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# The Impact of Energy Crisis and Political Instability on Outsourcing: An Analysis of the Textile Industry of Pakistan

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## Abstract

To help the industry, outsourcing was found to be the most efficient method. An extensive literature analysis was done to assess the macroeconomic factors associated with outsourcing to supplement the anxious parties' decision-making process with evidence-based comprehensive tools. As a theoretical framework for evaluating these issues, transaction cost economies and resource-based perspective theories are investigated. Outsourcing is proven to be a result of energy crises and political instability. The advantages of outsourcing assist major industries in the economy. To discover the key drivers behind outsourcing, we used the vector autoregressive (VAR model) and step-wise regression techniques for the period 1992 to 2016. This research adds to the literature in that it not only explains the energy issue but also discusses the dilemma of political instability in the country in the context of outsourcing. The findings indicate that labor cost and export tendency have a positive impact on outsourcing strategy, which confirms the study's third and fourth hypotheses. Customs tax, inflation, and the unemployment rate, on the other hand, have a negative impact on textile outsourcing in Pakistan, according to the study's fifth, sixth, and seventh hypotheses.

**Keywords:** Outsourcing, Political Instability, Energy Shortage, Custom Duty, Inflation, Textile Industries

**JEL Classification Code:** P16, E36, P24

## 1. Introduction

Pakistan is facing the worst energy crisis since the start of this century. This crisis has created too much unrest among the common people and has shut down many industries in Pakistan. The profitability of the firms and purchasing power of common people has declined. Firms are operating

with higher energy costs with much idle capacity. The most threatening challenge is to provide continuous energy supply to households and industrial sectors.

Outsourcing is the process of contracting out in-house tasks to a third party with a comparative advantage to improve the performance of the manufacturing process. In today's world, businesses are becoming specialists to obtain a competitive advantage, and outsourcing has proven to be the most effective strategy in this circumstance (Alshammari et al., 2020). Outsourcing percentages have climbed in both private and public organizations to improve business performance, and it has turned into a substantial management activity that delivers overall economic improvement.

Industries outsource to improve production quality, lower production costs, and boost managerial and producer capabilities. Organizations can concentrate on their core competencies while outsourcing tasks in which they lack expertise. All these sectors are grouped under the phrase facilities management, which refers to managerial assistance for improving outsourcing and raising performance levels. In general, these are the economic motivations for outsourcing (Corbett, 2004).

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The case of the Pakistani economy is found to be fascinating, where outsourcing is used as a result of certain macro circumstances that are outside the firm's control but have a negative impact on its performance. In the early years of Pakistan's existence, the industrial sector generated barely 7% of GDP. However, following the 1958 economic growth plans, it quickly chose the growth path and began to create industrial development institutions. In the 1960s, the majority of policy favored private sector development. That was the era of capital formation and economic structure supporting capitalism (AsadUllah, 2017).

Along with capital products, the goal was to develop intermediate goods. However, the economic paradigm shifted in the 1970s, when nearly 34 manufacturing units were nationalized, and the economy began to shift away from capitalism (AsadUllah, 2017). To stimulate imports, import tariffs were cut, and the Pakistan Industrial Development Corporation (PIDC) was founded. Nationalization shifted the economy's industrial development trajectory. The scenario demonstrated that a change in government had a significant impact on industrial development.

Because of its significant GDP contribution and economic importance, the current study focuses on Pakistan's textile industry. The textile industry contributes more than 60% of the country's exports, however, the percentage is decreasing day by day. The report goes on to explain why power is scarce, which raises the cost of production, causing inflation to become a major component in the industry's output decline. The textile sector contributes 8.5 percent to GDP, employs over 40% of the industrial labor force, accounts for nearly

60% of national exports, and accounts for 40% of banking credit (AsadUllah, 2017). As a result, the current study focuses on several macroeconomic factors that influence outsourcing decisions in Pakistan's textile industry.

## 2. Literature Review and Hypotheses

The idea of outsourcing is not new. Literature provides sufficient support for this concept. There are many determining factors of outsourcing discussed in the literature. In the following sections, we discuss the pairwise links between outsourcing and other economic variables. Table 1 represents the summary of literature supporting the variables of this study.

### 2.1. Influence of Energy Crisis on Outsourcing

Because energy is necessary for practically every business area, a small change in its price has a huge impact on company production. One of the key subjects of concern for many economies is power conservation (Yeats, 1998). Economic energy management is a critical business responsibility that every company should maximize by consuming the least amount of resources; outsourcing is thus the best alternative (Jackson, 2007). As a result, the company may continue to produce more while also focusing on energy management. The following hypothesis can be formulated:

*H1: Energy Crisis has a positive impact on outsourcing in Pakistan.*

**Table 1:** Macro Factors Encouraging Outsourcing Decision

Variables	Theme Idea
Energy crisis	Outsourcing has the advantage of saving power of the firm
	Energy shortage is a major problem in developing countries that ought to be overcome
Political Instability	Firm productivity is reduced by political instability, outsourcing is the best remedy
	Strikes, terrorism, political instability leads to poor firm performance, firm should outsource to other firms to achieve in time production and market share
Labor cost	The firm needs to outsource to stay in the market in case of the heavy cost of labor
	There is a strong association between outsourcing and the cost of goods manufactured
Export propensity	Outsourcing of professional services is a prominent example of a new type of trade
	Gains are observed by the companies which outsource their production segments
Custom duty	Huge multinationals having subsidies, outsource to get the benefit of tax reduction
Inflation	Firms prefer outsourcing in case if in-house production is costly
	Inflation and outsourcing have a strong association
Employment rate	There is a negative association between outsourcing and the employment rate
	Various types of workers and their association with firm output

## 2.2. Political Instability and Outsourcing

Several authors have established that political instability leads to a decrease in economic output, i.e. less output produced. Economic growth slows during periods of political unrest. According to Lucifora and Moriconi (2015), political turnover and political polarization – measures of political instability – are associated with a more regulated labor market, lower unemployment benefit replacement rates, and a smaller tax wedge on labor.

Sometimes the labor markets are exploited and firms suffer from heavy wages or strikes, which increase the cost of production for the firm. Political instability has a negative impact on economic development by lowering the rates of productivity growth (Rajabzadeh, 2008). Inflation is the result of political unrest. Hence, an economy with political instability makes it harder for the firm to produce at a lower cost of production. In times of strikes, terrorism, political instability leads to poor firm performance. Viewing the past studies current study formulates the hypothesis as:

*H2: Political instability has a positive impact on outsourcing in Pakistan.*

## 2.3. Labor Cost and Outsourcing

To stay competitive, a company must outsource. Because the market is becoming increasingly competitive, it becomes important to produce at the lowest feasible cost, and the easiest way to do so is to outsource to a country with lower labor costs. Outsourcing improves product efficiency while lowering costs, which is critical for a company's profitability.

According to Meixell et al. (2014), there is a significant relationship between outsourcing and the cost of goods manufactured, which includes labor and material costs. It also discovers that as outsourcing grows, a company's material costs rise while attempting to minimize labor costs. The higher the labor cost, the higher the firm's transaction cost. A hypothesis may be formulated as:

*H3: Labor cost has a positive impact on outsourcing in Pakistan.*

## 2.4. Export Propensity and Outsourcing

Outsourcing entails the transfer of goods and services between countries, which promotes trade and economic growth. Outsourcing professional services is an example of a new type of trade (Mankiw et al., 2004). Outsourcing is essentially a form of trade (export and import of intermediaries). Outsourcing results in trade advantages, implying that exports take precedence over imports.

Effectively managing global trade operations is critical to a company's success. Keeping the situation in mind a hypothesis can therefore be formulated as:

*H4: There is a positive association between outsourcing and export propensity in Pakistan.*

## 2.5. Custom Duty and Outsourcing

Taking a larger view of the situation, multinational corporations with a large number of subsidiaries want to outsource to save money on taxes. Harris (1993) compared the taxable profit percentages of these large corporations with those of local small businesses and discovered a significant disparity. Hence a hypothesis can be formed keeping the situation in mind as:

*H5: Custom duty has a negative impact on outsourcing in Pakistan.*

## 2.6. Inflation Causes Outsourcing

Many hypotheses exist to explain the inverse link between inflation and economic growth, i.e., when the price of goods and services increases, production/output decreases. Inflation has an impact on production. A similar negative association has been found in previous studies (AsadUllah et al., 2021a, 2021b). Hsiao et al. (2010) introduced the concept of environmental uncertainty in their study, which refers to price increases in manufacturing processes that are beyond the firm's control, such as transportation costs. The majority of businesses want to outsource their production to someone else. Inflation has an adverse effect on a company's production plan. Increasing inflation reduces the amount of outsourcing done by a company due to a fall in market demand for the product. A hypothesis can therefore be formulated as:

*H6: Inflation has a negative impact on outsourcing in Pakistan.*

## 2.7. Employment and Outsourcing

Employees can be classified as blue-collar or white-collar. White-collar workers carry out various formal jobs such as accounting, finance, marketing, operations, and other relevant activities, while blue-collar workers typically work on a daily wage (Kohler, 2004). To begin, consider the perspective of blue-collar workers: if a company lacks the requisite educated labor force for creating a specific product, such as textile products such as leather belts or jackets that are not part of the company's primary production line, the company will choose to outsource. Second, from

the standpoint of white-collar workers, if a company lacks qualified individuals to do a certain task, such as internal or external auditing, finance and credit management, software management, marketing and distribution, and other activities, the company will outsource. On the other hand, if a firm is seeking to avoid outsourcing possibilities for any activity and instead execute it in-house, it will hire more and more qualified workers to do the job (Meixell et al. 2014).

**H7:** *There is a negative association between outsourcing and the employment rate.*

### 3. Data and Research Methods

The research approach paves the way for us to conduct the study in the most efficient manner possible. Data for each variable was collected from several sources to conduct the study. The All Pakistan Textile Mills Association (APTMA), the Pakistan Textile Exporters Association (PTEA), the Pakistan Readymade Garments Manufacturers, the State Bank of Pakistan (SBP), and the Exporters Association are among these sources (PRGMEA). The data ranges from 1992 to 2016 on a quarterly basis, with 100 observations of each dependent and independent variable in the study (Table 2).

#### 3.1. Calculation of Political Instability Index

Table 3 describes the variables needed for measuring the political instability index. These variables include general strikes, demonstrations, riots, assassinations, governments' longevity, government change, and regime type. Each of the above-mentioned variables is scaled through different measures which are explained in Table 3. The index was constructed by using SPSS 17.0 and the method of the principal component was adopted for this purpose. Many researchers used the principal component method for

developing political indexes. This study takes into account the first principal component analysis for developing the index:

$$PI = 0.51 V_1 + 0.097 V_2 + 0.513 V_3 + 0.029 V_4 + 0.065 V_5 - 0.191 V_6 + 0.085 V_7$$

#### 3.2. Research Technique

Outsourcing is a function of an energy crisis, political instability, and other control variables. Control variables include export propensity, custom duty, consumer price index, and employment rate in the textile sector of Pakistan. The general function for outsourcing can be described as below.

$$OUT = f(\text{eng, pi, lc, control variables}) \quad (1)$$

$$OUT = f(\text{eng, pi, lc, expp, cstm, cpi, emp}) \quad (2)$$

##### 3.2.1. Basic VAR Model

A VAR model describes the evolution of a set of  $k$  variables (called *endogenous variables*) over the same

**Table 3:** Principal Component Matrix for Political Instability

Variables	PC1
Strikes	0.51
Assassinations	0.097
Riots	0.513
Demonstrations	0.029
Government Longevity	0.065
Government Change	-0.191
Regime Type	0.085

**Table 2:** Variables Used in the Study and their Calculations

Variables		Symbol	Measurement
Dependent Variable	Outsourcing	OUT	The ratio of cost of finished and semi-finished goods to the total production cost
Independent Variables	Energy Crises	ENG	The ratio of energy consumption by the textile sector to the total industrial consumption
	Political Instability	PI	The political index was measured by taking seven different dimensions
	Inflation	CPI	Economic Survey of Pakistan
	Custom Duty	CSTM	Economic Survey of Pakistan
	Labor Cost	LC	The ratio of total labor cost to the total production cost of the textile sector
	Export Propensity	EXPP	The ratio of export sales to the total sales of the industry
	Employment Rate	EMP	Economic Survey of Pakistan

sample period ( $t = 1, \dots, T$ ) as a linear function of only their past values. The variables are collected in a  $k \times 1$  vector  $y_t$ , which has as  $i^{\text{th}}$  element,  $y_{i,t}$ , the observation at time “ $t$ ” of the  $i^{\text{th}}$  variable. For example, if the  $i^{\text{th}}$  variable is GDP, then  $y_{i,t}$  is the value of GDP at time  $t$ .

A  $p^{\text{th}}$ -order VAR, denoted VAR ( $p$ ), is

$$y_t = c + A_1 y_{t-1} + A_2 y_{t-2} + \dots + A_p y_{t-p} + e_t \quad (3)$$

A  $p^{\text{th}}$ -order VAR is also called a VAR with  $p$  lags. The process of choosing the maximum lag  $p$  in the VAR model requires special attention because the inference is dependent on the correctness of the selected lag order. Hence, the VAR model for the study can be described as the impact of the previous year’s outsourcing strategies on the current year’s outsourcing decision and can be described as follows:

$$\text{OUT}_t = \beta_0 + \beta_1 \text{OUT}_{t-1} + \beta_2 \text{OUT}_{t-2} + \dots + \beta_p \text{OUT}_{t-p} + \varepsilon_t \quad (4)$$

### 3.2.2. Step-Wise Regression

In statistics, stepwise regression is a method of fitting regression models in which the choice of predictive variables is carried out by an automatic procedure. In each step, a variable is considered for addition to or subtraction from the set of explanatory variables based on some pre-specified criterion. Usually, this takes the form of a sequence of  $F$ -tests or  $t$ -tests, but other techniques are possible, such as adjusted  $R^2$ , Akaike information criterion, Bayesian information criterion.

## 4. Results and Discussion

Based on the above-mentioned research techniques, the following results have been generated based on the available data. It includes a general summary of variables (descriptive statistics), the association among variables (correlation

matrix), basic VAR (vector autoregression) model, and step-wise regression analysis.

Table 4 describes the basic summary i.e. mean, standard deviation, minimum and maximum values of included variables in the study. These variables are outsourcing, energy crisis, political instability, labor cost, export propensity, custom duty, CPI, and employment rate.

By observing the correlation matrix in Table 5, it is obvious that outsourcing has the most associations with other variables of the study. Outsourcing has a positive association with the energy crisis, political instability, labor cost, and export propensity at a 5% level of significance. On the other hand, outsourcing shows a negative relationship with three variables which are custom duty, consumer price index (inflation), and employment rate and they show a significant relationship at a 5% level of significance.

The energy crisis has a significant positive relationship with political instability and inflation rate at a 5% level of significance. This is a very interesting and observable phenomenon in the context of Pakistan, which means that if there will be more energy crisis, there will be more political instability in terms of more strikes, more demonstrations, and more riots. Moreover, the increasing energy crisis also leads toward an increasing inflation rate in the economy. The reason is that if there will be no source of energy for manufacturing textile and other related products then firms will choose one option from the following. Either they will produce their energy source by implanting huge electricity generators independent of the government power or otherwise, they will shut down their production partially or completely. In the above-mentioned cases, inflation will presumably be higher. However, the third option could be to produce some part of the product through outsourcing. That’s why the energy crisis showed a positive relationship with outsourcing in the context of the textile sector of Pakistan. On the other hand, the energy crisis does not show any significant association with other variables such as labor cost, export propensity, custom duty, and employment rate.

**Table 4:** Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Outsourcing	100	0.469	0.026	0.415	0.498
Energy Crisis	100	0.263	0.129	0.095	0.358
Political Inst.	100	0.23	1.03	-1.22	6.25
Labour Cost	100	0.412	0.017	0.373	0.447
Export Prop.	100	0.419	0.054	0.29	0.537
Custom Duty	100	6.11	2.85	3.38	15.1
CPI	100	7.26	0.683	6.03	8.43
Employment	100	0.301	0.027	0.234	0.349

**Table 5:** Pairwise Correlation Matrix & Unit Root Results

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Outsourcing	1.000							
(2) Energy Crisis	0.393*	1.000						
(3) PI	0.210*	0.069*	1.000					
(4) Labor Cost	0.718*	-0.172	-0.205*	1.000				
(5) Export. P	0.644*	0.024	-0.320*	0.272*	1.000			
(6) Custom Duty	-0.419*	-0.048	0.111	-0.315*	-0.450*	1.000		
(7) Inflation	-0.652*	0.163*	0.246*	0.284*	0.206*	0.687*	1.000	
(8) Emp. Rate	-0.574*	-0.028	-0.076	0.362*	0.167*	-0.511*	0.564*	1.000

  

Variables	Level			First Difference			Order of Integration
	t-statistic	P-value	5% CV	t-statistic	P-value	5% CV	
Out	-2.424	0.3671	-3.451	-7.373	0.0012	-3.452	I(1)
Eng	-7.265	0.2615	-3.451	-6.481	0.0131	-3.452	I(1)
Pi	-2.291	0.4388	-3.451	-10.541	0.0064	-3.452	I(1)
Lc	-2.469	0.3435	-3.451	-3.837	0.0148	-3.452	I(1)
Expp	-4.125	0.1058	-3.451	-5.248	0.0078	-3.452	I(1)
Cstm	-2.064	0.5662	-3.451	-7.743	0.0002	-3.452	I(1)
Cpi	-2.016	0.5927	-3.451	-7.085	0.0016	-3.452	I(1)
Emp	-1.793	0.7083	-3.451	-8.08	0.0131	-3.452	I(1)

\*Shows significance at the 0.05 level.

Political instability shows negative and significant associations with labor cost and export propensity having values of  $-0.205$  and  $-0.320$  respectively. It is understood that when there will be political stability in the country that will lead towards more strikes and shutdowns of the organizations or industrial companies. Subsequently, it will give rise to unemployment or more pronouncing of blue-collar jobs. In this situation, laborers will strive to get jobs at a lower cost to meet their daily home expenditures. Although the correlation matrix is showing a significant relationship the magnitude is not much higher than  $0.205$ . Export propensity also shows a negative and significant relationship with political instability, meaning that increasing political instability in the country will slow down the export sales of the industry. It is obvious that more shutdowns and strikes decrease production that will have a negative impact on sales and export sales. CPI with the value of  $0.246$  is showing a positive and significant relationship with political instability. This is true in the sense that if things are going out of control and the government does not have any stable policies over the long run, then it will give rise to galloping inflation in the country. However, political instability does not show any significant relationship with other variables of the study.

Augmented Dickey-Fuller (ADF) test is used to check the stationarity of the time-series data. The data should be stationary at level or 1<sup>st</sup> difference. It is observed in Table 7 that all the variables are stationary at the first difference, which means that it has no unit root and hence can be used for prediction purposes in empirical analysis.

Table 6 shows the results of step-wise regression along with diagnostic tests i.e. for autocorrelation and heteroscedasticity.

Table 6 shows the results of the step-wise regression model as well as the results of a simple vector autoregression. It also displays each variable's VIF findings. It displays the outcomes of three distinct models. The first model, in other words, describes the regression findings of two lagged outsourcing and energy crisis values. The regression results of two lagged values of outsourcing, energy crisis, and political instability are described in the second model. In addition, the regression findings of two lagged values of outsourcing, energy crisis, political instability, and all other controllable variables are described in the third model.

The outsourcing variable with lagged data shows significant results in all three models, however, the signs of the coefficients stay the same with the second lag. It states

**Table 6:** Basic VAR Model with Step-Wise Regression & VIF Results

Variables	(1)	(2)	(3)
	Out	Out	Out
L.out	1.237*** (0.102)	1.235*** (0.103)	1.093*** (0.106)
L2.out	0.270** (0.103)	0.270** (0.103)	0.272*** (0.101)
Eng	0.0781*** (0.0185)	0.0814*** (0.0180)	0.0407*** (0.00809)
pi1		0.00613*** (0.00232)	0.00311** (0.00129)
Llc			1.141*** (0.369)
Expp			0.0773** (0.0365)
Cstm			-0.00192*** (0.000526)
Cpi			-0.0606*** (0.00907)
Emp			-0.317*** (0.0582)
Constant	0.448*** (0.00541)	0.448*** (0.00526)	0.503*** (0.0935)
Observations	100	100	100
R-squared	0.154	0.211	0.872
DW-test	1.86027	1.861985	1.970017
Hetero: (p-value)	0.0704	0.0912	0.1037
Variables	VIF		1/VIF
Cpi	9.34		0.107066
Llc	8.61		0.116144
Expp	3.99		0.250627
Emp	2.84		0.352113
Cstm	2.47		0.404858
Pi	1.82		0.549451
Eng	1.18		0.847458
Average	4.32		

Standard errors in parentheses. \*\*\*Shows  $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

that if outsourcing from two years ago is raised by one unit, outsourcing this year will be increased by 0.27 units in each of the three models. Furthermore, if the outsourcing from the previous year is increased by one unit, the current year's outsourcing will be increased by 1.237, 1.235, and 1.093 units in all three models, respectively.

In the first model, energy crisis is added as a major variable for research, and it states that if the energy crisis increases by one unit, outsourcing increases by 0.0781 units, 0.0841 units, and 0.041 units in the three models, respectively, at a 1% level of significance. The findings back up our study's primary hypothesis. It also supports RBV (Resource Based View) which states that companies will try to outsource to places with abundant energy resources. In Pakistan, some textile mills have established their own power plants, and because they have a lot of power generating capacity, they not only make their own products but also the products of other textile mills.

In the second model, political instability is included to examine the combined predictive value of energy crises and political instability for outsourcing. It can be seen that the second model's power has increased from  $R^2 = 0.15$  to  $R^2 = 0.211$ . The value of outsourcing will increase by 0.00613 units if the political stability index is increased by one unit. Furthermore, in the third model, the value of the political instability index has become positively significant, indicating that if the PI index is increased by one unit, the value of outsourcing will increase by 0.00311 units. The findings suggest that, as political instability grows, outsourcing for product manufacturing will increase as well. The producer tries to identify other local manufacturers who can create the required products, but if every producer tries to do the same thing, marginal production will decrease. As a result, economic development will slow down. These findings back up our second hypothesis. It also supports the institutional and industrial viewpoint theory of emerging countries in the sense that if a developing country such as Pakistan experiences problems such as strikes, riots, assassinations, and frequent government changes, economic production and progress will slow down.

The value of outsourcing will increase by 1.14 units if labor costs are increased by 1%. The higher the labor cost for production, the more likely the producer will outsource. These findings support the study's third hypothesis. It also supports the 'core competency idea,' which states that businesses should aim to concentrate on those operations in which they have specialized labor. If the company does not believe it is a better option to engage additional specialized labor to produce a new line of products at a higher cost, it goes for outsourcing.

Furthermore, increasing export propensity by one unit increases outsourcing by 0.07 units. Outsourcing aids in

the development of an economy by enhancing business performance and exports. By increasing their exports, outsourcing companies gain market share in overseas markets. The findings support the study's fourth hypothesis. It also supports 'trade-economic theory,' in that the firm will focus on its core competency and outsource the rest of its operations. Outsourcing helps large, medium, and small-scale companies make higher profits through lower production and labor costs and lead to high revenue for the economy. All these attributes enable companies to participate in the international market, and also to create employment in the country. The company will profit from economies of scale and specialization in this manner.

Outsourcing has a negative link with customs duty, inflation, and employment rate. It states that increasing customs duty by one unit reduces the value of outsourcing by 0.00192 units. If an importer, producer, or manufacturer is importing semi-finished goods or processing raw materials for further processing, an increase in the import duty on these commodities will discourage the company from purchasing these semi-finished goods from other nations. As a result, we can conclude that increasing customs or import duties will reduce outsourcing. These findings support our study's fifth hypothesis.

It states that if the rate of inflation rises by one unit, the value of outsourcing will fall by 0.06 units of rupees. If the market for textiles or textile-related products falls as a result of rising inflation in a country like Pakistan, enterprises will slow down their production and reduce the amount of outsourcing from other firms. These findings support our study's sixth hypothesis.

It describes that if the employment rate is increased by 1 unit, the value of outsourcing will be reduced by 0.317 units. The increasing number of employees whether in blue-collar or white-collar jobs will lead to an increased level of production by the firm itself. It means that firm is trying to produce textile or related products by itself and is not intending to go for outsourcing. Hence we can say that the increasing number of employees is an indication of a decreased level of outsourcing. These results support our seventh hypothesis of the study and are supported by Meixell et al. (2014). It also supports the RBV approach of having an adequate number of employees for production that will lead to specialization.

The DW statistic value indicates that there is no autocorrelation problem in the data. Furthermore, the data for analysis does not contain any heteroscedasticity. Additionally, the variance inflation factor (VIF) is used to check for the presence of multicollinearity. The VIF for all of the relevant independent variables is shown in Table 6, indicating that there is no evidence of multicollinearity in the data.

## 5. Conclusion

Many internal and external factors influence outsourcing decisions, whether at the micro or macro level. The goal of this research was to examine the impact of various macroeconomic conditions on a company's outsourcing decision. For this perseverance, a thorough review of the literature was undertaken, and the relevant variables were identified for empirical research. To evaluate the association between several independent factors and outsourcing, several hypotheses were generated. Energy crisis, political instability, custom duty, inflation, labor cost, and export propensity were identified as indicators with a high association to outsourcing strategy based on literature.

The study's population was the Pakistani textile industry, and the entire population was used as a sample. It indicates that we have collected data textile industry. The data ranges from 1992 to 2016 quarterly, with 100 observations of each dependent and independent variable in the study. Data about variables were collected from different sources such as All Pakistan Textile Mills Association (APTMA), Pakistan Textile Exporters Association (PTEA), and Statistical Bureau of Pakistan, State Bank of Pakistan and Economic Survey of Pakistan, etc. In light of relevant literature, the measurement or calculation of dependent and independent variables has been detailed in-depth. The fundamental VAR (vector autoregression), as well as step-wise regression, was used for an empirical investigation.

The summary of dependent and independent variables, including mean, standard deviation, and data range was analyzed. A pairwise correlation matrix was also created for examining the existence of a relationship between variables, as well as the direction and degree of that association. Outsourcing has a high positive link with the energy crises, political instability, labor costs, and export tendency. Customs tax, inflation, and the unemployment rate, on the other hand, have a substantial negative link with outsourcing. The data was tested for stationarity using an Augmented Dickey-Fuller (ADF) test. At the first difference, all the variables become stationary and can thus be used for prediction. Furthermore, a graphical representation was created for examining the overall trend in time series data of all variables, as well as their correlations, which reveal the data's autocorrelations. The autocorrelation is reduced when we take the first difference of the concerned variable, as seen in the graphs created by taking the first difference of variables.

A basic VAR (vector autoregression) model was used for empirical analysis, which illustrates the maximum number of lags of the dependent variable that can be used as an independent variable. Finally, some other important variables were included such as labor cost, export propensity,



custom duty, inflation, and employment rate, all of which have a significant impact on the model's *R*-square. Labor cost and export propensity have a positive impact on outsourcing strategy, which confirms the study's third and fourth hypotheses. Customs tax, inflation, and the unemployment rate, on the other hand, have a negative impact on textile outsourcing in Pakistan, according to the study's fifth, sixth, and seventh hypotheses.

In conclusion, we may determine that the energy crisis, political unrest, labor costs, and export proclivity all have a strong positive link with outsourcing. Customs tax, inflation, and the unemployment rate, on the other hand, all have a significant negative relationship with outsourcing.

This research sheds light on the macroeconomic aspects that can influence outsourcing decisions. The findings support the 'trade-economic theory,' 'resource-based view (RBV),' and 'core competency theory,' as described in the results of the analysis for each independent variable.

The study provides a good platform for policymakers, outsourcing practitioners, production, and operational managers to gain a better understanding of outsourcing factors at the macro level, which could benefit the economy's key industry, and would certainly benefit the state to prevent the further drain of its key industry.

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