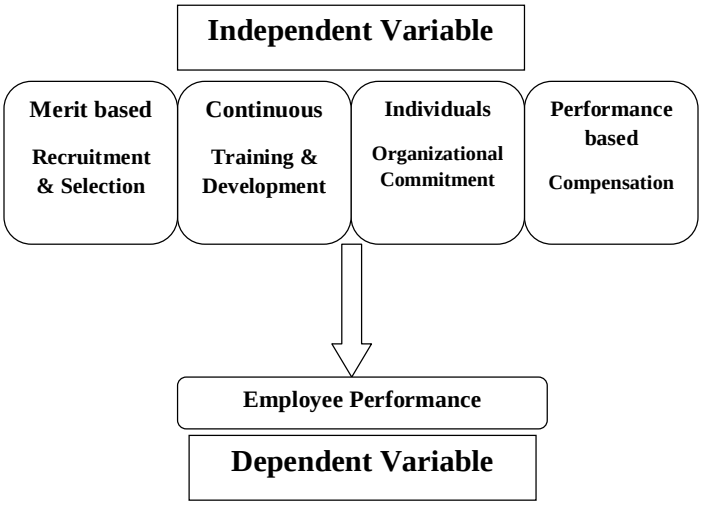
HR is the most vital tool for organizational development (Khilji, 2002)and subsequently in this study it has been identified that Compensation & Benefits have positive impact on employees' performance.Compensation includes expenses such as bonuses, profit sharing, overtime and rewards that includes monetary & non-monetary rewards such as house rent and car facility against hired services of employees (e.g. Wright, Gardner, and Moynihan, 2003).

H4: Merit based Compensation & Reward System policy adoption enhances Employee Performance in company.

3. Theoretical Framework:

The following framework illustrates that the performance of any employee is been measured in terms of quality, quantity, cost and value and is effected by Merit based R&S, Performance Based C&B, OC and continuous company's commitment for T&D.

Schematic Diagram



4. Data Collection and Research Methodology

Data is collected from three banks of Lahore, Pakistan from 92 branches. These banks are coded as B1, B2 and B3 i.e. B1 for Habib Bank Limited, B2 for Standard Chartered Limited and B3 for Muslim Commercial Bank Limited. Five hundreds questionnaires were mailedto managers of banks whereas 310 where properly filled and usable questionnaires were returned. Subsequently 88 will filled from B1, 63 from B2 and 159 from B3 respectively.Values show that average experience of employees was about five to six years, most of them are at middle level with the salary of 51-to-70 thousand Pak Rupee.

Table: 1: Descriptive Statistics& Demographics

	Mean	Std. Deviation	Variance
Position in the org	N/A	N/A	N/A
working experience	2.56	1.10	1.23
Basic Pay	3.63	0.50	0.25
Gender	N/A	N/A	N/A

Table Key:
n=310
Position in the org: 1-Top Position; 2- Middle Level; 3- First Line; 4- Other
Working Experience (in years): 1- one-to-five; 2- six-to-ten; 3- ten-to-fifteen; 4 for more than 15 years
Basic Pay (Per month in thousands of Pak Rupee): 10-to-30 thousand; 2- 30-to-50 thousand; 3- 51-to-70 thousand; 4- for more than 70 thousands.
Gender: 1- Male; 2- Female
N/A: Not applicable

Data is collected using a questionnaire adopted from Qureshi et al (2010) and is revalidated by applying the test for reliability. 500 questionnaires sent through mail and from those 330 were returned, whereas 310 (88 from B1, 63 from B2 and 159 from B3) were properly filled with overall response rate of 62.0% being used for this study.

Table: 2: Reliability of Measures

Scale Name	(B1)	(B2)	B3	Number of Items
1. Employee Performance (EP)	0.93	0.73	0.66	10
2. Merit based Recruitment and selection (RBRS)	0.86	0.77	0.67	10
3. Continuous Training and development (CTD)	0.88	0.61	0.67	10
4. Individual's Organization Commitment (OC)	0.70	0.60	0.67	6
5. Performance based Compensation (PBC)	0.89	0.74	0.63	10

Note: Cronbach's Alpha at three organizations

The above table reflects the values of Cronbach's alpha test and the value for the ten items for this sample was (0.93,0.73 and 0.66) for dependent variable Employee Performance collected from B1, B2 and B3 respectively. Independent variables are found to be convergent and reflect discriminate validity and Cronbach's alpha for Recruitment & Selection is 0.86, 0.77 and 0.67, for Training& Development is 0.88, 0.61and 0.67 for Organizational commitment alpha is 0.70, 0.60and 0.67 and for Compensation it is 0.89, 0.74 and 0.63. All the values fall in the acceptable range of 0.6 and above.

Convergent and discriminant validly

Initially data screening was performed i.e. treatment of missing values, normality, detection outliers, homoscedasticity and multicolinearity. Later Confirmatory factor analysis was executed using Analysis of Moment Structures (AMOS) 18 student version for validity of measures (i.e. EF, RBRS, CTD, OC and PBC) is calculated. Model fit indices including Root-Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), CMIN/df and Tucker–Lewis

Index (TLI) were used to assess model adequacy. RMSEA scores below 0.08, CFI and TLI above 0.90 and represent model fit (Hameed et al, 2013). Initial model with all factors reported poor model fit statistics (CFI = 0.81; TLI = 0.79, RMSEA = 0.07). However, the low factor loadings items were removed. The model fit statistics improved to achieve goodness of fit for adopted measures (CFI = 0.91; TLI = 0.92, RMSEA = 0.06). Further, statistical validities i.e. convergent validity (CV) and discriminant validity (DV) were calculated for scales employed CV was established (i.e. AVE > .50. DV). DV was established as MSV< AVE and ASV < AVE).

5. Research Findings:

Pearson correlation is used for finding the level of relationship between variables of interests. Each hypothesis was then tested and the correlation matrix in Tables3.

Table 3: Correlations (Dependent Variable Employee Performance) for B1

Variables	1.RS	2.TD	3. OC	4. C
5. EP (B1)	0.52	0.49	0.62**	0.02
	(0.06)	(0.08)	(.00)	(.010)
5. EP (B2)	0.44**	0.65**	0.11	0.20*
	(0.00)	(0.00)	(.071)	(0.00)
5. EP (B3)	0.58**	0.19*	0.33**	0.80**
	(0.00)	(0.00)	(0.00)	(0.00)

Note: ** p<0.01; * p< 0.05

Independent Variable(s): 1. OC: Organizational Commitment; 2. RS: Recruitment &Selection; 3. Training & Development (TD); 4. Compensation (C)

Dependent Variable(s): 5. EP: Employee Performance

Organizations

B1: Habib Bank Limited

B2: Standard Chartered Limited

B3: Muslim Commercial Bank Limited

The first hypothesis stated that Recruitment &Selection (RS) has significant effect on Employee Performance (EP). Refer to table 3a, correlation statistics (r=0.52; p=0.06), (r=0.44, p=0.00) and (r=0.58,p=0.00) for B1, B2 and B3 respectively claims that hypothesis is accepted in case of B2 and B3 because statistically significant, while for B1 it is rejected but positive correlation exists. Second hypothesis i.e. case of TD and EP for each bank, correlation values depicts that (r=0.49, p=0.08), (r=0.65, p=0.00) and (r=0.19, p=0.00) the relationship exists and statistically significant in case of B2 and B3 only to verify the role of Training and Development for bankers. The correlation of statistics (r=0.62, p=.00) and (r=0.33, p=0.00) depicts statistically strong relationships for B1 and B3 between OC and EP, whereas correlation is weak in case of B2 i.e. 0.11(.071). The correlation of value of 0.02(0.01) is insignificant for B1, while correlation values of 0.20(0.00) and 0.80(0.00) shows significant relations between Compensation and employee performance.

6. Conclusion

Research suggests that HR practices should be implemented with the intent of maximizing employee's outcome that in turn will improve Organisational Performance through enhanced Organisational Commitment of employees, Transparent Recruitment & Selection, Training & Development opportunities for employees and Performance based Compensation of competent employees. These finding prove that merit based R&S, Organisational continuous effort for T&D enhanced OC and performance based compensation are most influential factors in determining performance of Pakistani Bankers. The findings are consistent with numerous studies. Firstly, regarding Recruitment & Selection findings are partially consistent with Sheehan, Holland, & De-Cieri (2006), whereas partially consistent with Wright & Kehoe (2008), suggesting that R&S plays significant role to hire competent employees for better future performance at workplace. Secondly, Training & Development findings are consistent with Khilji (2003), claiming that proper T&D opportunities with organization ensures

effect Employee Performance. Thirdly, DeConinck, & Bachmann (2012) findings are consistent with our study's findings regarding Organizational Commitment, claiming that the more the employees committed with company, the better will be the change for organizations to have efficiently and effectiveness performance of employees at workplace. Finally the results of this study are partially consistent with Sears, et al. (2012) regarding performance based compensation practice of HR at workplace, proving that organizations shall remunerate and maintain internal compensation based equity among various designations. Overall the findings of this study support Qureshi et al (2010) study regarding R&S, T&D, OC and Performance based compensation for Pakistani bankers.

This Research study is not without limitations and recommends future studies to be conducted. First, the sample is taken from different managerial levels of banks based in Lahore and does not include opinion from other cities of Pakistan. Secondly, future research can be conducted on other sectors including Telecommunication, Textile, and Software-Houses to present cross sectoral investigation of HR practices and their impact on Employee Performance. Finally mediation analysis of OC can be investigated between HR practices and EP in future. The managerial implication of the research is to adopt transparent R&S Practices; continuous T&D at company, performance based compensation for improved Employee performance which ultimately will enhance organizational outcome.

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Annex 1: Research Tool (Questionnaire)

The Questionnaire has adopted from Qureshi et. Al (2010). Study and has used Likert Scale (1. Strongly Disagree; 2.Disagree; 3.Neutral; 4. Agree; 5. Strongly Agree). The items are as under, whereas (R) represents reverse coding.

Recruitment & Selection

Recruitment & Selection system followed in our organization is well defined.

In our organization, line managers and HR managers participate in recruitment & selection.

Valid and standardized tests are used in the selection process of employees.

Selection system in our organization selects those having the desired knowledge, skills and attitudes.

Our organization uses comprehensive selection process before rendering a decision.

The organization uses assessment centres for selection.

Our organization uses unbiased test and interviewing techniques for employee selection.

Our organization selects employees without any biasness.

Organization has strong merit criteria for employee selection.

Employee's Team behaviour is required for employee selection at this organization.

Training & Development (T&D)

Our organization conducts extensive T&D programs for employees of each level.

Employees at each job normally go through T&D program every year.

Training needs are identified through a formal performance appraisal mechanism.

There are formal training programs to teach new employees the skills needed to perform job.

Trainings need identified are realistic, useful and based on the business strategy.

There are formal training evaluation methods to assess the effectiveness of the training.

The organization has a system for calculating the cost and benefit of training.

T&D has helped reduce employee turnover in our organization.

T&D has resulted in higher employee performance in our organization.

T&D has resulted in higher productivity and financial returns for the organization.

Performance based Compensation

My present pay motivated me to work harder.

I feel I am being paid a fair amount for the work I do.

Raises are too few and far between (R).

I appreciate the objectives of present performance appraisal system for salary increases

I know the performance appraisal system being used in my organization is competitive

I have genuine understanding of how the performance appraisal system works

I do not appreciate how my last performance appraisal ranking was determined (R)

I know the criterion used by my boss to assess my next year salary & benefits

My boss clearly communicate to me the objectives of Performance appraisal system (P A S)

Measures regarding performance appraisal system are not usually understood by employee (R).

Organisational Commitment

I would be very happy to spend the rest of my career with this organization

I refer about this organization to, as a great organization to work for, to my friend

Any task related to job assign to me I would accept it happily in order to work for this organization.

I am willing to put my effort to help organization make successful.

I feel myself proud while telling others that I am a part of this company

My organization is satisfied from my job performance his organization

Employee Performance

I am recognized fairly in this organization

My personal milestones are recognized in my company

In my company, employees' hard work is recognised

My company addresses life problems that get in the way of employees performance

In this company we are assisted in coping with workplace stress

I am motivated to do my best when working for this company

I am engaged in any recreational activities for this company

My personal objectives match with organizational objectives

My job tasks conforms to your designated position

I am rewarded competitive according to industry standards

THE ROLE OF PERSONAL AND ORGANIZATIONAL FACTORS IN OCCUPTIONAL ROLE STRESSORS

M. Naveed Riaz[1], Sajid Mehmood Alvi[2], Sehrish Nawaz[3], M.Akram Riaz[4], Jawwad M. Shujaat[5] and Naila Batool[6]

Abstract

The present study sought to examine the difference in personal factors including gender and marital status and organizational ownership in occupational role stressors among the employees of manufacturing industries. Occupational Role Questionnaire was used for data collection for a purposive sample of 120 employees from Pakistan Ordinance Factory Wah Cantt, Taxila and Industrial State of Haripur Hattar. Independent sample t-test and Stepwise Regression analysis were computed to test the hypotheses. The results indicate that female and married employees significantly scored high on all role stressors as compared to their counterparts. On the other hand, private sector employees also scored high on all role stressors except role ambiguity as compared to public sector employees.

Keywords: Role stressors, gender, marital status, organizational sector.

JEL Classification: Z 000

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Introduction

Selye (1936) introduced the concept of stress. In 1974 she defined stress as nonspecific response of the body to any demand made upon it. In recent researches stress is considered as an unpleasant experience which occurs when internal capabilities of individual fail to meet the external demands (Waters & Ussery, 2007). Stress is a common phenomena in every field of modern life and organizations are at greater risk especially due to greater advancement of this era. The stress that is experienced in organizational setting is known as occupational stress which comprised of adverse emotional and physical reactions that workers experience when their abilities mismatch with job demands (Sauter, Lim, & Murphy, 1996). Stress has not only negative aspects but it also holds functional and positive aspects under its wings .One of the positive aspect of stress is eustress that helps in enhancing the organizational productivity (Spielberger, 1980).

There are multiple factors that can cause stress which are known as "stressors". One important category of stressors is related to employees' role in the organizations. Thus, the present study aims to investigate how differences exist in occupational role stressors in term of gender, marital status and organizational sector. In this regard the present study will focus on multiple occupational role stressors including role overload, role insufficiency, role ambiguity, and role boundary and role responsibility in manufacturing industries. Osipow and Spokane (1981) declared that all these role stressors have significant association to one another. Role overload refers to a situation in which assigned work and time are incompatible with each other and worker perceives that it is too difficult to meet the work demands in the given time (Brumele & Beavh, 2008). Role inefficiency refers the a person's inability to fulfill the job requirements in organization (Osipow, 1988). Role ambiguity refers to a situation in which the employee has no clear picture of his duties and work, unaware about plans and goal and uncertain about to what extent he

has the authority to complete his work (Rizzo et al., 1970). Role boundary refers to the extent to which a person experiences conflicting role demands and responsibilities at work situation. Role responsibility refers to the extent to which a person feels himself responsible and accountable for his performance and welfare and colleague's welfare and happiness (Osipow, 1988) All occupational role stressors described by Osipow and Spokane (1981) have significant negative correlation with quality of working life and significant positive correlation with psychological strain (Jackson, 2004).

A wide body of researches is available about gender differences in occupational stress (Beena & Boduval, 1992; Cushway & Tayler, 1994; Gadzala, Ginther, Tomcala, & Bryant, 1990). Murphy (1986) conducted a study and found that female employees are at greater risk of occupational stress. Ryland and Lavy (1989) also shared these same results that the perception and expression of occupational stress is higher among women at work situations. Women experience more role overload and inter role conflict (Reed, 1994) Studies demonstrate that occupational role stressors including role overload, role insufficiency, role ambiguity, role boundary and role responsibility are higher among female (Ryan, 1997; Jackson, 2004). In recent years, Butt (2009) studied the nongovernmental organizations with relevance to organizational stressors and found that females are high at all occupational role stressors given by Osipow and Spokane (1988). Although considerable literature provides the notion that women experience greater occupational stress as compared to men (Beena & Boduval, 1992; Cushway & Tayler, 1994; Gadzala, et al, 1990), other studies contain contradictory massages in this context and declared that men are higher at occupational stress than women (Greenglass Greenglass, Burke, & Ondrack, 1990; Niles & Anderson, 1993; Ogus et al., 1990; Swanson et al., 1996). There are still other evidence which suggest fewer gender differences in this regard (vander, Pompe & de Heus, 1993; Spielberger & Reheiser, 1994).

Apart from the gender existing literature suggests that marital status has significant effect on occupational stress. A study by Cardoso (2011) illustrates that married employees suffer higher occupational stress as compared to unmarried employees. Khurshid, Butt and Malik analyzed occupational stress found that married employees scored higher on all occupational role stressors as compared to unmarried counterparts. Studies related to family life predict that married life responsibilities make people more vulnerable for stress. This high level of stress may be caused by work family conflicts (Firth, 1998). Researches also suggest that marital status lead toward job strain which is a direct or indirect outcome of occupational stressors (Calnan, Wainwright, Forsythe, Wall, Almond, 2001). In the same line Preston (1995) found that married female suffer greater psychological strain at work.

Further level of occupational stress also differs in term of organizational ownership. In this regard, Sharma (1987) studied occupational role stress among supervisors of public and private sector organizations and found that employees from public sector organizations and private sector organizations differ in experiencing occupational role stress. An empirical study on 120 managers demonstrated that managers from private sector organizations suffer higher job stress as compared to public sector organizations (Jha & Bhardwaj, 1989). Malik (2011) studied 200 employees from public and private organizations in Pakistan and found that employees from private sectors organizations suffer greater level of stress than employees from public sector organizations. It is because, private sector workers have to bear greater workload and responsibilities that are incompatible with their capacities. Opposite evidences are also available in this regard, suggesting that employees in public sector organizations have greater risk of role related stress than employees in private sector organizations (Lewig & Dollard, 2001). In recent years, the level of role stress was measured among hundred public sector workers and hundred private sector workers and result revealed that a high level of stress is faced by public sector employees (Malik, 2011). A survey report (Macklin et al., 2006) provides a more paradoxical picture in this context that reveals that the level of stress can not

differ on the basis of governmental and nongovernmental sectors but on the basis of gender.

French (2003) illustrated that manufacturing industries were the main focus of past researches however the service providing organizations is the concern of recent researches. On the contrary, the trends are inverse in Pakistani context. Here the researcher mostly focused on services providing organizations. In recent years this trend has been shifted toward manufacturing industries. The present study is also based on manufacturing industries so this will provide deep insight in this regard the following hypotheses are formulated for the present study:

H1: Occupational role stressors of industrial employees would be significantly correlated.

H2: Female employees would score high on occupational role stressors as compared to male employees.

H3: Married employees would score high on occupational role stressors as compared to unmarried employees.

H4: Private sector employees would significantly score high on occupational role stressors as compared to public sector employees.

Method: The present study was based on cross-sectional survey research design. Data was collected from different industrial units by using self-report measures.

Participants: Sample consisted of employees of Pakistan Ordinance Factory Wah Cantt, Taxila and Industrial State of Haripur Hattar (N = 120). The age range of participants was 24 to 53 years. Both male (n = 60, 50%) and female employees (n = 60, 50%) were included in the research. Both married (n = 50, 41.7%) and single employees (n = 70. 58.3%) were selected. Similarly public (n = 60, 50%) and private sector employees (n = 60, 50%) were included in the study. Non-probability purposive convenient sampling technique was employed for data

collection. Informed consent was obtained from the concerned authorities in the targeted industries and the immediate participants.

Measure: Occupational role stressors were measured through Occupational Role Questionnaire (Osipow & Spokane, 1987). Each role stressor comprised of 10 items. The role stressors measured by the scale included role overload, role insufficiency, role ambiguity, role boundary and role responsibility. Response categories are based on five-point Likert type rating scale. All the items are positively worded. There is no cut off scores in the scale. Scores on Occupational Role Questionnaire (Osipow & Spokane, 1987) were used to measures the role over load, role inefficiency role ambiguity, role boundary and role responsibility. High scores on a subscale indicate high role over load, role inefficiency role ambiguity, role boundary, role responsibility and vice versa

Procedure: Employees of Pakistan Ordinance Factory Wah Cantt, Taxila and Industrial State of Haripur Hattar Industries were personally approached by the researcher with the permission of the concernd authorities. Instructions were provided about objectives and importance of the study. Informed consent was obtained from the authorities and respondents after the provision of compulsory information and brief introduction. The participants were told that the confidentiality of their information will be ensured and the obtained data will solely be used for research purpose. The data was collected under complete vigilance of the researcher. Each and every confusion on the part of participants was satisfied. The participants were requested to provide the answer honestly. At the end, the participants were thanked for their cooperation.

Results: The present study aimed at examining the difference in employees occupational role occupational stress with reference to gender, marital status, and sector of organizations. Descriptive

statistics, Alpha coefficients, Pearson correlation, and independent sample *t* test was applied to analyze the data.

Table 1: Descriptive statistics, Alpha reliability coefficients and zero-order correlation among study variables (N = 120)

Variables	*M*	*SD*	*α*	1	2	3	4	5
1. Role overload	30.81	5.99	.73	-	.58*	.46*	.66*	.31*
2. Role insufficiency	32.74	5.69	.58		-	.47*	.62*	.28*
3. Role ambiguity	35.08	5.61	.71			-	.62*	.53*
4. Role boundary	33.88	6.53	.75				-	.35*
5. Role responsibility	32.65	5.89	.65					-

*$p<.01$

Table 1 shows descriptive statistics, Alpha reliability coefficients and zero-order correlation among study variables. The results indicate that all the scales have satisfactory internal consistency and therefore appropriate for use. Pearson correlation indicates that all role stressors are positively correlated with each other.

Table 2: Mean, standard deviation and t-values for male and female employees on occupational role stressors (N = 120)

	Male (n = 60)		Female (n = 60)				95% Cl		
Variables	*M*	*SD*	*M*	*SD*	*t(118)*	*p*	*LL*	*UL*	*Cohen's d*
Role overload	29.56	6.55	32.05	5.13	2.31	.023	2.48	1.07	.42
Role insufficiency	19.10	7.42	24.61	7.56	4.03	.000	5.51	1.36	.73
Role ambiguity	33.01	6.17	37.13	4.09	4.31	.000	4.11	0.95	.78
Role boundary	31.26	6.32	36.50	5.66	4.77	.000	5.23	1.09	.87
Role responsibility	31.56	6.57	33.73	4.93	2.04	.044	2.16	1.06	.37

Table 2 shows the significant mean differences in employees occupational role stress with the reference of gender. The findings indicate that female employees significantly scored high on role overload, role insufficiency, role ambiguity, role boundary, and role responsibility.

Table 3: Mean, standard deviation and t-values for single and married employees on occupational role stressors (N = 120)

	Single (n = 70)		Married (n = 50)				95% Cl		
Variables	*M*	*SD*	*M*	*SD*	*t(118)*	*p*	*LL*	*UL*	*Cohen's d*
Role overload	29.08	6.15	33.22	4.87	3.95	.000	4.13	1.04	.75
Role insufficiency	31.27	6.06	34.80	4.38	3.50	.001	3.52	1.01	.66
Role ambiguity	33.68	6.13	37.02	4.09	3.35	.001	3.33	0.99	.64
Role boundary	32.42	6.99	35.92	5.23	2.98	.003	3.49	1.17	.56
Role responsibility	31.32	6.22	34.50	4.87	3.00	.003	3.17	1.05	.56

Table 3 shows the scores of single and married employees on occupational role stressors. The findings indicate that married employees significantly scored high on role overload, role insufficiency, role ambiguity, role boundary, and role responsibility as compared to single employees.

Table 4: Mean, standard deviation and t-values for public and private sector employees on occupational role stressors (N = 120)

	Public (n = 60)		Private (n = 60)				95% Cl		
Variables	*M*	*SD*	*M*	*SD*	*t(118)*	*p*	*LL*	*UL*	*Cohen's d*
Role overload	28.96	5.49	32.65	5.94	3.52	.001	5.75	1.61	.64
Role insufficiency	31.25	5.59	34.23	5.419	2.96	.004	4.97	.99	.54
Role ambiguity	34.40	5.19	35.75	5.95	1.32	.189	3.37	.671	.24
Role boundary	32.15	5.19	35.61	7.27	3.00	.003	5.75	1.61	.54
Role responsibility	16.93	5.78	26.78	6.70	8.62	.000	12.11	7.58	.57

Table 4 shows the scores of public and private sector employees on occupational role stressors. The findings indicate that private sector employees significantly scored high on all role stressors in including role overload, role insufficiency, role boundary and role responsibility as compared to public sector employees. The findings are non-significant on role ambiguity.

Discussion: The present study sought to investigate how personal and occupational factors contribute in occupational role stress among employees in manufacturing industries. The first hypothesis postulated that occupational role stressors of industrial employees

would be positively correlated with each other. The results of present study are in line with existing evidences that declare that all occupational role stressors have significant positive association with one another (Osipow & Spokane, 1981).

The second hypothesis assumed that female employees will significantly score high on occupational role stressors as compared to male employees. This hypothesis was proved in present research. Existing evidences also provide similar results in this regard and found that female experience greater occupational stress as compared to male (Beena & Boduval, 1992 ; Cushway & Tayler, 1994). It is postulated that female score higher on all occupational role stressors including role overload, role insufficiency, role ambiguity, and role boundary and role responsibility (Ryan, 1997; Jackson, 2004). In Pakistan Butt (2009) studied private organizations with relevance to organizational stressors and found that female's scores are high at occupational stressors.

The third hypothesis was that married employees will significantly score high on occupational role stressors as compared to unmarried employees. The findings are in line with existing evidences in this domain as study revealed that married people suffer higher occupational stress as compared to unmarried (Cardoso, 2011). In Pakistani culture Khurshid, Butt and Malik analyzed occupational stress and found that married employees scored higher on all occupational role stressors as compared to unmarried counterparts.

The fourth hypothesis was that employees from private sector organization will score significantly high on occupational role stressors as compared to employees from public sector organization. This hypothesis was partially proved in the present research because contrary to the anticipated picture employees from public sector

organization scored higher on role ambiguity. The existing literature also revealed similar results. Past researches supported this notion that organizational ownership has significantly effect on stress. The level of stress is higher among employees in private sector organization than employees from public sector organization. Sharma (1987) studied occupational role stress among supervisors of public and private sector organizations and found that supervisors from public sector organizations and private sector organizations differ in experiencing occupational role stress. An empirical study on 120 mangers demonstrated that managers from private sector organizations suffer higher job stress as compared to public sector organizations (Jha & Bhardwaj, 1989). Malik (2011) studied 200 employees from public and private sector organization from Quetta (Pakistan) and found that employees from private sectors organization face greater level of stress than employees from public sector organizations. Because private sector worker have to bear greater workload and responsibilities that are incompatible with their capacities.

The present study was based on cross-sectional survey research design which exhibits low internal validity which is the limitation of the present study. Similarly, the data was collected through self-report measure which is socially desirable because of the direct relevance of the information with their daily experiences at job in terms of stressors. Overall the study has applied significance in the manufacturing industries of Pakistan. In the light of the findings of the present study, specialized stress management workshops and training programs should be designed to improve the stress management ability of the disadvantaged groups.

Conclusion: The present study was carried out to examine how differences exist in occupational role stressors in term of gender, marital status and organizational ownership among employees in manufacturing industries. All the hypotheses are supported in the

present study. The results indicate that gender plays a significant role in occupational role stress and female employees score higher on all occupational role stressors than male employees. In the same manner married employees suffer from higher level of occupational stress than unmarried employees. The findings of the present study also suggest that employees in private manufacturing industries face more occupational role stressors than public manufacturing industries. The present study is quite insightful in understanding the role of personal factors including gender and marital status and organizational ownership in occupational role stressors among the employees of manufacturing industries.

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GENDER DIFFERENCES IN SELF ESTEEM IN YOUNG ADOLESCENTS OF KARACHI

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Abstract:

The purpose of this research was to explore the self-esteem trends in adolescents of Karachi, Pakistan with regard to gender differences. The insights from previous literature helped to form the hypothesis that there will be a significant gender difference on the self-esteem of adolescents variable. There were a total 224 (96 male and 126 female) adolescents chosen for this study and the Multidimensional Self-Esteem Scale: a 36 item and a 3 Likert response scale was adapted for this study with the consent of the author. The data analysis revealed that there is a significant gender difference on the variable of self-esteem of the chosen adolescents.

Keywords: Self esteem, emotional development, elementary children.
JEL Classification: Z 000

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Introduction and Research Purpose

Adolescence typically refers to the transitional years of an individual during which one grows or matures from being a 'child' to being an 'adult'. Physical and psychological developments are marked features of the adolescent years. This period of adolescence is usually associated with ones' teenage years. According to Erik Eriksson (1959), a developmental psychologist, the adolescent years are crucial for identity formation. It is during these years that adolescents experiment in life in order to gain independence and form their identity. With the resolution of this stage adolescents develop a sense or strength of fidelity which enables them to find their standing in the society. The development of this strength empowers them to contribute to the society and culture – thus enhancing their view of self.

Self-esteem of adolescents in urban settings in Pakistan has not been given much of the focus in the past. The studies from the diverse western countries background projects gender differences on the variable of self-esteem (Barber, Ball & Armistead, 2003; Galliher, Rostoky & Hughes, 2004; Nansel, Overpeck, Pilla, Ruan, Simons-Morton & Scheidt, 2001). However, there has been a vaccum of research studies pertinent to self-esteem inthe context of Pakistan. Hence, this research study aimed at exploring the phenomenon and also to bridge the gap between the literatures.

Literature Review

Since early adolescence is the period when girls enter puberty, and experience major body changes, it is the most challenging period for girls (Holsen and colleagues, 2001). G. Stanley Hall (as cited by Arnett, 1999), a prominent psychologist, equaled adolescence to 'storm and stress' because this particular stage of life is difficult and problematic. Offer and Offer (as cited by Arnett, 1999), further discussed this 'storm and stress' in terms of self-image. As individuals enter into a new

stage of life, factors, challenges and experiences that accompany the stage are likely to influence their self-image. Individuals might re-evaluate themselves as they take part in and initiate new tasks and take on new responsibilities in which they can either be successful or miss the mark. These self-evaluations can affect their self-esteem.

It is during these years that adolescents make an important transition – from middle school to high school. In their research Harter, Whitesell and Kowalski (as cited by Wigfield, Eccles, Iver, Reuman & Midgley, 1991) have shown that during this stage individuals tend to experience greater anxiety with regard to school and studies. Simmons, Rosenberg and Rosenberg (1973), further showed that once adolescents have moved to high school their self-esteem is in general poorer than that of their juniors – who are still in elementary or junior school. In addition, they also observed that with the transition, their self-consciousness tends to increase.

Self-esteem is ones' own personal evaluation of their worth or worthiness. In general terms, it refers to how one views themself. This view of self is assessed, reassessed and altered during the adolescent years. It is during these years that one matures physically, socially, emotionally and psychologically. Physical maturation involves the development of the body as well as internal hormonal changes. Females and males both experience these changes and it is these experiences and changes and the acceptance of these changes that affects their perception of self-worth – i.e. their self-esteem.
A number of studies have explored this phenomenon and have found significant gender differences in adolescents with regard to self-esteem. Menon (2011) carried out a study on 350 adolescents and found significant gender differences with respect to friendship styles, self-esteem, self-concept and adjustments between girls and boys of England. Likewise, gender differences were found to be apparent with in adolescents with regard to self-esteem, shyness and sociability (Wadman, Durkin & Conti, 2008). An Australian study carried out on

467 adolescents tapping self-esteem has revealed females to have higher self-esteem and career expectations than boys (Patton, Bartrum & Creed, 2004). Numerous researchers have examined, explored and discovered that males have lower self-esteem than the female adolescents (Benjet & Hernandez-Guzman, 2001). However, a study by Powel (2004) in contradiction shows that girls have more issues about self-esteem and self-concept due to which their psychosocial development is affected. This may lead to a later life depression and anxiety disorders.

Mullis and Chapman (2000) in their study explored self-esteem and emotional regulation in young adolescents and observed gender factors to be associated with self-esteem scores. Similarly, a Mexican study investigated psychosocial wellbeing and self-esteem as one of the core variables on the sample of 1102 Mexican adolescent participants.

Amongst the other associated factors of self-esteem in adolescents, studies have found that body dissatisfaction is the most common (Neumark-Sztainer, Story, Hannan, Perry, & Irving, 2002; (McCabe & Ricciardelli, 2001). This dissatisfaction is found to have caused depressive moods (Bearman, Presnell, Martinez, & Stice, 2006), immediate distress and low self-esteem (Keerya, Berg, & Thompson, 2004; Cash, 2004; Allgood-Merten, Lewinsoh, & Hops, 1990). Stice, 2002 found that there is a positive relation between body dissatisfaction and eating disorders among adolescents. Moreover, the degree of influence on adolescents' self-esteem is found to be associated with gender difference. Gender is believed to influence the development and manifestation or expression of self-esteem. A study by Carlson, Uppal, & Prosser (2000) suggest that as compared to boys, the decline in the level of self-satisfaction is consistent in adolescent girls because they experience dissatisfaction with their physical changes, especially dissatisfaction related to their appearances as compared to the boys of their age. Studies of Hankin & Abramson in 2001 have also indicated

that there is a positive relation between the effect of social pressure and anxiety caused by body image and body shape changes.

In adolescent girls, some studies strongly implicate body dissatisfaction as a significant predicator of low self-esteem and depression (Berg, Wertheim, Thompson, & Paxton, 2002; Wichstrøm, 1999). Studies have also suggested the body dissatisfaction in girls' predicts depressive moods (Johnson & Wardle, 2005; (Rierdan, Koff, & Stubbs, 1989; Stice & Bearman, 2001) and an increase in low self-esteem (Johnson &Wardle, 2005).

Girls are more concerned about pro-social activities, their social lives and their general acceptance by others. As compared to boys, who are more concerned about being disliked. Furthermore, given the importance that girls place on pro-social undertakings, the results of the study predicted that girls who feel that certain social activities are important but they are not good at it, may experience a negative effect on their self-esteem. They also found that boys on the other hand do not have similar discrepancy in ability perceptions and importance ratings for any of the activities, except perhaps for social activities (Eccles, Wigfield, Flanagan, Miller, Reuman, & Yee, 1989).

In longitudinal study carried out over a span of seven years on adolescents moving from elementary and junior school to high school, it was noted that boys in general reported greater levels of self-esteem than their female counterparts (Wigfield, Eccles, Iver, Reuman, & Midgley, 1991). The results of another longitudinal study by Brown et al., (as cited in Developing adolescents: A reference for professionals, 2002) brought to light similar results, that is, the self-esteem of girls in particular was likely to decrease as they entered into the adolescent stage of life. Robins, Trzesniewski, Tracy, Gosling, & Potter (2002) reported parallel findings. According to their study, the self-esteem of both genders experiences a fall during the adolescent stage in life; however, this drop is twice as high for girls

than for boys – i.e. the self-esteem of girls falls to a greater extent as compared to boys.

In the light of the literature and empirical observations of the researchers of the research setting, the aim of the current research study is to explore the gender differences on the variable of self-esteem in young adolescents of an urban city of Pakistan. The hypothesis set forward for this study was: ***"There will be a significant gender difference on the variable of self-esteem in young adolescents".***

Methodology

Design

The quantitative survey method was chosen for this study, this was deemed as best suited method within the context that researchers were aiming at.

Participants

The participants of the study were randomly chosen by using convenient sampling method. A total of 224 adolescents studying at secondary schools participated in the study out of which 42.9% were male and 57.1% were female adolescents. The mean age of the students were 13.5 and all the participants belonged to the urban settings and were from the middle class families. In addition, all children who participated in the study were from the co-educational English language medium private schools.

Measures

Basic Demographic Information Section: This consists of a section on four demographic variables (i.e. Gender, Age, SES Status and School Status). The section was added to the actual data collection scale on self-esteem.

Multidimensional Self-Esteem Scale (Stake,1979): A 36 item with a 3 Likert response scale was adapted for this study with the

consent of the author. The items consisted of the statements reflected from self-management, life management and self-concept. This scale was found highly consistent with the score of .789.

Procedures

Initially, the scale was adapted seeking the author's official permission. The author in this regard was sent initial draft proposal of the research project along with the description of the setting. Upon the agreement of the author, the scale was used. Co-educational English medium schools were identified in the initial phase of the research study. The schools' management was sent a letter of consent by the researchers to seek their consent. The students were asked about their willingness to participate in the study after the permission was given by the school administration. School management and students were explained that their names will be kept anonymous and confidentiality will be stored. In addition to it, both the school management and students were given an orientation of their right of refusal and voluntary participation will be ensured throughout the process. After the data collection, the process of data coding, editing and entry was carried out.

Data Analysis

Descriptive tests were administered to explore the basic demographic trends in the sample. Descriptive statistics, t-test was applied to test the hypothesis. Statistical Package for Social Sciences (SPSS) version 20 was chosen for the data analysis.

Results

The table below reports that there is a statistically significant gender difference on the variable of self-esteem in adolescents of this research study ($t = -2.45$, $df = 222$, $p < .05$).

Table 1: The Mean Difference between Male and Female on the Variable of Self-Esteem

	Gender	N	M	S.D.	T	df	Sig
Self-Esteem	Male	96	80.2	9.5	-2.45	222	.015
	Female	128	83.2	8.6			

Note. According to the results gender difference were found to be significant on the variable of self-esteem between the male and female respondents (t= -2.45, df =222, p <.05).

As can been seen from the data analysis that female adolescents have scored higher on the variable of self-esteem than the boys and the t-score is negative in scope. This reflects that in the sample of this study female adolescents have shown higher self-esteem than boys.

Discussion and Conclusion

Gender differences are likely to impact the self-evaluation. Psychologists, researchers and theorists generally believe that gender influences the development and manifestation or expression of self-esteem. A general, widespread viewpoint that exists is that girls are likely to have lower self-esteem during adolescence because they experience dissatisfaction with their physical changes, especially dissatisfaction related to their appearances. Sar Abadani Tafreshi (as cited by Naderi, Abdullah, Aizan, Sharir, & Kumar, 2009) found that significant difference exists between the self-esteem of males and females as did Zareh, who studied self-esteem in high school students. On the contrary, the findings show that there is a significant gender difference in the adolescents. This can be associated with hypothetical and circumstantial aspects. In terms of hypothetical mention, many studies which were carried out in western and eastern countries have shown significant differences in the male and female students in the school. The factors highlighted in the studies support male and female adolescents in their school age go through many biological changes in their psyche which impacts their psycho-social wellbeing to a great extent. During this period, adolescents – i.e. both females and males become conscious of their self-image and their confidence is also

affected to a wider extent. Likewise, this period of adolescent life is considered to be very sensitive and developmental differences amongst boys and girls are apparent. In urban settings, the young adolescents have fairly positive self-esteem because of their exposure to the educational facilities, latest changing trends and social media.

Considering the cultural context of Pakistan, females and males are brought up to identify strongly with their gender roles. These roles are instilled and reinforced in individuals since early childhood, and the process continues throughout life. Boys in this society are taught to identify with and express their masculinity, whereas females are encouraged to be feminine. This, gender-role identity is another related factor that is likely to influence self-esteem. It can be seen that girls in the urban context in the recent years are given opportunities like boys. In Pakistani urban context, girls and their educational priorities have also been given attention. Parents in the urban settings ensure that their girl child also studies under similar conditions as boys. The reason that the girls have scored higher in this study could also be associated with a thought that currently exists in the urban context of Pakistan, where often parents and communities believe that girls are more socially competent and good in studies and hence they receive positive feedback from the families. This could be one of the predictors of girls scoring high on the variable of self-esteem.

Conclusion

Although this study highlights the gender based differences in self-esteem however it has its limitations. The first and foremost limitation of the study was the relatively smaller sample chosen from a single urban city area. Secondly, it was difficult to maintain an equal sample balance between male and female respondents as the data was collected using convenient sampling and lastly, the study is focused on adolescents from the private school background only. In addition to it, the only focused variable was gender and no data pertinent to other demographic variables were collected and analyzed.

In order to validate the findings of the similar phenomenon, it is recommended to have a larger sample comprised of wide range of demographic variables i.e. place of living, socio-economic status, schooling status and number of family members. Considering the mentioned demographic details in the future studies might influence the gender difference results.

Moreover, the study sets out the significance for the school teachers and management to pay importance to this vital phenomenon of gender differences and its impact on adolescents' self-esteem in their schools and accordingly plan curriculum and intervention.

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ELIMINATING NETSPEAK FROM ACADEMIC WRITINGS OF UNIVERSITY STUDENTS IN PAKISTAN

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Abstract:

The researchers have tried to understand Netspeak efficacy in Pakistani students, however, not much is known about how Pakistani English teachers perceive this new variety of the English language. From previous researches conducted in various parts of the world, it was concluded that teachers did not appreciate the use of Netspeak by their students in their academic writings and considered it a major obstacle in English teaching. The purpose of this research was to get an insight from the Pakistani university English teachers regarding the phenomenon of Netspeak. Six English teachers were interviewed to investigate their cognizance concerning the usage of Netspeak by their students. The data was triangulated through a document analysis of emails and assignments of students. The findings revealed that Netspeak was discouraged by Pakistani English teachers and that the teachers described strategies through which Netspeak could be eliminated, when it emanates into the written work of their students. The teachers shared the techniques they used to standardize the formal academic writings of their students. The findings also helped to disclose teachers' feelings associated with Standard English and their reasons for advocating Standard English over other varieties of English.

Keywords: Netspeak; Standard English; Academic Writing; Document Analysis
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The dynamic technology in today's globalized world has influenced all spheres of human life – including language. It is due to the Internet that a new medium of communication - different from writing and speech - has evolved. It is different from speech because it is devoid of instant feedback, and has the ability to conduct multiple interactions simultaneously whereas the attributes that make it different from the written form are its dynamic dimensions, message framing and hypertextuality (Crystal, 2005). "Netspeak is neither spoken language nor a written language: it has adapted features of speech and writing to suit the new medium (the Internet) and added other features that neither speech nor writing could ever convey (Crystal, 2001, p.4)". Aslam, Ahmed and Sajid (2011) point out that the Pakistani students are at home with the latest change in orthography in English language and they are adapting this linguistic change with ease. Therefore, it can be concluded that Pakistani youth has embraced this new variety of the English language. The question remains, 'Have their teachers accepted it?' Trudgill, (1999) comments that teachers are consciously trying to standardize the writing of their students through Standard English - a variety of English associated with the educated class and used in academic writing as well as print in all English-speaking countries. Hence, the idea of Netspeak was explored to understand if the Pakistani teachers have rejected or accepted this new jargon.

According to Hussein and Lingwood (2012), the effect of Netspeak on academic English of students is three folds: Firstly a laid back attitude towards Standard English. Secondly, an increased use of symbols, dots, ellipsis and abbreviations with neglect of capital letters; and punctuation is either missing or negligible. Thirdly, the new web-vocabulary finds its way into off-line writing. On the other hand, Stavfeldt (2011) points out that English Language Teachers have done little to change their conventional way of teaching and they must teach students how and to what extent Netspeak can be used in their writings.

Whether or not Netspeak should be a part of English language teaching depends solely upon the perception of the educators. Netspeak which is a new variety of English language has not so far made its impression on English teachers, and many are reluctant to incorporate this variety into their English teaching lesson plans.

Literature Review

Netspeak and English Language Teaching

According to Crystal (2001) there has been an on-going discussion between the proponents of prescriptive approach and descriptive approach to English language study. He further says that the prescriptive school believes that one variety of a language is better than the other and should be used for didactic purposes, which is known as Standard English and it follows certain grammar and vocabulary rules. Whereas, the descriptive school propagates a more liberal approach which holds that there is no right or wrong in a language and that a language should be taught as it is being used by the masses (Crystal, 2001). When the English language teaching (ELT) practices in the English teaching regions are analysed, it becomes clear that the English teachers use prescriptive approach for teaching; as Nyawaranda (1998) reports - teachers are using prescriptive approach to English teaching because they, themselves have learnt through this approach. This learned behaviour causes inflexibility in the teaching methodologies used by the teachers. On the other hand it is a concluded fact that ESL students want their classes to be learner-centred and activity-based where new teaching methods are used to facilitate their learning (Eslami, 2010); Murtiana (2012) adds, that it is the duty of teachers to expose their students to different varieties of English in a way that students become aware of the usage of these varieties in their appropriate context.

Moving on to the importance of teaching English as a second language (ESL), we must realize that English has expanded tremendously and has affected the social hierarchy of the countries where English has acquired the position of a second language (which includes Pakistan). Parents are determined in these countries to make their children fluent in the English language from the earliest age possible (McArthur, 2002). Jarvis (2005) acknowledged the fact that English is being used across the Asian region; therefore, it is a challenge to promote pedagogy that reflects what users are actually doing with the language. As Netspeak is the latest development in English language, therefore, she suggests the teachers should help students learn how and what to write online through task based activities that help students to generate appropriate language for the Internet based task. Considering the actual English language usage

in Pakistan, Aslam, Ahmed, and Sajid (2011) are of the view that like the rest of the world, a new lingo is developing in Pakistan which is causing the Pakistani students to use non-conventional and irregular spellings for communicative purposes. Stavfeldt (2011) through his study showed that the ELT teachers do not consider this new change in the English language as a development, rather they treat it as a threat to the existance of Standard English. As Murtiana (2012) puts it, 'The distinct feature of recent language which roots from digital technology should even be viewed positively as it may actually enrich the English language (p. 113).' As such Netspeak is not being taught by the English language teachers, rather their focal point is Standard English.

Standard English

The question arises, what makes Standard English so important? The word standard implies criteria against which performance is to be measured (Winch & Gingell, 2004). According to Widdowson (1994), English is preserved through a brand of exclusive quality, known as the Standard English. Anchimbe and Anchimbe (2011) defined Standard English as the language spoken by people of higher strata whereby the more you move down in the social strata, the more English becomes non-standard. They elaborated by saying that European colonists used this social strata to create a social elite in the colonized lands that were to be situated between the masters and the masses; this class was created to be completely subservient to the British masters yet they were closer to their British masters than the masses at large. Therefore, in countries like Pakistan that have previously been a British colony, the measuring gauge for how much a pupil has excelled in English comes from how close one is to the Standard English. He further says that it is important to standardize English because it is spreading rapidly, thus it becomes important that as the changes may occur out on its periphery; the centre must be traceable and stable. He also points out that because English is the means of international communication therefore, "…we must maintain the central stability of the standard as the common linguistic frame of reference" (p. 379).

While Trudgill (1999) calls Standard English a sub-variety of English language; Widdowson (1994) claims that the custodians of

this sub-variety of English are the educated native speakers of English in England or New England and they believe that they are naturally entitled to the custody of the English language. Standard English according to Widdowson (1994) is 'well suited for written communication' and is defined with its reference to its grammar and lexis – here he also adds spelling as a fundamental part of Standard English.

Since Standard English best suits the written medium of communication therefore orthographic conventions should be kept in mind otherwise the writing becomes ambiguous due to unorthodox appearance of words. Good spellings help institutions to maintain institutional stability. Similar is the case with grammatical features in Standard English. To be efficient in Standard English, mastery of a prescribed grammatical system is crucial. "Thus, it tends to be the communal rather than the communicative features of Standard English that are most jealously protected: its grammar and spelling (Widdowson 1994, p. 381)." When considering the lexis of a language one needs to consider that its standardization is not possible. Such a standardization will lead to fixation in reference to past; thus being inappropriate for communicative purposes in the given time and age. Therefore, words are regularly added to the Standard English from the specialist domain but not words from everyday social interactions (Widdowson, 1994).

Netspeak and Students' Perception

Even though Standard English is the only medium through which English is taught, yet, Hussein and Lingwood (2012) through a survey that they conducted concluded that online English has a direct influence on the offline language usage of Jordanian students. The research further highlighted that the students perceived the Internet English had a positive effect on their writing skills; nonetheless, they agreed that it had affected their spelling and punctuation adversely due to the fast typing speed (Hussein and Lingwood, 2012). Rahman (2004) makes similar observation and explains that the Internet is the reason why the young Pakistani people disregard the Standard form of English and consider it obsolete and out-dated, on the other hand, Rollason (2005) optimistically says about the future of English orthography, '.....all those who write the English language, be they first, second or foreign-language speakers

will for the foreseeable future be better off expressing their ideas and their creativity within the graphic conventions of English as we now know them (p. 9).' This is aligned with Murtiana's (2012) assessment of the English language where she says that English will continue to evolve, as it has in the recent times due to the internet slang, initialism, and texism. Though it has deviated from its pure standard form, yet, language change has created variety of cultural diversity.

While the proponents of Netspeak insist that this new jargon is making a positive impact on students' writings, the opponents believe that it is the beginning of the end of Standard English. Alkawas (2011) through the document analyses that she conducted on student's written work showed that the perception of students regarding their formal written work was in contrast with their teachers' perception. She further reiterated that it is a tedious task for the educators to ingrain in their students some form of standard to use proper punctuation, spelling, grammar and writing structure. The research needs to be conducted to understand if teachers in Pakistan also treat Netspeak as a variety causing a hindrance in the teaching of Standard English as researchers need to understand if Netspeak is considered an obstacle in English language teaching then what strategies are used to counter this new variety. If they have accepted this new variety, then how are they incorporating it in their teaching?

Purpose of the Study

This research provides profound insights regarding how Pakistani teachers are handling Netspeak, which has now wriggled its way into the formal written work of their students. It investigates the point of view of English language teachers about the phenomenal change that has occurred in the English language, therefore, this research will be helpful for the English teachers to decide upon the ways this new jargon can be eliminated from their Academic English writing. The following research questions are therefore posed:

1. To what extent should the emphasis be laid on Standard English?
2. How successfully are the English teachers able to obviate this new variety of English from the students' Academic English writing?

3.To what extent does Netspeak impede English language teaching?

Methodology and Design

The purpose of a qualitative study is to understand a certain social or psychological phenomenon from the perspective of the people involved; therefore, qualitative method was employed to understand the influence of Netspeak on ELT. According to Athar and Iqbal (2009) a qualitative study through obtaining comprehensive replies and opinions looks in-depth at the problem under investigation. The qualitative research design helped the researchers to explore and uncover the various meanings and insight that the participants had regarding a phenomenon of Netspeak. Through the detailed replies of the respondents, the researchers were also able to discover their conceptualization of Standard English. Simultaneously, the respondents also unveiled their classroom experiences and strategies through which Netspeak is kept at bay.

Sample

Hycner (1985) argues that it is the phenomenon that decides the type of participants that will be used in the research. Therefore, purposive sampling was used to recruit five university English teachers who were well familiar with Netspeak. Sorrell and Redmond (1995) point out that even though most phenomenological interviews are on one-to-one basis, yet, these interviews can also take place in groups where each respondent communicates his/her point of view. They add that group- interviews help in adding valuable information and insight into a phenomenon. Since the sample group consisted of only five teachers, therefore, semi-structured (Appendix 2) group-interview was used as the major research tool. Eight emails of students (Appendix 3) were analysed, along with the assignments of same students to assess the usage of Netspeak in their formal writing.

Instrument:

The interviewees were the primary unit of analysis and data was stored through recording the interview and memos. This is how "a balance between descriptive notes and reflective notes" was

maintained (Groenewald, 2004). A volunteer helped in notetaking during the interviews. Constant comparison analysis of the interview was carried out; which means that the entire data was used to identify the underlying themes that emerged from the data (Leech & Onwuegbuzie, 2007). Document analysis helped in the in-depth analysis of the phenomenon under consideration which was conducted on students' emails and their written assignments. This examination of documents played a vital role in providing confirmatory evidence of the information which was gathered from the focus group interview. It also added significantlyto the author's understanding of Netspeak usage.

Results

After going through the interview data, it was observed that the interviews could be roughly divided into three major codes:

- What the participants wanted their students to achieve in an English class
- How teachers perceived Netspeak
- What techniques the teachers used to achieve their aims in an English class
- The code 'How teachers perceived Netspeak' was further sub-coded in six themes. Our task now is to analyse these codes and themes one by one.

What the participants want their students to achieve in an English class

One thing was very clear that the participants wanted their students to do away with Netspeak. As English teachers they wanted to encourage their students in speaking and writing English and wanted their students to be well versed in Standard English. Standard English they believed was shibboleth and could get them into the circle of the 'educated class'. The teachers seemed to be aware like Widdowson (1994) that if a written work is not expressed in Standard English then it will not be taken seriously. There were statements such as:

'But when they come to a school, a business school, they have to be taught proper Standard English. You know you have to refine them.

There is a difference between you know a guy using Urdu on the streets, and using it in a formal setting. So, you know, we have to you know sort of fine tune them.'

They all believed that they need to make students aware of the Netspeak being a sub-variety of English language and there should be a line drawn as to where to use and where not to use it. Only one teacher was of the opinion that Netspeak should be encouraged as long as the students were learning English; whereas, the rest were not willing to encourage their students in Netspeak usage even if it helped in achieving confidence in English usage. When a teacher proposed the idea of a Pakistani model of English, '*We need to come up with our own models. I think there are countries which have come up with their own models'*; he certainly did not get any support from his colleagues. He was told that the Standard English is the only way forward and there were replies such as:

'So believe me this local model of English, it is not going to evolve. Ok. That much. Ok. It will not come up to the surface. They'll have absolutely um no strength to rise above. These English people they they do not let these local models to rise above.'

Therefore, it can be summed up by saying that nothing was acceptable to the majority of teachers other than the Standard form of English.

How teachers perceived Netspeak

Themes that emerged from the perception of Netspeak by the participants fell under six headings:

Problem: The first theme that was very obvious was that all participants perceived Netspeak to be a problem. It was referred to as a problem repeatedly by the teachers both in teaching and learning. Some of the ways in which the word problem was used is:

'problem in business writing'

'diagnosed this problem'

'in academic work it's a problem'

'facing problem in teaching'

'where is the problem coming from'

Habit: The teachers consider Netspeak to be a habit in students, something that they were unaware of and were involved in unconsciously. This habit according to them is the outcome of extensive texting. As according to the teachers:

"Well, I believe that, that they are habitual of using Netspeak."

"I think they are very habitual of it and they cannot get rid of this."

"And because of the SMS or text messaging they've got so used to it that it has become a habit now."

Derogatory: Netspeak was considered to be a sub-variety of English. A teacher showed her disregard for Netspeak by saying: *"It cannot be called English."* It was talked about as being a *"substandard thing and will remain substandard"*. A teacher narrated his experience with the students who had used Netspeak. According to the teacher he called the students to explain why non-standard language was used. Also a teacher commented: *The standard comes with the word communication, ok, so when it comes with a standard we cannot use anything substandard.*

Identity: The teachers held the view that Netspeak is a way of enforcing identity; they want to look fashionable by using Netspeak. It was a common believe amongst the teacher that since Netspeak was in vogue, and different from the Standard English, the students therefore used it to appear trendy and show their awareness of the latest trends. The teachers described it thus:

"So we need to see the concept of identity associated with language."

"Netspeak has become the source of identity for the youth."

"So it's more about fashion, its more about psychological effect."

"It's more about identity."

"Here, it's (Netspeak) a fashion."

Pedagogical Implications: All agreed that Netspeak cannot be a part of pedagogy at the moment, but maybe after a century or two it may be so. All agreed that it cannot be taught and teaching Netspeak is akin to teaching a sub-variety of a language and it can never be considered to be a part of the curriculum. As soon as the question 'How would you react if Netspeak was made part of the curriculum?' was uttered, three out of five teachers shook their heads in disapproval and one exclaimed, *"No I won't, I won't let it be!... My God, I, I, I, I'll shiver. If you close your eyes everyone will shiver for a moment."* The reaction to the question was extreme and the idea was disapproved by all teachers.

'Hahaha (laughing sarcastically) I, I will probably depreciate this practice. No way. I can go beyond my standards, but I cannot go below my standards, so, sorry.'

Standard English: The theme that emerged as a surprise was that of the Standard English. Teachers held very strong views about this form of English. Though they all agreed that they were striving to teach students Standard English yet they believed that Standard English was a language of the elite and the aristocrats. Standard English was directly linked with world domination and politics. The native speakers want us (rest of the world) to learn the sub variety of the language so that they can dominate the world by learning Standard English.

'The (English) aristocracy or the elite uh definitely want us to stay with the sub variety, and that is why they are promoting the idea of your variety of English. So is it their politics, that they are playing right now, and confusing us with the whole variety of how English is acceptable to them? But if it is acceptable to them so they should just forget about ILETS, tests like ILETS maybe or TOFEL or something else; then they should not ask for the criteria. So, yes I so agree..... the whole idea is about languages being politicized'.

What techniques did the teachers use to achieve their aims in an English Class

They were of the view that since Netspeak was a habit, therefore the use of proper strategies could help the students get rid of it. The strategies that they adopted to combat with Netspeak were:

- They cautioned students against using Netspeak
- They made sure that the students were aware of the differences that existed in Netspeak and Standard English
- They deducted marks for Netspeak usage in academic writing
- Two teachers said that they showed the scanned document to the students where Netspeak was used

The teachers in their interview claimed that these strategies worked and the students do away with the habit of using Netspeak in their academic writing. As a teacher said:

"It is a matter of shaking off their habit."

Document Analyses of Emails:

The emails of students (Appendix 3) were evaluated to observe discrepancies in the grammar, writing structure, spelling, punctuation, tone and Netspeak. The features of Netspeak involved emoticons, abbreviations and internet slangs. Two types of emails were analysed to see the effect of Netspeak in students' computer mediated communication. There were the requested emails, which were replies to an inquiry made by the teacher and unrequested emails – the inquiries made by the students from the teachers.

The document analyses of unrequested emails written by students to their teacher in academic setting showed a total disregard for capital letters; especially the pronoun 'I' was only once out of five emails were written in capital letter. Sentences rarely began with capital letters. In all emails, abbreviated form of 'Madam' was used, such that the students either wrote 'mam' or 'ma'am' but never the full word 'Madam' undermining the rule to capitalize this word in salutation. Punctuations were almost missing from the text and when using acronyms no consideration was given to capitalization. The spellings were often overlooked and the tone of these emails was casual.

The document analysis of requested e-mails showed a very different picture. The tone of the emails was semi-formal. There was a

proper use of punctuation and capital letters. There were no spelling or grammar mistakes.

Document Analyses of Assignments:

Document analysis of assignments of the same students whose emails were taken as samples was conducted to see whether or not Netspeak was used in the academic writing of the University students. Also, these assignments were evaluated for the grammar, punctuation, spelling and tone of their written work. It was discovered that the students were able to write in their assignments without using Netspeak at all. There were grammar, punctuation and spelling mistakes in their assignments but these mistakes were either due to carelessness or lack of knowledge. Netspeak played no part in the writing of students.

Discussion

This research was conducted keeping in mind the research questions regarding Netspeak and its influence on English language teaching (ELT). Previous researches show that teachers have a negative opinion of Netspeak and they feel that it is a hindrance in ELT (Alkawas, 2011; Stavfeldt, 2011; Jarvis, 2005). The same was the case with the participants of the study who felt that Netspeak had no pedagogical applications. The reason may lie in the fact that in Pakistan 90% users of internet are using it for chatting purposes only (Wolcott & Goodman, 2000). Therefore for Pakistani teachers Netspeak is only a tool for informal communication through internet and instant messaging.

Khan (2011) establishes that prescriptive curriculum, tightly defined assessment system - that does not give opportunity to teachers to act independently - and the prescriptive approach in teaching are responsible for constrained potential of both the students and the teacher. The Pakistani teachers therefore feel that Netspeak is and will be a sub-variety of English and they are unable to welcome the new jargon of Netspeak into their mainstream English teaching practices. The teachers want to teach only the Standard English described as, ‘ a broad set of conventions observed in the UK about

the use of written English' (EPPI-Centre, 2003) . In fact when the idea of adopting other Standard Englishes such as the American Standard English or Australian Standard English was put forward by a teacher, it was rejected immediately by the rest. This proved that the teachers in Pakistan only consider the British Standard English as authentic and worth teaching. The reason may be because when the British replaced Persian with English in the subcontinent by 1837 the elite also switched to English and after partition the policy of giving high status to the standardized form of English continued giving rise to a bureaucratic network (Rahman, 2002). As such a high regard for British Standard English is a part and parcel of being an ex-British colony. The statements given by the teachers seem to spring out of reaction against colonization. The colonized nations had to accept and conform to traditions and culture of colonizers which was done through implementation of an educational system where it was made sure that the children grew up with new ideas of the colonizers (Southard, 2012). Erling (2005) is of the view that keeping in mind the postcolonial reactions to English, a new name for the English language be devised so that ELT professionals can move away from the standards set by native speakers of the English language known as Standard English. Erling (2005) further elaborated that in this way a balance will be created within English use and instruction.

As the teachers had for Standard English, they were of the view that the students' formal writing is affected by Netspeak and the phenomenon of Netspeak creeps into their formal and academic writing. To test this statement and for triangulation of data students' five unrequested and three requested e-mails were taken into consideration. It was discovered that there were inconsistencies in the writing of students and their texting habit had influenced their formally written unrequested e-mails. But in case of requested emails, it was seen that the students had taken care in composing their written expression. This partially negates the study conducted by Maness (2008) where it was concluded that when students write formal e-mails they take care of capitalization, punctuation, there is less use of emoticons, no computer mediated communication (CMC) abbreviations, and CMC acronyms are used. It might be that in students' point of view, the requested e-mails are formal as the teacher has initiated them and the unrequested e-mails are informal as the students themselves have initiated them. The students seem to be of Murtiana's (2012) view who

writes that Standard English must be used in formal academic settings, however, in daily settings there is no harm in using nonstandard form of English; the students, it seems only take the requested emails as a part of their academic setting, but unrequested e-mails for them are not a part of an academic setting. Therefore, the frustration of teachers towards the usage of Netspeak seems genuine especially when their aim is to make students well versed in Standard English.

The teachers claimed that the students were able to do away with the habit of Netspeak if they were penalized and told about the repercussions they might face if they did not stop using Netspeak in their formal academic writing. To investigate this claim English assignments of the students whose emails were studied, were looked into. It was to investigate if the students were able to give up this habit as the teachers claimed that the students were made conscience of the Netspeak usage in their formal writings and were penalized for doing so. Here also the data collected through the interview was triangulated through the exam papers and it was found that none of the papers contained Netspeak. This is in agreement to the researches of Alkawas (2011) and Hussein and Lingwood (2012) who gave the perception of students regarding their formal writing. In both the researches, the students held the view that Netspeak did not interfere in their formal writing. It also validates the findings of Varnhagen et el (2009) which provided partial evidence that Netspeak does not have any negative effects on the conventional written language of the students. Thus, if there is a habit of using Netspeak in students when they enter the University, it is done away with by constant reminders by the teachers and by penalizing the students.

The theme of identity that was brought forward by the teachers was somewhat parallel to the findings of Derks, Fischer and Bos (2007), who proposed that through CMC (Computer Mediated Communication) one can stress their group identity and gain support. Huffaker and Calvert (2005) reveal that youngsters through the adapted language (Netspeak) create their online identity and express their ideas, experiences and feelings. Therefore we can say that the teachers are right at pointing out the fact that one reason for Netspeak usage by the students' maybe the enhancement of their identity.

On the whole, the research questions were answered as the Pakistani teachers viewed Netspeak as a predicament in the English language and they are doing all they can to uphold Standard English so that their students don't use Netspeak in their formal writings. It is important to mention here that Pakistani teachers like ESL teachers around the world were fearful of usage of netspeak by their students (Alkawas, 2011; Hussein & Lingwood, 2012; Stavfeldt, 2011; Groenewald, 2004). Through this research the perspective of university teachers regarding Netspeak was unvieled.

Conclusion:

Through this research, I hoped to learn the viewpoint of Pakistani English teachers regarding Netspeak and their perception about the challenges it has brought in their ELT practices. For the same reason three research questions were posed. The answer to the first question that questioned the extent to which emphasis should be laid on Standard English is that the teachers lay a great emphasis on teaching and learning of Standard English. They very well understand that their students need to be good communicators and that they must be able to highlight their abilities in order to compete in the world (Vosen, 2007).

The second question seeks to understand the amount of success the English teachers have in obviating Netspeak from the Academic English writing of students. According to the research results, teachers can play a vital role in developing writing skills of the students. As we realize from the reseults that the students were able to do away with this habit when they knew they will be penalized for using Netspeak in case of assignments as well as requested e-mails. On the other hand they showed a lax attitude towards writing unrequested emails as they knew that they will not be reprimanded or penalized for using Netspeak.

The third research question was about the extent to which English language teaching is impeded by Netspeak. The teachers clearly showed their irritation when they face the interferance of Netspeak in the academic written work of their students. Through this research the feelings that the teachers concerning the Standard English were revealed. The Pakistani English teachers not only upheld one

form of English – the Standard English but they also thought that no other variety of English will replace Standard English. It was visible that the Pakistani English teachers were no less custodians of the Standard English than the small sub-section of the British population that endorse this variety of English.

The findings were disseminated as they will by sharing the results of this research with the interviewees thus helping the teachers to device a course of action in ELT with reference to Netspeak. These findings will help teachers to do away with the negativity that they attach with Netspeak, as it was concluded through this research that the students can control the use of Netspeak in their academic writings.

Limitations:

The limitation of this research was that only one educational institute was taken into consideration.

Way Forward:

The research has opened way for research in four directions. First there needs to be further exploration of the usage of Netspeak to understand how students make their decisions about when to use Netspeak and when to avoid it. Secondly, it will also be interesting to to know what strategies may be used to inject the same motivation into learning Standard English as young people exhibit in their learning of Netspeak. Thirdly, though this research has proved to be a good starting point, yet, more interviews in several schools need to be conducted to understand the phenomenon of Netspeak completely. Finally, one unexpected theme that emerged from the interview data was regarding the perspective of teachers about Standard English. There needs to be more probe into what Standard English is to English teachers and how they perceived Standard English.

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Appendix 1

Consent Form

The study you are about to participate in is about Netspeak and the effects it has on ELT. It is an attempt to understand the implications this new genre of Netspeak has on ELT and how are the Pakistani ESL teachers handling it. Should you agree to be a part of this study, you will be asked to participate in a small group interview to help the researcher understand how you feel, think and behave towards this new variety of the English language.

All data collected from you will be coded in order to protect your identity. Following the study there will be no way to connect your name with your data. Any additional information about the study results will be provided to you at its conclusion, upon your request.

You are free to withdraw from the study at any time. Should you agree to participate, please sign your name below, indicating that you have read and understood the nature of the study, and that all your inquiries concerning the activities have been answered to your satisfaction. Complete the following if you wish to receive a copy of the results of this study.

Signature of participant and date _____

Signature of researcher and date_____

Appendix 2

Semi-structured interviews

Q1)How do you think Netspeak has affected the general development of the English language?

Q2) How do you relate Netspeak and the development of students' written and spoken English?

Q3) How do you think Netspeak can be helpful in learning English?

Q4) Netspeak being a reality now, how can we use Netspeak in teaching?

Q5) Why do you think the students use Netspeak in their formal writing?

Q6) If the main purpose of language is to communicate and Netspeak is very well fulfilling this purpose, then why do we need to stick on to Standard English?

Appendix 3

Table 1

Unrequested Emails

No. Of Emails	Grammar	Tone	Spelling	Punctuation	Other features of Netspeak
Student 1	**3**	**casual**	**0**	**12**	Letter homophones
Student 2	**3**	**casual**	**0**	**9**	Letter homophones
Student 3	**2**	**casual**	**1**	**5**	**abbreviation**
Student 4	**3**	**casual**	**3**	**7**	Letter homophones
Student 5	**3**	**casual**	**0**	**8**	**none**

Table 2

Requested Email

No. Of Emails	Grammar	Writing Structure	Spelling	Punctuation	Other features of Netspeak
Student 6	**0**	**proper**	**2**	**0**	**none**
Student 7	**0**	**proper**	**1**	**0**	**none**
Student 8	**0**	**proper**	**1**	**1**	**none**

Table 3

Assignments

No. Of Assignments	Grammar	Tone	Spelling	Punctuation	Other features of Netspeak
Student 1	0	Semi-formal	2	1	none
Student 2	3	Semi-formal	2	0	none
Student 3	0	Semi-formal	0	2	none
Student 4	2	Semi-formal	1	1	none
Student 5	1	Semi-formal	0	5	none
Student 6	0	Semi-formal	1	2	none
Student 7	2	Semi-formal	0	1	none
Student 8	3	Semi-formal	0	1	none

Table 4

Comparison between E-mails and Assignments

No. Of Emails and Assignments	Grammar		Tone		Spelling		Punctuation		Netspeak	
	E-mails	Assignments	E-mails	Assignments	E-mails	Assignments	E-mails	Assignments	E-mails	Assignments
Student 1 (unrequested e-mail)	3	0	Casual	Semi-formal	0	2	12	1	Letter homophones	none
Student 2 (unrequested e-mail)	3	3	-do-	-do-	0	2	9	0	Letter homophones	none
Student 3 (unrequested e-mail)	2	0	-do-	-do-	1	0	5	2	abbreviation	none
Student 4 (unrequested e-mail)	3	2	-do-	-do-	3	1	7	1	Letter homophones	none
Student 5 (unrequested e-mail)	3	1	-do-	-do-	0	0	8	5	none	none
Student 6 (requested e-mails)	0	0	Semi-formal	-do-	2	1	0	2	none	none
Student 7 (requested e-mail)	0	2	-do-	-do-	1	0	0	1	None	none
Student 8 (requested e-mail)	0	3	-do-	-do-	1	0	1	1	none	none

THE ARENA OF EDUCATION: ISOLATION OR INTEGRATION?

Shelina Bhamani[1]

Introduction

The purpose of this reflection is to spectacle the relationship between Education as a Social Science & Human Development discipline with various other disciplines like leadership & management, economics, sociology, health studies, economics, policy and knowledge management. In the following paragraphs an overview of definition of education, critical analysis of education, its relationship with other disciplines has been highlighted briefly.

Education and Economics

Education plays a key role by opening doors to employment, sustained earnings, self-employment and other opportunities and makes people socio-economically sound. Being economically prosperous, people become influential, preferential and respectful among their peers both socially and politically. They are given high status both in political and social milieu. This important change in their personalities brings them better opportunities in life. Haq & Haq (1998) describes education metaphorically as a passport to accelerate economic growth. As such wherever a person goes, they can easily find valuable opportunities by which they can improve upon their economic growth and social life. It is an instrument that increases when consumed and reduces when not used. For educated people there are ample opportunities of rendering services of their choices by which they can improve their economic development. There is no prevention for educated people to join whatever they want according to their capacity and relevant acquired skills.

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In term of economics, education is both producer and consumer goods. A person gets pleasures after consuming it because it helps to produce more products e.g. professionals in schools consume education and provide educated people to society as an outcome. Thus education in the form of a producer goods is acquired for the purpose of becoming a teacher, doctor and engineer. As consumer and producer goods education contributes considerably to the total economy of the country and without it the economy would be all rated as poor. A poor economy will be limited or no social development taking place at all (Quraishi, 2005).

As an example, Western Europe, The United States of America, Canada, Japan, China have taken quantum leaps and have reached at the height of progress because they valued education and heavily invested from their annual budget on education. Now they are leading peaceful, comfortable and luxurious lives as a return and they enjoy higher standards of living. They being economically sound have fostered relationships with other countries by sharing their technology, educational expertise and financial support. They also provide financial assistance whenever there is natural disastrous in any corner of the world which is a positive change. . As Lohithakshan (2003) says, "Education ensures the presentation and continuity of everything good in the culture of the people and simultaneously prepares them for progress and prosperity. It is the most powerful instrument of social change and national integration."

Education and Policy Development

As shared earlier, that more developed and advanced nations of the world considered education as a means to develop in every walk of life. Education was highly valued and huge investment was made on it. In the context of Pakistan, education has always been only under discussion since Pakistan came to existence. In the past, many plans, projects and policies were made to raise the literacy rate and promote education but they were just given only lip service without practical steps taken to achieve the objectives. Of course the need

and importance of education and literacy was intensively felt from the very early stage of evolution of Pakistan. The first educational conference was held in 1947 under the patronage of Quid-e-Azam where he highlighted the importance of education in detail. To promote literacy rate and education, five year plans were established by different governments but no visible change has been seen so far. Thus the performance of education in developing Pakistani society was not encouraging even today in the 21st century. Therefore, Pakistan today is far behind in many fields such as literacy, economical, social, political, industrial and agricultural stability and growth.

It does not mean that Pakistan is still lacking education. In the last few years education was emphasized and significant investment has been made to enhance literacy rate both in urban and rural areas of Pakistan. Education was more focused since Pervaiz Musharraf came in power. In all provinces of Pakistan, the provincial governments have been struggling to promote literacy rate and education. To provide mass education textbooks from primary to secondary are provided without free.Additionally, girls are being given monthly scholarship to raise female literacy rate in the country, specially in Khyber Pukhtoonkhwa Province. Anyhow education has so far played critical role to develop the Pakistani society in spite of having many challenges and unfavourable conditions. However, the critical bottlenech that seems to strangulate educational growth is a trivial 2% budget of the total revenues allocated to education which is significantly lower than what is allocated in advanced nations.

Education and Sociology & Social Development

Haq & Haq (1998) Education does not mean only the provision of better income and employment opportunities for individuals or getting a higher economic growth for the nation or for the country. There are social areas where the role of education

has been prominently outstanding. This is only education that leads individuals to health care, greater political and community participations, less income inequity, and greater poverty alleviation.

Education empowers women to be liberated and they have been accustomed to modern contraceptive methods to motivate their husbands to decide for smaller family sizes and to speak out openly in defending their reproductive rights. That is why for the last few years the birth rate has been brought down to a certain extent . Now women are interested in education and they want to prefer doing worthwhile jobs rather than getting married and have large families. The propensity to produce is generally inversely proportionate to the level of education. Their acquisition of education and wish to secure promising jobs has also delayed the marriage age. Fertility is a good step towards economic and social development. Through small families, parents will be able to take better care of their children, provide them suitable nutrition and good education. In this way economic growth and social development can easily be stimulated in the society (Quraishi, 2005). Consequently economic and social development occurs. Because of less population growth there will be enough education, health and job opportunities will be available.When we look a couple of decades back, child mortality rate was very high because of lack of awareness and lack of education. Now-a-days due to appreciation of education there are large number of doctors, nurses and other medical staff who provide health education regarding how to take care and feed children. Resultantly, infant mortality rate has significantly come down. This social development has only become possible through education.

Education has proven to be a tool for poverty eleviation. through enriching individual skills, expertise and capabilities and makes people productive and self directive. Educated people do not want to be a burden on society. They want to stand on their own. Such people have the opportunities to earn more and increase their living income by rendering various services within the country and abroad. There is always a great demand of skillful and educated labourers in the market.

This, as said earlier, results in poverty eleviation. Succinctly, education empowers individuals and eliminates poverty, diseases, birth rate, and death rate and promotes economic and social prosperity (Haq & Haq, 1998).

In fact education and economic growth both are interrelated and interdependent. One cannot exist without the other. Economic development gets slow when there is degradation in education. On the other hand when there is not enough economic growth then education will be negatively affected because education requires sound economic growth. The more we invest the more we get educated. Tilak as cited in (Quraishi, 2005) describes the relationship between education and economic growth as a two way process, one of a reciprocal nature of mutual contribution. The relationship between education and economics is like a chicken and egg (Vaizey as cited in Quraishi, 2005). It means no one knows which one was born first. Harbison and Myers say that education is both the seed and the flower of economic development. Education has the power to improve quality of life. It adapts human resources and makes them more productive. Education is ultimately the most effective means for prosperity in economic and social development.

Education and Knowledge Management

There is not a significant difference between education and knowledge. They are interconnected terms. Education simply means an organized way of learning e.g. techniques and approaches and it is the acquisition of knowledge, whereas knowledge does not have its limits and it is endless. It is a means of getting and adding information in human mind. Education is a continuous and lifelong process (Dhar & Sadhu, 2002). It is concerned with the production of behavioural changes that are desired. Basically education has been classified into four major groups i.e.1) education for literacy, 2) education for awareness, 3) education for skills and 4) education for knowledge. In the first group, education starts when the child attains the age of five

years. It contains two large components of language and mathematics. In the second group, education starts from the age of 11 and continues up untill the child is 18. This education includes various disciplines, general information of different subjects, and in-depth understanding of surroundings and feeling of responsibilities towards self, family and society. The third group begins after 18 and here education is for acquiring skills, detailed knowledge and expertise of a certain area or discipline. The last group is quite critical because there is no specific age for getting education. It seems that education for knowledge is a continuous and lifelong process. It has no endings and it is an everlasting journey (Dhar and Sadhu, 2002). Knowledge is the outcome of learning. It determines to a great extent what individuals will pay attention to, perceive, learn, remember and forget (Alexander as cited in Woolfolk, 2007). There are different kinds of knowledge i.e. domain specific knowledge which focuses on particular tasks and subjects on the other hand the other kind is general knowledge that implies to many different situations e.g. general knowledge about how to read or write or use a computer is useful both in and out of school (Woolfolk, 2007). On the contrary education is not only to provide academic knowledge but also to build up the character of the future generations and enable them to observe the qualities of honour, honesty, integrity, responsibility and selfless service to the nation (Jalalzai, 1992).

Education and Leadership and Management

Schooling is a formal way of getting education. It is chronological and sequential way of learning process. Education is broader concept than that of schooling. Macionis (1991) defines education and schooling and says that education is the various ways in which knowledge including factual information, skills, cultural norms and values are transmitted to learners while schooling is the provision of formal instructions under the direction of specially trained teachers. In schooling a child goes through a systematic process i.e. a child is admitted in a school where he remains under the guidance of teachers from nursery onwards. S/he gets knowledge, learns different skills through different subjects. As for education, it is an everlasting process

through which individuals widen their thoughts, intellect, skills, and ways of life where as schooling enforces a child to go through a prescribed manner for a specific period of time. Schooling is a formal kind of getting knowledge while education is the power which is capable of shaping a good future generation and producing good future citizens. It continues from cradle to grave. Jalalzai (1992) describes that education broadens one's mental outlook and attitude towards issues, objects or class of people. It enables an individual to distinguish between right and wrong, good and bad, true and false, reasonable and unreasonable. Macionis (1995) says that in schooling system, children have the opportunities to interact with strangers and with diverse group of people and they become more aware of their own identities and respond accordingly. School activities such as spelling bees, sports etc. encourage children to be competitive and to celebrate success. In addition schooling further socializes children into culturally approved sex roles. On the other hands education develops human potentialities, acculturate people, prepare them for new challenges and cope with the ever changing situations. Explicitly schooling is the students' first experience where they have to follow strict rules and regulations as formality where even school days are based on tough time schedule and subjecting children to follow the trait such as punctuality during the school hours. It imparts human and ethical values, aesthetic sensibility, moral courage, spiritual purity and an approach of wonder and curiosity towards nature.

Concluding Note

Summing this up, schooling plays an important role in leading child development. Schooling not only helps children to adjust themselves within a large community but also teaches them knowledge and skills necessary for the performance of adult roles (Macionis, 1992). Moreover, education is available everywhere i.e. watching T.V, having meals, playing games, chatting with friends, reading newspapers and so forth. According to Dhar & Sadhu (2002) education is in inculcating character and discipline, care and compassion, modesty and humanity and also respect for others and it has no boundaries like schooling.

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Woolfolk, A. (2007). Educational psychology (10th ed.). Boston: Pearson.

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Baumol, W.J., 1982, Applied fairness theory and rational policy, American Economic Review, 72(4): 639561.
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