"Impact of Energy Crisis on the Financial Performance of Textile Sector, Listed on Karachi Stock Exchange" "A Time Series Analysis (2007-2014)"

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Abstract:

Energy serves an important role in the financial performance of textile industry. This research ascertains the relationship between electricity consumption and financial performance of textile industry of Pakistan after energy crisis, based on the sample data taken for the period of 2007-2014. Electricity consumption is taken as independent variable and ROA, ROE and NPM as considered the dependent variables. Data was analyzed through descriptive statistics and regression tests. Descriptive statistics confirms the declining trend in the financial performance ratios while regression test shows significant positive strength of relationship among dependent and independent variables. This study identifies how important electricity consumption is for the financial performance of textile industry therefore Government of Pakistan should focus on utilization of alternative energy resources and shift from oil usage to hydro energy which has higher resources available which in turn will smooth the way for financial performance and economic growth

***Key words**: Energy consumption, ROA, ROE, NMP, Financial Performance*

1.1 Introduction/Background

Energy consumption is the sum of energy remaining for ultimate consumption after deducting power wasted in conversion and supplying through main power distributors, the variation in energy spending distress heavily the level of large scale production development that in return influence the expansion of actual GDP. Each day human needs are presented in anxiety intended for goods and services because the manufacturing process directly associated with energy resources since that energy has got important attention by the researchers as the world has become completely globalized (Survey, 2009-10).

The amount of energy spending in the economic growth has been recognized from the reality that the extra production declined during the (1970) throughout the globe that was mainly reason of oil disaster. Earlier the nineteen seventy, the success of nation and long term economy relied over the basic element of production such as investment, human resource and land but since the longer period, the energy was given no place and importance among these factors of production by the economist and overlooked its significance from the production process (Pakistan Economic Survey, 2013-14).

Different factors affecting performance ratios of Textile sector such as from shortage of electricity, increasing interest rate, prices of oil, gas, lack of new technology and political instability. Much amount of money is required to generate the electricity privately is another issue by the rising interest in Pakistan while the industry spends less time due to the absence of electricity therefore output level of this sector is get affected at the higher cost of production (Hafiz, 2012).

Pakistan's economic and consistent growth potential ineradicably connected to energy requirements because there is increasing demand in Pakistan from different sources of energy. Due to an increasing economy and the need for huge manufacturing and consumption throughout the country is evident due to foreign direct investment and rising population. Government has been working hard to meet this energy shortage and

encouraging the renewable sources and efficiency. Pakistan can get remedies through different projects by exploring every possibility through exploiting its renewable sources and further expected this need will increase in near future (Pakistan Economic Survey, 2011-12).

Pakistan needs of electricity energy was about 14,000 to 15,000 MW each day during 2008 against having generation capacity around 11,500 megawatt by the day, this shows the gap of approximately "3000 to 4000 MW" during each day and its requirement was likely to raise about 20,000 MW each day during 2010 (Haq, 2008). This scarcity is severely hitting commerce, industry, everyday life and getting risks to the economic growth. While Pakistan fulfills its seventy five percent of power needs from native resources together with "gas, oil and hydroelectricity' generation but just twenty five percent energy requirements managed through imports with oil takes large proportion alone (Sahir, 2007).

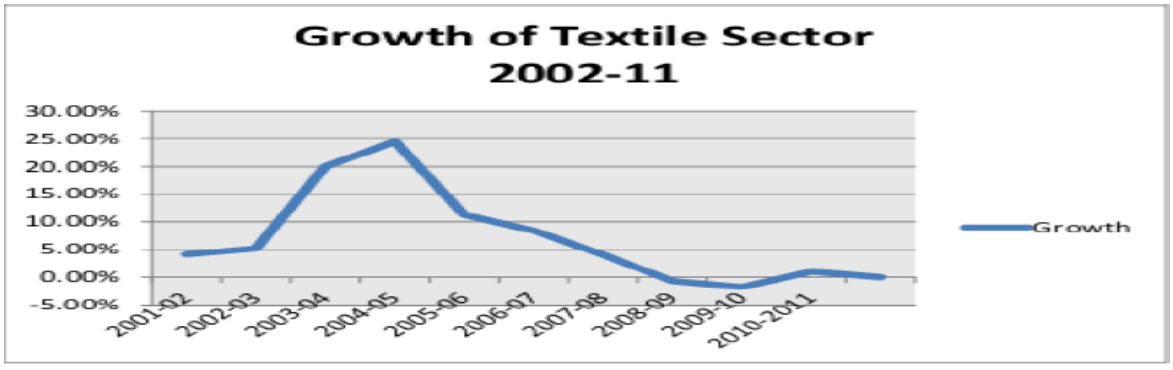
For the past 36 years statistics show, the gap has 6 times increased since 1971-72 to 2007-08 between the requirement of commercial energy demand and supply as of 3 milion tons MTOE to 18milon MTOE. According to the daily report of WAPDA on 3rd January, 2008 documented a distribution of "7,237 megawatt" beside need of 11,509 megawatt of electricity, showing the shortage of about thirty seven percent and recorded the shortfall around 5,300MW (Asif, 2011).

Pakistan ranked in Asian countries the 8th biggest international seller of cloth goods. Textile sector contributes about 38% in the employment of the country and this sector largely reliant on the spinning activity in Pakistan. Currently this textile industry of Pakistan is operating the "442 spinning units, 124 large sinning units and 1,221 ginning unit" for the manufacturing of textile goods in this state (Ahmed Y. , 2011)

Table 1 Economic Contribution of Pakistan Textile Industry
(M.A & A.S & M.R, 2014)

Description	Contribution
Exports	64% of total exports
Manufacturing	46% of total manufacturing
Employment	38% of total employment
Investment	31% of total investment
Market Capitalization	7% of total
Interest	Rs. 4 Billion Per Annum
Salaries and wages	Rs. 40 Billion Per Annum
Contribution to R&D	Rs. 116 Million Per Annum
Gross domestic product	9.5% of total GDP

Figure 1 Growth Trend of Textile Industry
(M.A & A.S & M.R, 2014)



This is the trend survey for last decade (2001 to 2011) shows how growth is changeable each year. Since from 2002, it was gradually increases and showing a jump from 5% to 20% in 2003-2004 growth, due to higher input prices and record of high export and got a seventh largest market in US cotton. In year 2004-2005 the growth rate was at its peak, as exports had improved and foreign investors were confident to invest and a consistence down trend is shown after this peak since 2006 (Economic Survey of Pakistan, 2005-2006).

1.2. Pakistan Energy Sources:

- ✓ Natural Gas
- ✓ Coal
- ✓ Oil
- ✓ Electricity

1.2.1 Alternative Energy Sources

- ✓ Wind
- ✓ Solar
- ✓ Nuclear Energy

The main objective of this research is to investigate the extent of energy crisis impact on the post-financial performance of textile sector in Pakistan during the period (2007-2014), listed on Karachi Stock Exchange (KSE). The impact of energy crisis on financial performance is the burning and most frequent discussed issue among economist and politicians in Pakistan.

2.1 Literature Review

The energy short fall and other concerned issues have created the resistance of economic development harshly in Pakistan owing to ineffective, immature and disappointingly developed infrastructure. No serious attention is given by the Government of Pakistan to enhance the production capability of electricity generation for helping economic prosperity rapidly for the decades (Ahmed & Dessouky, 2009). As a result, when energy requirement is larger than the distribution, the Government decides to load management by load-shedding and rising price approaches.

According the Government of Pakistan, to curtail the energy crisis issue, the CPEC is the ideal project in the country. This Project will attract $35-$37 billion foreign direct investment by the chine's firm to the independent power production (IPP) as of investment policy. Further Minister Planning Development and Reforms Ahsan Iqbal remarked the CPEC project would cover main four areas and energy is one of top priority which will bring about 10,400 megawatts as by the end of 2018 (Kiani, 2012).

Khurshid & Anwar,(2013) Reported in his research taking post energy crises from 2007 to 2009 that operating and financial performance was declined by the major different sectors of cement, textile and engineering mean while the other industries of chemical and sugar remained consistent and recommended that to keep the industries safe the Government of Pakistan must pay attention on power sector.

Khan & K.M, (2010) investigated in his research the multifarious issues are faced by this major sector of textile including rising cost of input, declining in foreign trade and much caused of energy crises these together have decreased the growth of the sector.

Textile sector is an only largest manufacturing industry in the Pakistan which adds major share in economic growth in term of foreign exchange, foreign trade, investment, earning and employment. It has been studied in various findings that electricity have major role in the survival of industrial prosperity and growth which includes the main reforms in process of production, fully exploitation of workforce, managerial expertise and technology according to the ministry of finance (Khan & K.M, 2010).

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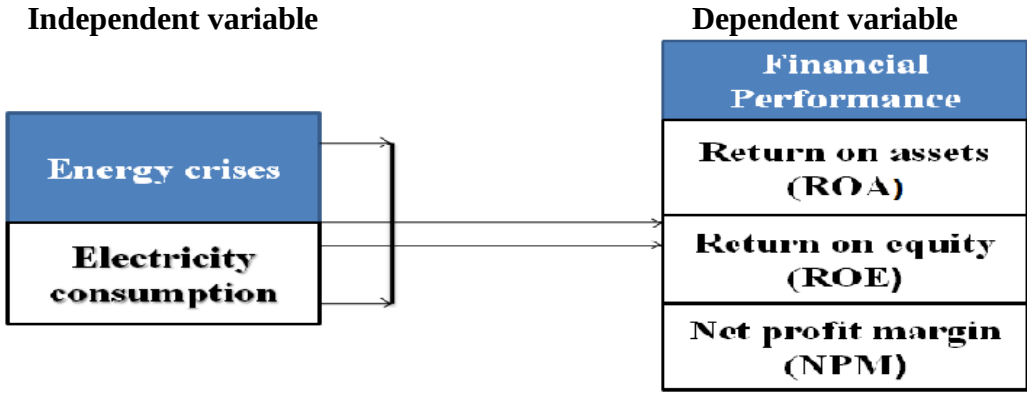
Siddiqui R. (2004) reported in his survey research the link between economic growth and impact of electricity and petroleum product and finally suggested high significance among these, this mean in Pakistan, more access

in energy consumption would add to the economic wellbeing and vice versa when decrease in consumption will cause hurdle in growth. Further by another researcher applying horizontal analysis for textile sector by using main ratios and concluded the performance of this sector is harshly declined after energy crisis comparing to pre energy crisis period (Shah, Essrani, Shah, & Rehmat, 2013).

Dr Quratul Ain, (2012) investigated thatPakistan can resolve its power crisis and stand together with modern world, if only our states man would agree to accept transparent policies, efficient laws, stay away from corrupt practices and search and spend in alternate and renewable resources of energy. According to the world top research journals the Industrial and service sectors performances like Pakistan International Airlines, steel mills and Pakistan Railways are suffering from unexpected losses due to shortfall of oil and gas which brought down GDP growth about 4 percent during FY2011 and FY2012. The world is now devising renewable energy and better transport infrastructure policies to get rid from poverty, to get engaged the millions of workers by enlarging industries and encouraging foreign investment to enabling economies.

2.2 Proposed Research Model:



2.3 Research Hypothesis:

H1. More energy consumption will lead to increase in ROA of textile industry.

H2. Increase in energy consumption will increase the ROE of textile industry.

H3.NPM of textile industry will increase only because of increasing in energy consumption.

2.4 Methodology:

The number of firms in textile sector varies the high 182 and a low 165 in 2003 and 2007 respectively (Ali, 2011). But for this study firstly we take into the consideration of whole textile sector by using the overall industrial ratio from the consolidated financial statements from the State Bank of Pakistan about those 120 firms together which didbusiness successfully for sample period 2007-2014 which without being closed. Secondly the industrial commercial electricity consumption data was used from the statistical year book 2015 by the Pakistan bureau of statistics.

2.5 Statistical Analysis:

For data analysis SPSS 18 was used, data was analyzed through descriptive statistics and regression test to ensure the relationship among all the dependent and independent variables.

3.1 Results & Discussion:

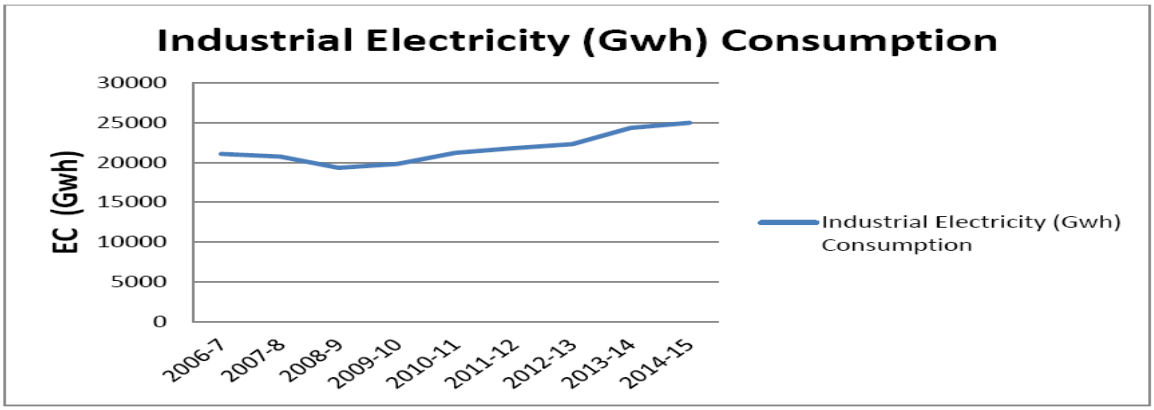
3.1.1 Descriptive Statistics Analysis

Table : 2. Industrial Electricity consumption

YEAR	2007	2008	2009	2010	2011	2012	2013	2014
EC (Gwh)	21066	20729	19330	19823	21207	21801	22313	24356

(Bajwa, 2015)

Figure 2

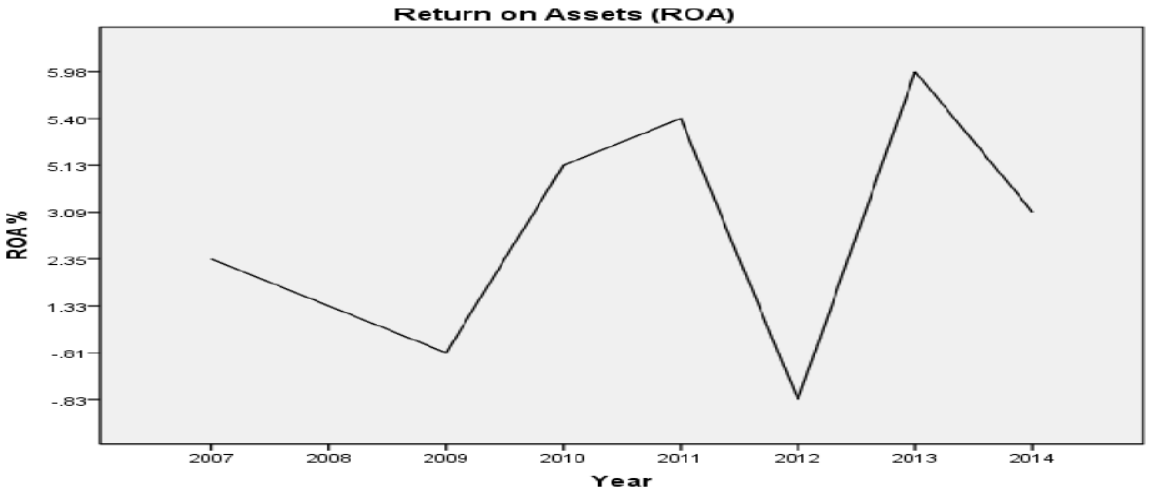


The electricity consumption in Pakistan have been increasing every year as shown in above graph, due to increasing population and foreign direct investment. Further it is said that most of people from rural areas are shifting to urban areas (urbanization), who then consume energy in their homes along with increasing manufacturing and exports activities of textile industry needs maximum energy consumption in the country.

Table: 3 Return on Assets

YEAR	2007	2008	2009	2010	2011	2012	2013	2014
ROA %	2.35	1.33	-0.81	5.13	5.4	-0.83	5.98	3.09

Figure 3



Financial Statements Analysis of (Non-Financial) Companies by (SBP, 2011-2017)

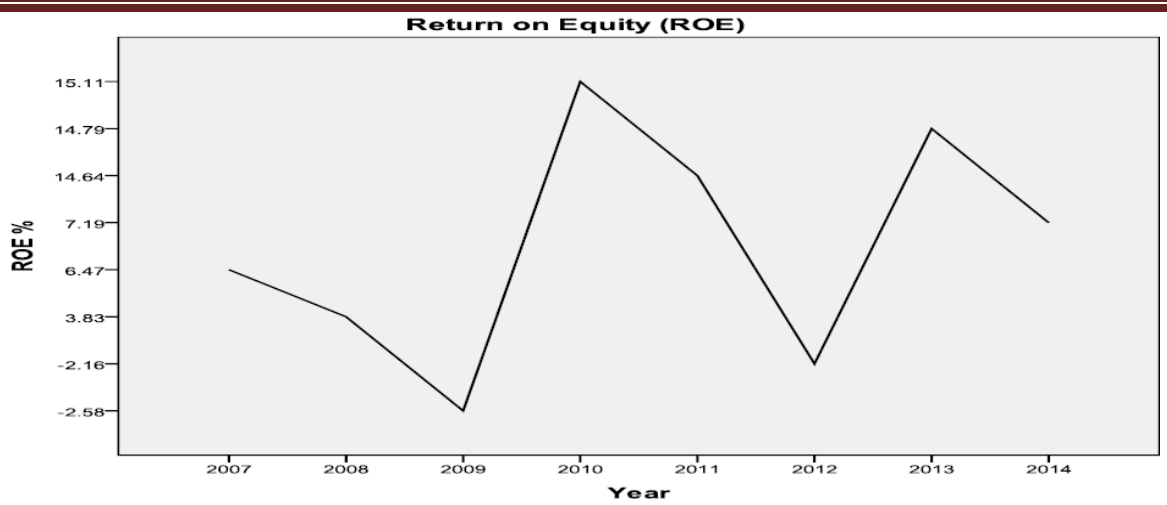
The graph above shows the ROA 2.35% of the textile sector at the time of energy crisis period in 2007, however a striking decline happened during 2009 at -0.81% and in 2012 to -0.83% converted completely profit into losses. While stabilizing by 2011 and 2013, this rising and declining trend assures the affected profitability of textile industry largely by the energy crisis.

Table : 4 Return on Equity

YEAR	2007	2008	2009	2010	2011	2012	2013	2014
ROE %	6.47	3.83	-2.58	15.11	14.64	-2.16	14.89	7.19

Financial Statements Analysis of (Non-Financial) Companies by (SBP, 2011-2017)

Figure 4



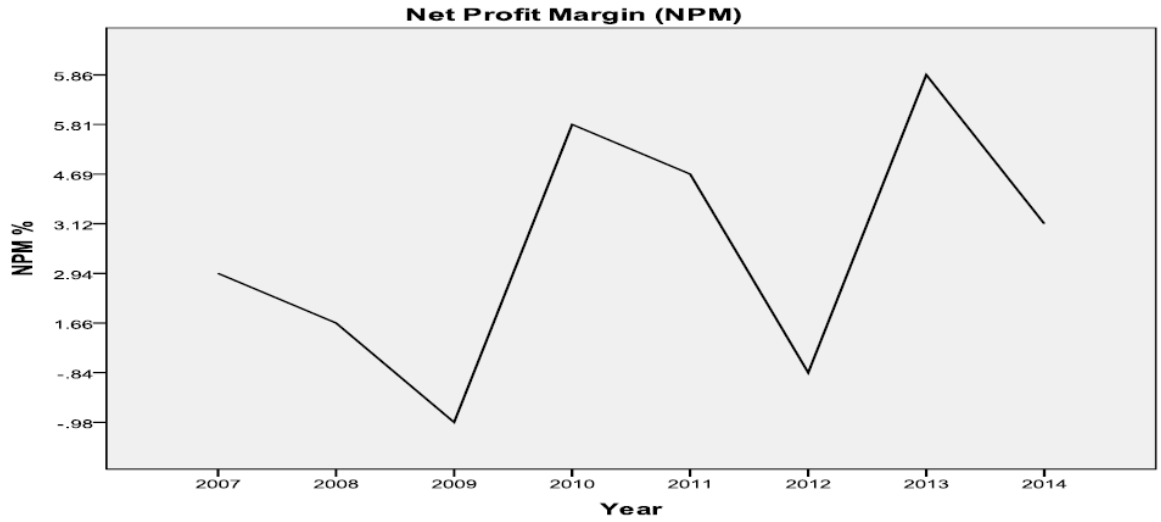
During the period of energy crisis, the ROE of textile sector was 6.47% but at time of 2009 it declined at -2.58% and -2.16% respectively occurred during 2012 but could be stabilizing by 2010 at 15.11% and 14.89% in 2013. This up and down trend of ROE shows the ROE of the sector has been affected by the energy crisis.

Table: 5 Net Profit Margin

YEAR	2007	2008	2009	2010	2011	2012	2013	2014
NPM %	2.94	1.66	-0.98	5.81	4.69	-0.84	5.86	3.12

Financial Statements Analysis of (Non-Financial) Companies by (SBP, 2011-2017).

Figure 5



The NPM (Net profit on sales) before the energy crisis was 4.78% in FY 2005 and 3.35% in 2006 (Beenish Shah, May 2013),during the crisis period in 2007 it was 2.94% However this trend is shown in cyclical pattern in above graph and finally converted into losses in the year 2009 (-0.98%). The industry started stabilizing in the year 2010 at 5.81% and 5.86% the profit during 2013. This declining and rising trend of NPM shows that the profitability decreased in the post crisis period and confirms the impact of energy crises on the sector. This is because of increasing cost of generating electricity privately through generators and due to high interest rate on browed capital, being used for manufacturing activities which ultimately affects the net profit margins.

3.1.2 Regression Analysis

Simple Regression Analysis Model: 1

Table: 6

Adjusted R^2	0.629		
Significance	0 .000		
Independent variable	Standarized B	t value	Significance
Electricity Consumption	0.429	8.107	.000
Dependent variable: ROA			
H1: More energy consumption will lead to increase in ROA of textile industry.			

In the model first the adjusted R^2 is 0.629 at the significance level 0.000 this shows that our model of both independent variable "electricity consumption" along with dependent variable "ROA" is good fit at 62.9%, at confident interval of 99.99%. Whereas the standardized beta is 0.429 this suggests the moderate positive strength of relationship between electricity consumption and ROA and these results are significant at both p value (.000) and t value (8.107). According to the statisticians the minimum standard of P value is 0.05, means there is only a 5% chances of error term to accept the results and t value must be significant at 1.96% so that our first hypothesis is accepted.

Simple Regression Analysis Model: 2

Table: 7

Adjusted R^2	0.814		
Significance	0 .000		
Independent variable	Standarized B	t value	Significance
Electricity Consumption	0.906	11.327	0.000
Dependent variable: ROE			
H2: Increase in energy consumption will increase the ROE of textile industry.			

In the second model the adjusted R^2 is 0.814 at the significance level 0.000 this tells that our model of both independent variable "electricity consumption" along with dependent variable "ROE" is good fit at 81.4%, at confident interval of 99.99%. Whereas the standardized beta is 0.906 this shoes the high positive strength relationship between electricity consumption and ROA because the beta is near to one and these results are significant at both p value (.000) and t value (11.327). Based on this information second hypothesis is also accepted.

Simple Regression Analysis Model: 3

Table: 8

Adjusted R^2	0.297		
Significance	0 .000		
Independent variable	Standarized B	t value	Significance
Electricity Consumption	0.141	2.718	0.000
Dependent variable: NPM			
H3: NPM of textile industry will increase only because of increasing in energy consumption			

In the third model the adjusted R^2 is 0.297 at the significance level 0.000 this shows that our model of both independent variable "electricity consumption" along with dependent variable "NMP" is good fit at 29.7%, at confident interval of 99.99%. Whereas the standardized beta is 0.141 this shoes the moderate positive strength of relationship between electricity consumption and these results are significant at the both p value (.000) and t value (2.718). Based on this information the third hypothesis is also accepted.

4.1 Conclusion

For the longer Pakistan is confronting with worst crisis of energy and there is a constantly increasing gap between energy demand and supply. This energy scarcity is badly affecting the manufacturing activities of different industries and thus declining the growth of economy. Textile industry not only is contributing GDP growth but major portion of our export as well.

This study uses regression tests and concludes how financial growth is related with electricity usage. Regression analysis shows the significant positive strength of relationship among electricity consumption and ROA, ROE & NPM which also confirms an increase in electricity consumption will smooth the way for ROA, ROE and NMP.

4.2 Recommendation and future Research Direction

Some remedies include; to control the electricity theft and transmition and distribution loss along with shift from oil usage to hydro energy which has higher resources available and it is estimated that Pakistan can generate about 40000MW electricity by implementing different hydro projects, government should also give attention towards the use of wind and solar energy which can help to fulfill some energy deficit, and energy through nuclear resources and coal reserves can also be increased. Further this study can be put forwarded while looking at the impact of taxes and interest rate on the performance of textile industry of Pakistan.

4.3 Limitations

This research study is limited for time and area of research. Findings of this study can only be applied in problematic situations of textile sector and can be generalized to the other sub-division of economy and enables policy makers of this industry managing other affordable alternative sources of energy through wind, solar and from coal at the time of energy crisis.

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