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The PAKISTAN DEVELOPMENT REVIEW

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BOOK REVIEWS

Volume 48 **Autumn 2009** **Number 3**

www.pide.org.pk

PDR

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© *The Pakistan Development Review*
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Determinants of Export Performance of Pakistan: Evidence from the Firm-Level Data

MUSLEH UD DIN, EJAZ GHANI, and TARIQ MAHMOOD

This paper explores the determinants of export performance at the level of firms in respect of their characteristics and supply side constraints. The analysis is based on a survey of export-oriented firms in four major sectors. The results indicate a relationship between the better performance of foreign-owned firms to their better know-how and resources compared to the domestically owned firms. Export performance is positively affected by the level of investment in market/client oriented technologies. Lack of certification of product and process standards is the main supply side constraint adversely affecting the firms' export performance. Facilitation measures like export processing zones, internationally recognised testing labs, and industrial clusters would be helpful in improving the export performance of firms.

JEL classification: F1, L1, L6
Keywords: Trade, Exports, Firms, Performance, Manufacturing

1. INTRODUCTION

Exports are widely believed to play a crucial role in the development process. Access to the global market allows domestic firms to achieve economies of scale and thus enhance their profitability. Being a source of foreign exchange earnings, higher exports enable a country to meet its growth and development needs through import of capital goods and raw materials. Exports lead to an improvement in economic efficiency by increasing the degree of competition; and contribute to productivity gains through diffusion of technical knowledge and learning by doing.[1] Export-led growth of East Asian countries and the recent growth achievements of India and China through their integration with global markets has brought export promotion to the forefront in development policy agendas of most developing countries.

Despite vigorous efforts to promote exports, Pakistan's exports as a proportion of its GDP have made no significant gains over the years with the country's share in global exports standing at a meagre 0.13 percent. In order to understand why Pakistan's exports have failed to pick up despite favourable export policies, this paper analyses the determinants of export performance at the level of firms in terms of their specific characteristics and supply side constraints. The analysis is based on a survey of export-

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[1]Krugman (1984).

oriented firms conducted by the Pakistan Institute of Development Economics (PIDE) with the collaboration of United Nations Industrial Development Organisation (UNIDO).[2]

During the last couple of decades there has been a growing interest among empirical researchers to investigate the determinants of export performance at the firm and industry levels.[3] There are three main reasons for this shift in focus from macro to micro level. First, there are theoretical reasons to believe that firms' characteristics are important in international trade. Traditional trade theories like the Ricardian theory of comparative advantage and Heckscher-Ohlin model of comparative advantage assume homogeneous firms within an industry. However, new trade models following the seminal work of Krugman (1980) assign explicit role to the characteristics of firms, mainly because it is at the firm level that actual production and trade decisions are made. Other developments such as out-sourcing and multinational production practices have also brought the firm at the centre of international trade theory. Second, globalisation and rapid increase in the means of communication have enabled even relatively smaller firms to target niche markets for higher profits, and this has led researchers to study how firms' characteristics are related to export performance. Third, availability of micro data sets and better computation techniques has facilitated micro-level empirical research. All these factors have raised the importance of firms' characteristics in international trade literature.

The role of internal and external factors in export performance is a relatively less explored area of empirical research in Pakistan. At the macro level, Akbar and Naqvi (2001) find that Pakistan's export performance is sensitive to both domestic and external market conditions, particularly in the area of competivity. However the authors find that it is relatively more sensitive to demand-side variables than to other factors. At the micro level, Masakure, Henson, and Cranfield (2009) assess the effects of quality certification on export sales and share of exports for Pakistan's exporting firms using the Logit model while treating certification as a binary dependent variable. The results indicate a positive correlation between export performance and ISO 9000 certification, implying that the latter plays a key role in establishing exporters' credibility and bringing performance gains.

The present study differs from Masakure, Henson, and Cranfield (2009) in two important ways. First, it explicitly treats firms' characteristics as explanatory variables while treating exports per labour as an endogenous variable. Second, it regards certification as a supply constraint from the exporters' perspective which is measured on the Likert scale. By using exports as a dependent variable, the present study promises to shed more light on the question of how export performance of firms is influenced by their characteristics as well as supply side constraints directly as against quality certification as in Masakure, Henson, and Cranfield (2009).

The rest of the paper is organised as follows. Section 2 provides a brief review of the literature. Section 3 describes the survey data and provides a brief profile of exporting firms included in the survey. Section 4 sets out the methodology, whereas Section 5 discusses the empirical results. Section 6 spells out conclusions and policy implications.

[2]See PIDE (2007).

[3]See Madsen (1987) and Aaby and Slater (1989) for a survey of this literature.

2. REVIEW OF LITERATURE

A growing body of literature has focused on analysing export performance at the firm level using a variety of techniques and data sets. Such works have been reviewed quite extensively in the literature; see for example, Aaby and Slater (1989), Madsen (1987), Zou and Stan (1998), and Sousa and Alserhan (2002). This section offers a brief review of some recent studies on the subject.

Yoshino (2008) analyses how the different characteristics of African manufacturing firms and the various domestic supply constraints influence the pattern of geographical diversification of their exports. The study uses firm-level data from World Bank Investment Climate Survey (ICS) of the manufacturing sectors of seven Sub-Saharan African countries. The bivariate analysis is performed to explain geographical orientation and market diversification, and the results indicate a positive correlation between export intensity and market diversification measured as the number of export markets the firms serve. Tobit models of firm-level export intensity and market diversification are also used which indicate that the size, foreign ownership, and technology are the dominant factors in explaining firm-level export performance.

Laursen (2008) explores the determinants of firm-level export behaviour for Danish industries. The study uses a data set consisting of 1,873 Danish firms in manufacturing and services using the share of their exports in their total sales as a measure of their export performance. A Tobit model has been used to estimate the regression equation with age, number of employees, and fixed assets as independent variables. The model also includes some variables relating to the source of innovation such as suppliers, customers and universities. The findings support the idea that innovative techniques are determinants of export behaviour particularly in relation to customers. Process innovation and using suppliers as a source of knowledge for innovation have a negative relationship with export intensity. This has been taken to be the case when Danish manufacturing and service firms have been at a disadvantage in cost competition.

Wignaraja (2007) analyses firm-level export performance of clothing enterprises in Sri Lanka. The data are taken from the Asian Development Bank/World Bank investment climate survey of urban and rural enterprises in Sri Lanka, conducted in 2004. Export-to-sales ratio has been used as a measure of export performance which appears as the dependent variable in a Tobit model. Explanatory variables include ownership, firm size, human capital, technological capabilities, and geographical location. The results indicate that size, foreign ownership, technology index and the human capital variables have positive and significant effect on export performance. Similarly a dummy variable for geographical location also turns out to be positive and significant, indicating that firms located close to Colombo have an export advantage due to lower transport costs and other locational externalities.

Dueñas-Caparas (2006) analyses export performance of manufacturing sectors in the Philippines. Firms are classified in three major sectors, viz., Food, Clothing, and Electronics**.** The study uses data from the firm-level survey conducted in 2002 by the Asian Development Bank (ADB) in collaboration with the World Bank and the Philippines National Statistics Office. The study uses a modified quasi-maximum likelihood procedure to specifically address the issue of fractional responses. Export

performance is defined as export to sales ratio which is used as a dependent variable in the model. Independent variables include age, size (defined as the number of employees), share of skilled workers to total workers, share of research and development expenditure to total sales, and the ratio of capital stock to labour cost. Dummy variables are used to estimate the effects of training and ownership (domestic vs. foreign). It is found that foreign ownership, training, and research and development positively affect export performance in all industries in the sample. Capital per worker is found to positively influence the export performance of electronic firms but not in the clothing and food processing sectors. A nonlinear relation between size and export performance is found in all firms, most significantly in the clothing sector. This suggests that as firms expand, they gain in their export performance. However, further expansion after a certain level results in less than the desired outcome in export performance.

Smith, *et al.* (2002) analyse the role of research and development in the export behaviour of Danish firms. The study uses a data set for 3,500 Danish firms for the year 1997, obtained from the official Danish Research and Development (R&D) Statistics. The study is concerned with the interaction between the firms' R&D decisions and the export performance as well as other influencing factors. Specifically, the firm's age and size, labour cost, human capital and the firm's financial solvency are taken as key determinants of export behaviour. The study uses a bivariate Probit specification and through the maximum likelihood technique estimates a simultaneous model for export orientation and investments in R&D. The results show that the likelihood of being an exporter and investment in R&D positively depends on firm size and age. The export orientation is also found to depend positively on the firm's financial solvency. The effect of wage share on exports turns out to be negative. The decision to invest in R&D is found to be high in concentrated industries and low among industries with high entry barriers.

Bhavani and Tendulkar (2001) investigate export performance of Garment and Apparel firms located in Delhi (India). The study estimates the export performance and export decision functions using the census of small-scale industrial units. For export decision function, a Probit model is estimated using the scale of operation, sales expenses and the form of business organisation as independent variables. The export performance function is estimated by Tobit model. The ratio of exports to production is taken to represent the export performance which is used as a dependent variable. Independent variables include the value of production, technical efficiency index, ratio of wage bill to production, and the share of sales and other expenses in production. The results of the export performance equation indicate that the value of production, technical efficiency index, and the share of sales and other expenses in production have a positive effect on export performance, whereas the ratio of the wage bill to production and types of ownership viz., single proprietorship or partnership, show a negative impact. The study provides two important policy implications. First, in view of the importance of scale, it wants the existing policy of reserving garments and apparel for exclusive production in small-scale units scrapped and second, recommends amendment in the labour legislation applicable to large-scale factory units as it makes labour markets inflexible and becomes an impediment to the expansion of existing units and the entry of new ones.

In their study of Pakistan's economy, Masakure, Henson, and Cranfield (2009) use a Logit model to explore the effects of quality certification on export sales and the share in exports of firms using certification as a binary dependent variable. The results indicate a positive correlation between export performance and ISO 9000 certification, implying that the certification plays a significant role in export performance of the firms through enhancement of their credibility in international markets. It is important to note here that the study does not provide a direct evidence of the role of characteristics and supply side constraints in the export performance of the firms, a question that is being explored in the present study.

3. SURVEY DATA AND PROFILE OF EXPORTERS

The study is based on a survey of exporters in the provinces of Punjab and Sindh. The survey was conducted by the Pakistan Institute of Development Economics (PIDE) with the collaboration of United Nations Industrial Development Organisation (UNIDO). The survey focused on four major exports of Pakistan, viz., textiles/apparel, leather, agro-food processing and fisheries.[4] Each of these sectors comprises various sub-sectors (Table 1). Textiles comprise yarn, fabrics, knitwear, garments, bed sheets and towels; leather comprises tanning, footwear and leather products; agro-food group includes processing, horticulture products, and rice; and the fisheries comprise various types of fish processing enterprises and fish exporters.

Table 1

Sectoral Coverage

Textile/Apparel	Leather	Agro-food Processing	Fisheries
• Yarn • Fabric • Garments • Knit wear • Bed sheets and Towels	• Tanning • Footwear • Leather products/ garments	• Horticulture products (fruits and vegetables) • Rice (grading and polishing)	• Fish processing enterprises • Fish exporters

As a first step, a list of all exporters in the four sectors was compiled.[5] In line with the survey objectives it was decided initially that the universe would consist of exporters with 50 or more employees. However, except for the textiles mills identified by the All Pakistan Textiles Mills Association (APTMA), which are generally large-scale enterprises, the information on the number of employees was not available. Hence an alternative criterion of determining the size of an enterprise was adopted for firms other than textiles enterprises listed with APTMA, and that was to focus on enterprises having exports of Rs 1 million or more. The presumption here is that the higher the export value, the larger would be the scale of the enterprise.[6]

[4]Textiles, agro-food and leather were chosen because there are the major exporting sectors. Fishery was chosen because its potential to become a major exporting sector.

[5]There were some 1357 exporting enterprises in this list with 607 in textiles and apparel, 363 in leather sector, 308 in agro-food processing and 16 in fisheries.

[6]As the final criterion for selection was export value rather than the number of employees, the sample also includes enterprises with less than 50 employees.

Using the stratified random sampling approach, a total of 180 firms were chosen covering the four major export categories (Table 2). The enterprises in the four sectors were stratified according to the sub-processes listed in Table 1.

Table 2

Sectoral Distribution of Firms

Sectors	Number of Enterprises	Percentage in Total Sample
Textiles/Apparel	90	50
Leather	45	25
Fisheries	16	10
Agro-food	29	15
Total	180	100

The number of firms in each stratum (sub-process) was chosen roughly on the basis of the share of exports of each sub-sector in the corresponding sector. For instance, the number of firms in yarn was chosen on the basis of the share of yarn in total exports in the textiles group. The universe column indicates the total number of firms in each sector and sub-sector meeting the size criteria from which the sample was drawn. The details are as follows (Table 3).

Table 3

Sector-wise Sample and Universe

	Enterprises in the Sample	Universe
Textiles/Apparel		
Yarn	14	64
Fabrics	24	54
Garments	16	48
Knit Wear	16	27
Bed Sheets and Towels	20	33
Total	**90**	**226**
Leather		
Tanning	19	19
Footwear	7	7*
Leather Products/Garments	19	62
Total	**45**	**88**
Agro-food Processing		
Horticulture Products (Fruits and Vegetables)	7	22
Rice (Grading and Polishing)	22	43
Total	**29**	**65**
Fisheries	16	16

*There were only seven firms having exports of Rs one million or more. Therefore, all the seven firms were included.

The age distribution of firms (Table 4) reveals that the majority of firms (62 percent) were less than 25 years old in 2005. For domestic firms the percentage is 64 and for foreign firms it is 52. The number of entrants (domestic as well as foreign) has been highest in the period 1990-1999. Incidentally, there has been no entry of foreign firms in the period 2000-2005.[7]

Table 4

Percentage Distribution of Firms by Age and Ownership

Year of Establishment	Total	Domestic	Foreign
Up to 1947	4.1	2.4	13.0
1947-1959	7.5	8.1	4.4
1960-1969	11.6	10.5	17.4
1970-1979	15.0	15.3	13.0
1980-1989	21.1	21.8	17.4
1990-1999	29.9	29.0	34.8
2000-2005	10.9	12.9	0

Source: Survey data.

The size distribution of firms shows that a majority of firms employ more than 99 employees and hence fall in the category of large firms[8] (Table 5). At the sectoral level, the textile sector mostly consists of large firms, whereas in agro-food and fishery smaller firms dominate.

Table 5

Percentage Distribution of Firms by Employment

	Textiles	Leather	Agro-food	Fishery	Total
Less than or Equal to 49	3.3	4.1	5.7	1.6	14.8
From 50 to 99	3.3	9.8	5.7	4.1	23.0
From 100 to 249	9.8	4.9	4.1	4.9	23.8
From 250 to 999	16.4	3.3	2.5	0.8	23.0
Greater than or Equal to 1000	13.9	1.7	0	0	15.6

Source: Survey Data.

Location is an important determinant of firms' export performance. Karachi, being the largest industrial city and a hub of exporting activities, accounts for the highest proportion of firms in the sample, followed by Lahore and Sialkot (Table 6). Together, these three cities account for more than 80 percent of firms under study.

[7]In fact, net inflow of foreign direct investment gained momentum in the year 2005-06 and peaked in 2007-08 at about US$5.2 billion. This phenomenon is very prominent in "Food, Beverages and Tobacco" sector where net foreign direct investment registered manifold increase (Pakistan Economic Survey 2007-08). The FDI started declining in later years: FDI was US$3.2 billion in 2008- 09 (*Pakistan Economic Survey 2008-09*) and further fell to US$1.8 billion during the period July to April 2009-10. *Pakistan Economic Survey* (2009-10).

[8]This line of division has been used in literature; see for example Wignaraja (2007).

Table 6

Percentage Distribution of Firms by Location

City of Location	Percentage of Firms
Karachi	54.1
Lahore	20.4
Multan	3.2
Sialkot	12.1
Wazirabad	1.3
Faisalabad	5.1
Kasur	1.3
Others	2.4

Source: Survey Data.

Trends in Sales

In the textiles sector, the average sales of firms increased over time (2000-2004) for firms of all sizes except for smaller firms with up to 50 employees. Firms with 50-99 employees witnessed a six-fold increase in their sales during the period 2000-2004, increasing from US$ 1141.2 thousand in 2000 to US$ 6852.9 thousand in 2004. It is interesting to note that firms with 100-249 employees had lower sales than smaller size firms (50-99 employees). This is essentially due to aggregation of sales because the problem does not exist at the sub-sector level. The sales of larger size firms also witnessed robust growth during 2000-2004.

The sales of leather firms of all sizes generally exhibited a declining trend during the period. The only exception was very high sales in the years 2001 and 2002 due to strong growth, in one company particularly. In the agro-food sector, while the sales of firms with less than 1000 employees showed a fluctuating trend, the sales of firms with 250-999 employees registered manifold increase during the period, from US$ 6276 thousand in 2000 to US$ 39170 thousand in 2004. Except for fish exporters with 250-999 employees who witnessed an increase in their exports during the period, other exporters in this sector reported either declining or sluggish sales over time.

Distribution of Sales by Domestic and Foreign Markets

A majority of firms in all sectors were largely export-oriented: total exports as percentage of total sales ranged from 80 percent to 100 percent in all sectors. This is hardly surprising in view of the fact that our sample is focused on firms that are export firms. However, there are a large number of firms that may be selling their products exclusively in domestic markets. That the export firms also sell in the domestic market is a positive trend that may result in the local consumer getting better quality products.

Export Diversification by Markets

The European Union is a major market for textiles and leather exporters, followed by North America and Asia.[9] For agro-food exporters, North Africa and Middle East are

[9]Within the textiles sector, Asia is a major market for yarn and fabrics, besides EU and North America. Asia is also a major market for exports of tanneries.

the major markets, followed by Asia, EU and North America. Most of the fisheries exports are marketed in Asia, followed by EU, North Africa and Middle East, and North America. It is clear that Pakistan's exports are concentrated in a few markets, and, therefore, there is an urgent need for exploring new markets for Pakistani products.

The exporters indicated the desire to diversify the export markets towards Africa, Middle East and Latin America. Nevertheless, the traditional markets would continue to play a major role. For example, the majority of textiles exporters accorded high priority to EU as a future market followed by North America. Only a few textiles exporters indicated a high priority for Asia as a future market. However, it was suggested that Pakistan would focus on the Chinese market in Asia to exploit its potential. North America emerged as a high priority future market for leather exporters, followed by EU, Latin America, the Caribbean, and Asia. About half of agro-food exporters attached high priority to EU as a future market, followed by Asia. A majority of fisheries exporters indicated high priority for EU, North America and Asia as future markets.

4. METHODOLOGY

In a pioneering study on export performance of firms, Aaby and Slater (1989) define two broad categories of variables that can influence their export performance: (a) external factors which mainly determine the environment under which firms are operating, and (b) firm characteristics and strategy which are internal to the firm. In this study we focus on the latter. Firms' performance is measured by the value of exports in US dollars. To control for the firm size, the dependent variable is defined as the value of exports per unit of labour employed (Exp). The independent variables include age, type of ownership, investment in product and process technologies, managerial competence, certification of product and process standards, and location. The complete regression equation is specified below.[10]

$$Exp_i = \beta_0 + \beta_1 Age_i + \beta_2\, Ownership_i + \beta_3\, DInvest_i + \beta_4\, DFinv_i + \beta_5\, Cer_i + \beta_6\, DLoc + u_i$$

The variable 'Age' represents the number of years of establishment of the firm. This variable may affect export performance of the firm in different ways and its sign is theoretically ambiguous. For example, this variable could have a positive sign if older firms being more experienced are able to demonstrate better export performance. On the other hand, one could argue that new firms, having a modern outlook with better management and production techniques, may be more efficient and thus may show better export performance. The evidence in the empirical literature is mixed. Smith, *et al.* (2002) and Barrios, *et al.* (2003) find a positive sign for the age coefficient, but Ramstetter (1999) and Sjoholm (2003) report a negative coefficient for the age variable.

'Ownership' is a dummy variable to control for the type of ownership. The dummy variable takes a value of 1 for firms with domestic ownership and a value of zero for foreign ownership. Firms with foreign ownership are expected to perform better than domestic firms due to better technical and managerial expertise, greater access to and networking with foreign markets. In the literature, the evidence is in favour of foreign-

[10]As pointed out by a referee, the model specification may be subject to endogeneity bias. The problem of endogeneity is pervasive in economic research, and it is difficult to handle, especially in survey data that are inherently limited in scope, making it hard to use appropriate instruments.

owned firms: for example, Ramstetter (1999) and Wignaraja (2007) find that foreign-owned firms outperform domestic-owned firms in export markets. The ownership variable, therefore, is expected to have a negative sign.

Investments by firms to improve their product and market strategies and to strengthen networking with clients are expected to play an important role in determining their export performance. The surveyed firms were asked about their level of investment during the last three years, and the average of these yearly investments is used as an explanatory variable (DInvest). Firms with investment in client/market oriented technologies are expected to outperform those who made no such investment. Therefore, this variable is expected to have a positive sign.

Managerial competence strongly affects a firm's performance. A competent management has a long term horizon, is well aware of markets and new challenges, and is better able to cope with present and future challenges. Unfortunately, data on managerial competence are not available. We have thus tried to proxy this variable by a binary variable (DFinv) that captures the firms' responses to their future investment plans. It is plausible to assume that a competent management will be aware of the available investment opportunities and will have prepared future investment plans in line with the market outlook. The variable assumes a value of 1 if a firm has prepared such a plan, and zero otherwise. On *a priori* grounds, we expect this variable to have a positive coefficient.

The capacity challenges on the supply side faced by the firms can significantly influence their export performance. In the survey, the firms were asked to use Likert scale responses (ranging from 0= 'not applicable' to 5 'major problem') to indicate how a particular supply constraint applied to their firms. A major constraint identified by the firms was the lack of certification of products and process standards and consequently this variable was included in the model. Certification of conformity with standards and technical regulations is intended to ensure uniformity of products and processes and to ensure minimum safeguards on quality and safety. More and more international buyers ask for the proof that internationally recognised (certified) operational systems and procedures were in place for quality process and product management. The performance of exporters not having international certifications is likely to be hampered owing to their inability to demonstrate compliance with international product and process standards and technical regulations. We, therefore, expect a negative sign for this constraint.

Location of firms is also an important determinant of firm performance. Firms that are located at a geographically advantageous position in terms of both logistics and industrial clusters are expected to perform better than firms that do not possess these locational advantages. For example, proximity to a port can help the firm improve its performance through rapid delivery of imported inputs, timely export shipments, and lower transportation costs. On the other hand, firms located in industrial clusters enjoy various positive externalities including availability of business-related amenities and infrastructure. To capture these advantages, a dummy variable is used that assumes a value of 1 if a firm is located in Karachi, and zero otherwise. Because of the locational advantages, it is expected that firms that are located in Karachi would exhibit a better export performance than firms located elsewhere.

5. EMPIRICAL RESULTS

The estimation has been performed by Ordinary Least Squares technique. In order to avoid the problem of heteroskedasticity, White's Consistent Standard Errors and Covariance Procedure has been used. This technique is preferred in cross-section data that include variables relating to the 'size' aspects of firms. In such cases, the error term may also pick up variations due to size, possibly because of some omitted variables in the model.[11] In the context of the present study, variables such as exports and investment are related to the size of the firm and hence the data are susceptible to the problem of heteroskedasticity.

The results of estimation of coefficients of variables along with their standard errors, t-values and probability of rejection (i.e., probability of rejection of null hypothesis that the coefficient of a specific variable is zero) are given in Table 7. The F-statistics are significant implying that selected variables significantly explain export performance of firms.[12]

Table 7

Regression Results

Dependent Variable**:** Exports per Unit of Labour (Exp)*
Method: Least Squares
White Heteroskedasticity-Consistent Standard Errors and Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.2211	0.5220	4.2549	0.0004
Age	–0.0005	0.0057	–0.0904	0.9288
Ownership	–0.7436	0.4170	–1.7829	0.0891
DInvest	0.0510	0.0049	10.3078	0.0000
DFinv	0.9628	0.2853	3.3747	0.0029
Cert	–0.5759	0.2198	–2.6204	0.0160
DLoc	0.6191	0.3576	1.7312	0.0981
R-squared	0.5593	F-statistic		4.4421
Adjusted R-squared	0.4334	Prob. (F-statistic)		0.0047

* Dependent variable in natural log.

The results show that the age of the firm has a negative but insignificant effect on firms' performance.[13] The dummy variable for ownership is negative and significant, implying that foreign-owned firms exhibit superior export performance than the domestically owned firms.[14] It is generally accepted that foreign-owned firms possess better managerial and technical expertise and are better able to meet the global market requirements through their international linkages.[15] This result underscores the fact that

[11]See Cooper and Weekes (1983), p. 217.

[12]As suggested by a referee, we have tried sectoral dummies but the results are amenable to any useful interpretation.

[13]This is similar to the finding by Masakure, *et al.* (2009).

[14]Other empirical studies have found similar results for developing countries; see, for example, Bhavani and Tendulkar (2001), Dueñas-Caparas (2006), and Wignaraja (2007).

[15]See Baldwin and Gu (2003).

the domestic firms can also compete effectively in international markets provided they upgrade their managerial and technical competencies and build international networks as demonstrated by foreign-owned firms.

There is a positive and highly significant relationship between the level of investment in product and process technologies and export performance. Higher investment in product quality as well as in production processes allows the firms to capture export markets and improve their profit margins.[16] Similarly, managerial competence has a positive and significant impact on export performance. Firms that possess better managerial expertise are more attuned to market dynamics and hence are able to perform better in export markets. The lack of certification turns out to be an important supply side constraint that adversely affects the firms' export performance.[17] The dummy variable for firms located in Karachi is positive and significant and this shows that such firms enjoy the benefits of proximity to port and industrial clusters.

6. CONCLUSIONS AND POLICY IMPLICATIONS

This paper has investigated the determinants of export performance at the firm level, based on a survey of export-oriented firms in four major export segments including textiles and apparel, leather products, agro-food, and fisheries. The results of the regression analysis indicate that foreign-owned firms outperform the domestic firms in export markets, not least because of the formers' advantages in terms of better managerial and technical expertise and networking with international clients. The export performance of firms is positively influenced by the level of investment in market/client oriented technologies. This underlines the importance of strengthening marketing networks and upgrading products and process technologies in line with the latest market requirements. Managerial competence also turns out to be an important determinant of export performance highlighting the importance of this factor in gaining access to highly competitive export markets. Lack of certification of compliance to international product and process standards is a major supply capacity constraint hindering export performance of the firms. Firms located in geographically advantageous areas with strong industrial clusters and easy access to international transportation exhibit better export performance as compared with firms that do not enjoy these advantages.

The above findings have important policy implications. First, foreign direct investment in export-oriented industries can play an important role in boosting Pakistan's exports. Pakistan offers attractive incentives to foreign investors but so far it has not been able to attract significant investments, especially in export-oriented industries. A step in the right direction has been the establishment of export processing zones in major cities that are designed to cater to the specific needs of export-oriented firms[18]. However, there is a need to make these zones more attractive to foreign investors by providing them with better physical infrastructure and utilities.

[16]Alvarez and Lopez (2005) find such investments to be highly significant in influencing performance of exporters.

[17]Various other supply side constraints—including lack of skilled labour, inability to meet market requirements, problem on on-time deliveries—were tried but these turned out to be insignificant.

[18]A variety of incentives are offered to investors in the export processing zones including duty and tax free import of machinery, equipment and materials.

Second, it is important to facilitate the certification of compliance to international product and process standards. There is a dearth of internationally recognised testing laboratories in Pakistan that can cater to certification needs and consequently exporters have to rely on testing laboratories in Singapore, Hong Kong, UK, Germany and other countries making the whole process costly. There is, therefore, a need to help develop internationally recognised and accredited local testing laboratories to cater to the testing needs of textile, leather, agro-food and fisheries sectors. Also, there is a need to raise the level of awareness among exporters about the importance of certification.

Finally, the results underscore the importance of advantages of location and clustering in export performance of the firms. Businesses thrive and grow in clusters which help the firms in lowering their costs through easy access to amenities and other business-related facilities that are typically available in such clusters. In this respect, an important initiative is the concept of Textiles City being developed in the industrial area of Karachi's port Qasim which can be an important inducement for export-oriented firms. There is a need for more such initiatives to help cluster export-oriented manufacturing, allowing the firms to benefit from agglomeration economies.

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48 : 3 (Autumn 2009) pp. 241–267

Reforming Institutions: Where to Begin?

M. IDREES KHAWAJA and SAJAWAL KHAN

Institutions promote growth—this view now holds firm ground. The task then is to 'engineer' growth promoting institutions. Endogeneity characterises institutions, for example, groups enjoying political power influence economic institutions but political power itself is a function of wealth. The question then is: what to reform first? History stands witness that generally the societies with extreme inequality and a heterogeneous population tend to evolve institutions that restrict access to economic opportunities for the poor which in turn constrains economic development. On the other hand societies with greater equality and homogeneous population typically enjoy growth-promoting institutions.[1] Institutional reforms should therefore begin with institutions that serve to create or perpetuate inequality and heterogeneity in the society. We argue that the four different kinds of educational systems in operation in Pakistan are a major source of creating and perpetuating inequality and heterogeneity in the population. Access to a single and common educational system will open-up similar opportunities of higher education and job attainment for all the citizens, thereby reducing inequality. Diverse educational systems promote different sets of beliefs while a uniform system forges belief-convergence in the society that in turn facilitates agreement on a common set of institutional reforms. Therefore it is the educational system that should be the first to reform. We also argue that in Pakistan, unlike some European countries in the 17th century, neither commercial interest nor fiscal constraints can force the *de jure* power to reform institutions. Typically, large commercial interests in Pakistan have thrived on favours from the *de jure* power and therefore have no interest in changing the system. Foreign aid eases the fiscal constraints from time to time relieving government of the need to reform institutions. The thought of a revolution of some kind is still a far cry, the society having no such inclination. The alternative then is the gradual approach preferred by North, Acemoglu and Rodrik.[2] This gradual approach suggests the area of educational reforms.

JEL classification: D02, D03, P16
Keywords: Institutional Evolution, Institutional Change, Human Behaviour

1. INTRODUCTION

The role of history in shaping economic outcomes is being increasingly examined.[3] One view is that important events in the history of a nation shape its institutions that in turn determine its economic performance. A country endowed with poor institutions, performs poorly. The question is how a country can break loose of the historical factors to begin the process of institutional reform and thus place itself on the

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Authors' Note: We are grateful to Aurangzeb Hashmi, Lubna Hasan, Zafar Mahmood, Mahmood Khalid, Musleh ud Din, Rizwana Siddiqui, Usman Qadir, Nasir Iqbal and other participants of the seminars on this subject at PIDE and at a departmental meeting in PIDE, for offering very useful suggestions and comments. We are also thankful to the two anonymous referees whose valuable comments helped improve the paper. All errors and omissions are ours.

[1]See Engerman and Sokoloff (2005).

[2]See North (1990), Acemoglu (2005a) and Rodrick (2006).

[3]See Nunn (2009) for an excellent survey of the subject.

track of economic progress. What we need to know is that whether it is possible to reform all institutions in one go—the big bang approach, or if the institutions can be reformed only gradually—one, or at best, few at a time. If one favours the gradualist approach, then the obvious question is what to reform first, that is, where to begin?

Concisely speaking institutions represent 'rules of the game' or "humanly devised constraints that shape human interaction" [North (1990)]. They have also been defined as "actual organisational entities, procedural devices, and regulatory frameworks" [WEO (2003)]. The most widely cited definition in literature is again from North (1981)—"a set of rules, compliance procedures, and moral and ethical behavioural norms designed to constrain the behaviour of individuals in the interests of maximising the wealth or utility of principals". He terms formal rules, informal constraints and the enforcement characteristics of the two as the complete set of institutions.

The view that institutions represent the rules of the game holds firm ground.[4] No society is devoid of institutions, however many have poor institutions.Then how does a society gets institutions that promote economic growth? Acemoglu, *et al.* (2005a) argue that institutions are endogenous—political institutions influence economic institutions and vice versa. For example, political institutions, whether democratic or autocratic, determine who enjoys political power. Who gets access to economic opportunities—masses or the élites, is determined by the political power and hence political institutions. However who makes it to the echelons of power, especially in developing countries, is in part determined by wealth, and therefore economic institutions. Given the endogeneity, an attempt to move from one set of institutions to another, for example, from autocracy to democracy, may be successfully thwarted by the would-be losers. For example monopolies (economic institutions) supported by the autocrat may thwart market oriented reforms, if the monopolist or the autocrat himself is deriving rents from their prevalence. The endogeneity problem tempts one to suggest that institutions can only be reformed with a big bang—reform all institutions in one go, perhaps through a revolution. However this leaves us with the problem of how to stage a revolution. Successful revolutions typically are preceded by a certain thought-process [Masood (1991)] which at times may spread over a century. For example, the European enlightenment thought, beginning as far back as 16th century, preceded the revolutions of UK (1688), US (1787) and France (1789). Even when it becomes possible to stage-manage a revolution, the post-revolution institutional changes may not be too revolutionary. North (1990) has quoted examples from history to show that post-revolution institutional changes exhibit the legacy of the past.

If one were to practice gradualism, reforming institutions one by one, the question arises, what to reform first? What conditions should an institution satisfy to top the agenda of institutional reform? To prescribe such conditions the knowledge of the historical sources that had constrained the development of growth-promoting institutions is essential. Based on implicit evidence for India,[5] with whom Pakistan shares a common

[4]Enormous literature including, but not limited to, Hall and Jones (1999), Acemoglu, *et al.* (2001, 2002), Easterly and Levine (2001), Dollar and Kraay (2003), and Rodrik, *et al.* (2002) have shown that institutions matter in economic growth. For an exhaustive survey of literature on the relationship between institutions and economic growth, see Acemoglu, *et al*. (2005 a) and Hasan (2007).

[5]See Benergee and Iyre (2005).

colonial heritage, we subscribe to the Engerman and Sokoloff (2005) view that initial inequality and population heterogeneity are the sources of path-dependence exhibited by the institutions.

In this context, Gazdar (2004) explains how the land tenure arrangements put in place during the colonial rule over the areas that now form Pakistan served to create inequality. He convincingly argues that first the land tenure arrangements like *Royatwari* in Sindh and *Mhalwari* in Punjab[6] sought to create a landholder-advantage and then the canal colonisation highly skewed the power configuration in favour of the landlords. Ali (1988) also provides exhaustive evidence that canal colonies developed during the colonial rule over India in western Punjab, now the most populous province of Pakistan, served to create inequality and heterogeneity in population. Later on, the development policies pursued in the 1950s and 1960s not only served to perpetuate but further widen the income inequality that prevailed then. To understand how inequality and heterogeneity is casting an adverse influence on development, one has only to look at how influence has been very recently used to divert the natural flow of flood waters to save the agricultural land and residential estates the of landed elites.[7] The endless controversy over construction of Kalabagh dam, presence of regional political parties with votes in specific communities and host of religious parties drawing inspiration from different factions of Islam, are sources of heterogeneity, to name a few.

With this background in mind, we can lay down the criteria for the choice of the institution to be reformed, first and foremost. Our criteria are: (i) Inequality and heterogeneity in population being the source of path-dependence, the institution to be reformed first should serve to reduce inequality and heterogeneity in the population; (ii) the institution selected to be the first should be the one that would face relatively lesser resistance from other institutions or whose reform will not be constrained by the absence of some other institution; (iii) its impact should be all encompassing and long-lasting. Regarding condition (ii), we emphasise at the outset that the condition of 'relatively lesser resistance' by no means implies that we expect to find an institution that will meet little resistance from the stakeholders—the relative nature of the phrase should not be lost sight of. For example suppose that the level of discontent with the *de jure* power is such that to thwart an attempt by the citizens to secure a change in power structure, the existing *de jure* power, must do one of the two: curb rent-seeking or reform the educational system to adequately groom the populace. Which one would the rulers choose; naturally the latter. Why? The former would hurt them now while the latter would hurt them, at best, a generation-hence. Path dependence being an essential feature of institutions, these are difficult to change. Given the difficulty, the cost of change is high. Only an all-encompassing and long-lasting impact would justify the costs involved. Hence the condition (iii) prescribed above.

The Paper is organised as follows: In Section 2 we review the works of Douglas North, Darron Acemoglu and Dani Rodrik. Section 3 examines the comparative experiences of institutional change (or non-change) of 17th century Britain and Netherlands versus France and Spain, 19th century Britain and Germany versus Austria

[6]Sindh and Punjab are the two provinces of Pakistan.

[7]Only newspaper reports are available as reference on the subject. The events are too recent to have found mention in journal papers and other reports.

and Russia, 18th and 19th century North America versus South America, and Korea and Taiwan versus Congo in the 20th century. Section 4 contains a 'brief' on enlightenment era, the objective being to show to what extent the institutional evolution, has benefited from the thoughts of enlightenment philosophers. Based on the lessons drawn from the theories discussed in Section 2, the historical experiences discussed in Section 3, and the thoughts of enlightenment philosophers reviewed in Section 4, the discussion in Section 5 is devoted to the primary objective of the paper—where to begin the process of institutional reform? Section 6 concludes the paper.

2. THEORIES OF INSTITUTIONAL CHANGE

1. Douglas North[8]

The key elements of North's theory of institutional change are: (i) The process of development of human perceptions and beliefs; (ii) those whose beliefs matter; (iii) intentionality and comprehension of the issue by those whose beliefs matter; and (iv) path dependence exhibited by the institutions. These are only the building blocks in the process of institutional change. The element, in North's framework, that triggers the change in institutions is the change in bargaining strengths of the parties to the contract.

2.1. Process of Institutional Change

To understand the process of institutional change let us begin from the state of institutional equilibrium. Institutions being rules of the game reflect a contract between two parties. The institutional equilibrium prevails when parties to the contract do not want to alter the terms of the contract [North 1990)]. The state of institutional equilibrium does not essentially imply that the parties are satisfied with the terms of the contract, rather, it only reflects that given the costs and benefits involved in altering the terms of the contract, the parties do not consider it worthwhile to devote resources towards changing the terms. To illustrate this, assume that the majority of the populace of a country feels that the *de jure* power has persistently failed to enforce the terms of the contract, in letter and spirit, i.e., it has failed to implement the constitution. Given this failure, the public wants a change in the *de jure* power. Further, assume that the desired institutional change is possible only if the masses rise against those who currently wield the *de jure* power. This will require some sacrifices on the part of the masses and may entail retaliation as well from the *de jure* power. Sacrifices involve putting in one's time, effort and money. The retaliation may take the form of arrests, loss of government job, and in extreme cases, getting injured or even losing one's life in a violent protest. Given this scenario, the citizens will devote resources towards institutional change only if the perceived benefits from the change are greater than the costs involved [North (1990)]. For example, if the citizens subscribe to the view that a change in *de jure* power will not affect their lives or, at best, the effect would be cosmetic, then they will not strive for a change in *de jure* power—masses in Pakistan, who, despite being dissatisfied with the performance of the wielders of *de jure* power have not actively worked for change, seem to subscribe to this view.

[8]For exposition of North's theory of institutional change, we draw heavily upon North (1990, 2005).

A noteworthy element of North's framework is that it is only the perception of costs and benefits of bringing about an institutional change that matter— the agents' decision does not depend on that,which can be observed, though only ex post. As such, the costs and benefits have to be assessed.. This implies that agents can be lured to undertake efforts towards institutional change by exaggerating the expected benefits and underplaying some of the expected costs. The exaggeration of costs on the other hand would discourage the agents to work for a change.

So far we have determined that institutional change is a function of change in human perceptions that ultimately translate into beliefs. Therefore to manage an institutional change by design, it is the beliefs system that should be influenced in a manner which is conducive to achieve the desired institutional change. The crucial question here is if it is possible to influence the belief system of a people, and if yes, to what extent and how quickly. This brings us to the second key element of North's theory of institutional change: the process of belief formation.

2.1.1. *Formation of Perceptions and Beliefs*

North argues that "institutions impose constraints on human behaviour", therefore, a theory of institutional change will focus on human behaviour. North (2005) rightly delves deep into psychology to understand the process of belief formation. He concludes that human perceptions transform into beliefs, but perceptions themselves depend upon learning. North draws upon the work of a number of psychologists to understand the learning process. One view is that the learning process is guided by epigenetic rules—the development of an organism under the joint influence of heredity and experience. However the exact composition of genetic predisposition and experience remains a moot point. A similar view is that three sources, *viz.* genetics, cultural heritage and environment contribute to learning. The role of these sources in the process of learning is discussed below:

The genetic predisposition of an individual is composed of what North (2005) calls the artifactual structure (i.e. foundation) which is transmitted from generation to generation. North views the informal norms to be the most important carrier of this artifactual structure, though the structure comprises formal rules as well. He suggests that as changes occur in the human environment, these are gradually assimilated into the socio-cultural-linguistic inheritance and are embodied in the foundation.

According to Hayek (1960), cultural evolution, the second source in North's process of learning, consists of intergenerational transfer of knowledge, values, and attitudes etc., that have accumulated through the Darwinian process of evolution. Thus a society's culture incorporates the distilled experience of the past, more than what a single person can accumulate in his life time. Given the contribution of past knowledge, values and attitudes to the prevailing culture, a cultural change would be very difficult to bring about. Culture can be manipulated by design only to the extent of what the present day knowledge and experience can contribute to it. A certain fractional change in culture will occur in a generation's time depending upon the kind and quantity of knowledge that the society chooses to gain and the experiences that it has to pass through today, or by the act of others or by the will of nature. The process of cultural change is therefore, without doubt, highly incremental.

As to the contribution of human environment, the third source of learning, North again prescribes a slow evolutionary process. He says that "if the mind has been programmed by millions of years of hunter/gatherer tradition then the flexibility to adjust to a very different modern world may be very limited, as implied by evolutionary psychologist. The reason why change in environment is a slow evolutionary process is that millions of years of hunter/gatherer tradition cannot be altered by one-off experience—a steady stream of experiences is required to affect the change". However given John Locke's view on empiricism (http://www.wsu.edu:8001/~dee/ENLIGHT/), the environment can be influenced through education or, to speak more broadly, by creating the desired kind of awareness, even if Locke's stipulation about human mind being *tabula rasa* (i.e. erased board) at birth does not hold true.

Thus, institutional change being a function of change in beliefs, in order to design a conscious institutional change, we shall have to influence what a person learns. Therefore education is at the heart of the matter. No wonder that the countries that boast of good institutions today have been placing emphasis on education for long. For example, in the United States over 40 percent of the school-age population had been enrolled in schools and nearly 90 percent of the white adult males were literate by around 1850. Similarly schooling was also widespread in Canada by early nineteenth century [Engerman and Sokoloff (2005)]. The influence of education on institutional change is discussed more comprehensively later on.

2.1.2. *Dominant Beliefs*

North (2005) emphasises time and again that institutions depend upon beliefs or the subjective mental constructs that the agents possess. He asks upon whose beliefs the choice of institutions is incumbent, and answer himself, that it is the dominant beliefs, the beliefs of those who are in a position to enact institutional change, that matter. North's view that it is the 'dominant beliefs' that matter, implicitly builds upon his own earlier view [North (1990)] that the change in relative prices alters the bargaining strength of the parties to the contract. The party enjoying greater bargaining power attempts to alter the contract. This is to say that the beliefs of the dominant players matter.

2.1.3. *Intentionality and Comprehension of the Dominant Players*

North (2005) argues that it is not just the dominant beliefs that matter but the intentionality, and comprehension of the issue, of the dominant players, i.e., the mental construct of the players also matters. He goes on to suggest that the world economic growth has remained sporadic throughout history because either the players' move was never intended to maximise social welfare or the flawed comprehension of the issue has caused the results to deviate from intentions (North, 2005).The rise and fall of the socialist Soviet Union is a case in point where perhaps the intention were correct but the dominant players failed to comprehend the issue in its totality. The case of intentionality can be seen in Pakistan's domestic environment. Laws have been enacted in the recent past to grant independence to SBP. However the tenure of its governor has been fixed at three years that is renewable for another term of three years. The point to note here is that the tenure of the government is five years. How can a governor who must seek renewal of tenure for another term from an incumbent government show independence in policy

making? Another case in point is the ongoing debate over whether or not the Chief Justice of Supreme Court, deposed by former military dictator, be restored.[9]

2.1.4. *Path Dependence*

The most important element in North's theory of institutional change is path dependent which is the resemblance of today's institutions to yesterday's. To reiterate, it's the beliefs system that decides the kind of institutions that a society will choose. Given the painfully slow learning process, described above, that influences the belief system, it is only natural to expect that institutions will exhibit, what the literature on institutional economics terms path dependence—resemblance to the institutions of the yesteryears. There are three important sources of path dependence; (i) increasing returns to scale; (ii) informal rules; and (iii) the organisation's that owe their existence to existing institutional arrangement.

North (1990) argues that institutions exhibit increasing returns to scale which makes the change in institutions difficult. He explains that three sources make the returns to institutions increasing in nature: (i) Initial set up costs, (ii) coordination effects, and (iii) reduction in uncertainty. North explains that when institutions are created *de novo*, organisations incur costs to learn and adapt their behaviour to the existing institutional framework. Overtime, the organisations learn and evolve to take advantage of the opportunity set offered by the existing institutional framework. This learning and adaptation, cuts down the unit cost of operating within the current institutional framework. Secondly, there are positive coordination effects, directly through contracts with other organisations, and indirectly through investment in complimentary activities by the State. Finally, contracting more and more under specific institutional framework reduces the uncertainty about the permanence of the rule. This makes the parties to the contract more comfortable with the existing institutional matrix. These three elements jointly make the returns to institutions increasing in nature. The increasing returns to institutions in turn create organisations and interest groups that enjoy a stake in maintaining the existing institutional matrix because the change would affect them adversely.

Besides the increasing returns, another source of path dependence is the informal norms, an important component of the institutional matrix. While the formal rules can be changed with a stroke of the pen, informal rules are more difficult to change. Pejovich (2006) eloquently lays down the formation process of informal rules. He argues that as human beings interact to survive, some interactions are repeated over and over again, not the least because the public understands their utility but simply because these have worked. Eventually the interactions that pass the test of time are institutionalised into taboos, traditions, moral values, beliefs etc. To explain the process of change in informal institutions, Pejovich argues that when a person or a community develops a new idea, this enlarges the opportunity set of human interaction. If the new exchange opportunities call for a behaviour which is not in conformity with the established ethos, the community would consider the behaviour of those exploiting the opportunities as sub marginal. and therefore, the community may react with sanctions like ostracism etc. However, if the

[9]The Chief Justice was deposed for not yielding to the wishes of the former dictator and his restoration is now being popularly considered as a symbol of allowing the judiciary to function independently.

returns are high enough to sustain a large number of repeated interaction (between more and more groups) relative to costs (including sanctions) the success of new activities would force adjustment in the set of informal institutions. Such adjustment may include the addition of new norms to the set of informal institutions, change in an old norm or simply ignoring an otherwise established norm. It is the painfully slow process of change in informal rules that makes the overall institutions path dependent. The process of formation of informal rules laid down by Pejovich confirms the path dependence argued by North and gradualism in institutional evolution favoured by Rodrick (2006).

Finally, institutions may exhibit path dependence because some of the organisations born out of existing institutional matrix (the combination of formal rules, informal constraints and enforcement characteristics of the two) may owe their very existence to that specific institutional arrangement; and a drastic change in such an institutional arrangement may sound a sudden-death for the organisation. Therefore existing organisations will attempt to block institutional change.

To sum up, the increasing returns to institutions, preferences of the organisation born out of current institutional matrix and the informal rules together conspire to make the change in institutions highly incremental and the institutions path-dependant. North cites various examples to support his views on path dependence e.g., the US constitution, Common Law and the North West Ordinance in the US. In Pakistan we refer to a number of institutions e.g., Land titling [Kardar (2007)] and Civil Service [Haque and Khawaja (2007)] as legacy of our colonial past.

2.1.5. *Lessons from Douglas North*

The key lesson from North is that path dependence makes it difficult for institutions to change and that any long lasting change must be incremental. North's emphasis upon institutions being a function of belief system provides room for designing an institutional change by influencing the belief system. His view that beliefs and the dominant players'ability to comprehend an issue matter, calls for influencing their beliefs and improving their comprehension. However, since it is difficult to predict who would be the dominant players a generation hence, a long-lasting institutional change would call for influencing the beliefs and improving the abilities of all and sundry to correctly comprehend an issue at hand. More importantly, influencing the beliefs of all, rather than a few, is required to secure homogeneity in the population. This homogeneity would in turn facilitate agreement on a common set of institutional reforms [Egerman and Sokoloff (2005)]. How is homogeneity in beliefs to be secured, is the subject matter of Section 5.

2.2. Darron Acemoglu

Different set of institutions may induce a different kind of resource allocation; some institutions would allow competitive forces to play their role while others would promote rent seeking. So for individuals to prefer one set of institutions over another is but natural. Acemoglu, *et al.* (2005a) argues that given the preference of different individuals over different set of institutions, the group with the greater political power is likely to secure the institutions of its choice. (This is similar to North's viewpoint that belief of the dominant players matter or that the bargaining strengths of the players matter).

Acemoglu, *et al*. (2005a) argues that an ideal course for the groups with conflicting interests would be to agree over the set of institutions that maximise aggregate growth and then use their political power to determine the distribution of gains. In practice, groups with conflicting interests do not follow this course. The reason is that there are commitment problems inherent in the use of political power i.e., a monarch or a dictator cannot credibly commit against use of power to his advantage. A monarch or a dictator enjoying absolute power may promise today to respect property rights but in future nothing would restrain him to renege on his promise. Citing the case of UK, Acemoglu, *et al.* (2005a) states " institutional changes in England as a result of Glorious revolution, of 1688 were not simply conceded by the Stuart kings. James II had to be deposed for the changes to take place".

Acemoglu, *et al.* (2005a) suggests that the distribution of political power in society is endogenous. It is the political institutions, for example, monarchy or democracy, that determine who holds the *de jure* power. However, some individuals or groups, though not allocated power by political institutions, may still enjoy *de facto* power because of their ability to revolt, hold strikes (by trade bodies), hold protests (peaceful or violent), use military power, clergy power or mercenaries etc., to impose their will upon the society. The *de facto* power of a group largely depends upon the economic resources that it enjoys, which determines its ability to use force and influence the *de jure* power. It is often the *de facto* power that forces a change in *de jure* power. Acemoglu, *et al.* (2005a) asks why the *de facto* power does not settle for getting institutions of its choice from the *de jure* power but insists on changing the *de jure* power itself. Drawing upon the works of Lichbach (1995), Tarrow (1991) and Ross and Gurr (1989), the authors answer that *de facto* power is often transitory in nature. Not being sure that its power will continue unabated, it wants to transform the *de jure* power in a manner that it will continue to work in conformity with the beliefs of the *de facto* power even after it has ceased to exist.

2.2.1. *Lesson from Acemoglu*

The lesson then from Acemoglu is that change depends upon the relative bargaining strengths of the *de jure* and *de facto* powers. Suppose that the bargaining strength of *de jure* power is greater and the existing institutions are poorer, then in this case the institutions will remain poor. However if the bargaining strength of the *de facto* power is greater and the existing institutions are poorer, the *de facto* power then will force the *de jure* power to provide institutions of their choice. The *de jure* power will either yield in favour of institutional change or will be replaced, no matter what modus operandi is adopted by the people who share the beliefs of the *de facto* power. The bottom line then is that institutional change will have to wait for the emergence of *de facto* power that can force the *de jure* power to yield. The question then is, can the emergence of the requisite *de facto* power be designed. We take up this question in Section 5.

2.3. Dani Rodrick

Rodrick illustrates the process of institutional development by equating institutions with technology that transforms primary endowments of a society into a larger bundle of

outputs. He explains that the requisite technology could be either general purpose or highly specific to local needs. He further argues that if the technology (institution) is general purpose in nature and is easily available on the world market, then it can be adopted by simply importing a blueprint from the developed countries (or any country whose institutions are considered good). However, if the technology is specific to local conditions, which is more often the case, then technology would evolve by trial and error. This suggests that a society is able to build institutions, only gradually. Rodrick argues that one reason why gradualism prevails over the blue print approach is that much of the technology is tacit and therefore not available in black and white. This makes the blue print highly incomplete and of little use to the importers. However, Rodrick feels that imported blue prints can prove useful for some narrowly defined technical issues, but large scale institutional development, by and large, calls for discovering local needs and developing rules that serve such needs.

2.3.1. *Lesson from Dani Rodrick*

Rodrik's emphasis upon gradualism is akin to North's path dependence. Secondly, Rodrik's view, that imported blue prints have limited usefulness and that for large scale institutional change to happen, local needs must first be discovered, tells us that foreign consultants charged with suggesting reform of local institutions may not be ideally suited to do the task.

3. INSTITUTIONAL CHANGE: HISTORICAL EXPERIENCES[10]

3.1. 17th Century Britain and Netherlands versus Spain and France

The institutions in Britain and Netherlands on the one hand, and Spain and France on the other hand took divergent paths in late 17th century—while Britain and Netherlands moved towards institutions that promoted commercial activity, Spain and France moved towards extractive institutions. Acemoglu, *et al.* (2005a) argues that whether or not the institutional change occurred depended upon how powerful the groups demanding institutional change were?

The rise of the constitutional monarchy in Europe is instructive. The following scene prevailed in the early sixteenth century UK. From 1603 onwards, England was ruled by Stuarts who continuously had revenue problems. To generate revenue the Crown sold lands, extended monopoly rights, seized private property and defaulted on loan repayments. The Parliament, though in existence, enjoyed little say in affairs of the country and the Crown could dissolve the assembly even upon minor differences with the Parliament. Supreme judicial power rested with the Star Chamber, which held legislative powers too, and primarily represented the Crown's interests. This was Britain prior to the Civil War of 1646. The Civil War and then the Glorious Revolution of 1688 led to sweeping changes in institutions; the Star Chamber was abolished, restrictions were placed on monopolies, cases involving property were to be tried under Common Law and the Parliament was to have regular standings. The Parliament gained a central role in financial matters with exclusive powers to raise taxes. This also gave more security to

[10]For this section we draw upon Acemoglu, Lecture notes.

property rights of all and sundry, especially to the rights of those with financial and commercial interest. In sum, UK was transformed into a parliamentary monarchy with powers of the Crown significantly trimmed. The question that begs the answer is, how could the commercial interest become so strong in Britain. Acemoglu, *et al.* (2005a) argues that the Lords had gained a stronger position during the 14th and 15th century and were able to force the creation of the Parliament, to put limits to the authority of the Crown (but certainly not to protect the commercial interests). The Lords forced the Crown to 'live on his own' with strict restrictions on expanding his revenues. Perhaps these restrictions later on enabled the commercial interests to become stronger and demand more rights.

The 16th century Netherlands was the most important commercial area of Europe. The powerful groups in the country were for encouragement to commercial activity and enforcement of property rights. Netherlands, being under Spanish control then, provided substantial revenue to the Spanish Crown. Economic development in Netherlands threatened the interest of Spain. The towns in Netherlands, under the leadership of William of Orange, rebelled against Spain, leading to Dutch independence in the 16th century. What is important is the fact that the merchants of Netherlands wholeheartedly financed the rebellion.

An explanation put forth by Acemoglu, Johnson, and Robinson (2005b) for the transformation of Britain and Netherlands is that in the 16th century the opportunities generated by 'Atlantic trade' had increased the wealth and therefore the political power of the commercial interests. This enabled them to demand and obtain more rights.

This brings us to the question as to why, out of the countries involved in 'Atlantic trade' only the commercial interests in Britain and Netherlands were able to enrich themselves from the opportunities generated by the trade, while the commercial interests in France and Spain could not exploit such opportunities. Acemoglu, *et al.* (2005b) provides the answer. The authors explain that in England and Netherlands the trade was mostly carried out by individuals and partnerships, while in France and Spain, trade was primarily under the control of the Crown. The differences in organisation of trade in turn reflected the different political institutions of these countries. Grant of trade monopolies used to be an important source of fiscal revenues for the Crown; the more powerful monarchs could increase their revenues by granting trade monopolies or by directly controlling trade while for weaker monarchs this was a luxury they could not afford. At the beginning of the fifteenth century, the Crown was much stronger in France and Spain, than in Britain and Netherlands, and this was the most important factor in the difference in organisation of trade in these countries. Consequently, in England and Netherlands, and not in France and Spain, a new class of merchants arose with interests directly opposed to the interests of the Crown. The new class of merchants later on played an important role, as described earlier, in subsequent political changes.

3.1.2. *Lessons from the Institutional Evolution in Britain and Netherlands versus Institutional Evolution in Spain and France*

Two lessons are apparent from the historical comparison of Britain and Netherlands with France and Spain. One, strong commercial interests hold the potential to emerge as *de facto* power that may successfully challenge the *de jure* power if the

latter fails to provide the institutions that commercial interests require. We learn from the European history that more often than not, the *de facto* power that emerged in the form of commercial interest had to force a change in the *de jure* power to acquire the institutions of its choice.

The second lesson is that the fiscal constraints may force the authorities to strike a bargain with the citizens with the effect that the public provides for the fiscal needs of the government which in turn provides good institutions, the institutions that the public prefers. This incidentally is the thesis of Moore (2002) who argues that nations that enjoy recourse to unearned income (i.e. income from natural resources and foreign aid) typically have to put up with poor institutions while the countries that rely mostly on earned income (from taxation) have relatively good institutions. To account for the difference, Moore argues that to induce the citizens to pay taxes the authorities have to provide them with good institutions and the citizens view taxes as the cost of such institutions. However, since the rulers of the nations with unearned income do not have to lean on citizens for revenues, therefore, they are not constrained to provide good institutions.

3.2. 19th Century Britain and Germany vs. Austria-Hungary and Russia

During the 19th century, Britain and Germany went through rapid industrialisation in contrast to the industrialisation process in Austria-Hungary and Russia. To account for the difference, Acemoglu (Lecture Notes, p. 200) argues that the elites in Britain had relatively more to gain from industrialisation than those in Austria-Hungary and Russia. Besides, while the landed aristocracy in Britain enjoyed relatively secure position and was less threatened by the process of industrialisation, the aristocracy in Austria-Hungary and Russia stood to lose more rents if they lost political power.

The lesson from the above is all too familiar—the rent-seekers will thwart institutional change with success depending upon the bargaining strength that they enjoy.

3.3. North vs. South America in the 18th and 19th Century

In the 18th century, some Caribbean and Latin American countries were richer than North America. However, while North America industrialised rapidly in the 19th century, the Caribbean Islands and much of South America stagnated during the period. Acemoglu (lecture notes) argues that the powerful groups in North America generally favoured policies that encouraged commercial interests and industrialisation, while in the Caribbean and South America the groups in power opposed industrialisation.

To account for the difference in institutional and economic development of North and South America, Engerman and Sokoloff (2005) argue that it is the initial conditions or endowments of a country that play a fundamental role in determining the long run paths of development of a country. The basic import of their thesis is that the colonies in the Americas that began with extreme inequality and population heterogeneity, developed institutions that restricted access to economic opportunities and contributed to lower rates of public investment in schools and infrastructure, thus beginning a vicious circle of underdevelopment. The authors argue that the climate and the soil of the colonies like Brazil and the Caribbean were suitable for growing cash crops like sugarcane. These crops enjoyed large scale economies and were most efficiently grown using slave labour.

The colonial masters in these countries imported slave labour from the international market for slaves and thus the population of these countries came to be dominated by slave labour. This led to highly unequal distribution of wealth, human capital and political power. South America was attractive for European colonisers because of the potential huge return that use of slave labour afforded. On the other hand, the areas that now constitute North America and Canada, were not very attractive to the Europeans when they began to colonise the New World (Americas). This was because the climate and soil of the areas was suitable only for the production of grains and livestock that involved small scale economies and used few slaves. When the opportunities in the South were close to exhaustion, the Europeans began to colonise North America and Canada. Since the land was abundant and labour scanty, the colonisers offered various incentives to encourage the migration of European citizens to the United States and Canada. Engerman and Sokoloff identify three historical institutions that were designed to attract European settlers to the areas. These included adult male franchise, schooling and ownership of land. Accordingly much greater percentage of the rural population in United States and Canada owned the land that they cultivated and landholdings were typically smaller. Similarly a far greater percentage of the population enjoyed access to schooling in the United States and Canada than in Latin America. Thus, argue the authors, the institutions that promote growth were necessitated by the homogeneous character of the population in the United States and Canada.

To further argue for belief-homogeneity as a facilitator of institutional change, we refer to Collier (2007). The author stresses that even autocracies are less stable in ethnically diverse societies. The reason is that, in ethnically diverse societies only one of the many groups will be aligned to the autocrat. Given the narrow support base of the autocrat, his support group can engage in rent-seeking or this may induce the autocrat to dole out favours to the opposition. All this constrains institutional change.

The comparison reveals that initial endowments of a country or region influence institutional evolution. The societies that begin with extreme inequality and population heterogeneity tend to have institutions that restrict access to economic opportunities, while the societies with relative equality and population homogeneity are more likely to facilitate the evolution of growth enhancing institutions.

The comparison of North and South America also highlights the primacy of economic interests and also, as to who enjoys power—those with interest in rent-seeking or those with interest in secure property rights. If the *de jure* power is with the aristocracy, it will not establish good institutions on its own. The good institutions must be forced from the *de jure* power by some group deriving *de facto* power from one or the other source. The analysis of the consequences of colonisation of North America and South America also confirms Olson's (2000) 'Roving and Stationary Bandits' thesis: when a bandit (the ruler) is out there for a short time, he attempts to extract all that he can (and therefore establishes institutions with the extraction objective in mind); whereas if the bandit is in there to settle down, he extracts only part of the income of his subjects—the intact earning capacity of the subjects allows the stationary bandit a steady stream of extraction, now as well as in the future.

3.4. Korea and Taiwan vs. Congo (Zaire)

In South Korea and Taiwan the leaders pursued developmental policies while General Mobutu made Congo the most kleptocratic regime. Acemoglu explains the reasons for the difference in choice of the rulers. He believes that the explanation lies in 'constraints'—while Mobutu faced little constraints either from its neighbours or from the existing institutions, South Korea and Taiwan faced severe threats of communism via a revolution or invasion.

It was the threat of communist revolution from outside as well as inside that forced General Park Chung Hee in South Korea and *Kuomintang* regime, led by Chiang Kai-shek, in Taiwan to pursue developmental policies. Acemoglu believes that the primary motivation for investment in education and the institution of land reforms in Korea was the containment of unrest. The *Kuomintang* regime, the rulers of China before the revolution, despite having a history of being corrupt, predatory and rent seekers, were also forced to pursue the industrialisation path to avert the threat of communism in their new shelter—Taiwan.

The situation in Congo was very different from Taiwan. In Congo, General Mobutu, the then Army chief, took over power shortly after independence. Mobutu dismantled the judiciary, removed the already weak institutional constraint, bought political support using state resources and proceeded to accumulate wealth. There were effectively no property rights and the GDP of Congo declined at the rate of 2 percent a year. How could Mobutu get away with this? To ward off any threat to his rule, Mobutu bought off political support using money provided by US, IMF and World Bank as developmental aid which, in fact, were payments to Mobutu to keep Congo non-communist.

The lesson from the experience of Korea and Taiwan is that the threat of a revolution may force the authorities to reform. Especially, the threat of an ideological change may induce the authorities to practise the ideology in vogue with more vigour thereby reforming the institutions as a consequence. While the lesson from the experience of Congo is that if the stronger world powers have common interest with the rent seekers, it would constrain institutional development. Put differently, this may also imply that if the world powers have some strategic interests in a country, then it might be easier for them to deal with a single person rather than a democratic regime. That single person, drawing legitimacy from foreign powers rather than the citizens of the country, will not be too bothered to facilitate growth-enhancing institutional change.

4. ENLIGHTENMENT ERA

The 17th century is generally referred to as the European enlightenment era. In the context of institution-building the single most important contribution of the enlightenment thought is its successful attack on absolute monarchy. The thoughts of the enlightenment philosophers seem to have influenced institutional change in a number of countries, especially the framing of the constitution in the US seems to have benefited from the teachings of enlightenment philosophers like Hobbes, Montesquieu and Locke. A brief on the thoughts of the enlightenment philosophers is presented in Box 1.

Box 1

The Enlightenment Era[1]

Hobbes (1588-1679) was probably the first to argue that monarchs ruled not by the consent of Heaven, but by the consent of the people. Hobbes held that all human beings, being selfish will fight for resources. Therefore to protect individuals from each other, humanity at some early point agreed to a 'social contract' that specified the rules, individuals would live by. Hobbes reasoned that as human beings cannot live by their agreements, therefore authority was created to enforce the terms of the 'social contract'. By authority Hobbes meant 'monarchy'. For Hobbes, 'humanity is better off living under the circumscribed freedoms of a monarchy rather than the violent anarchy of a completely equal and free life'. However, later on, in a twist of fate, his methods of inquiry as well as his basic assumptions became the basis, for arguments against absolute monarchy. Marquis de Montesquieu (1688-1755), a judicial official as well as a titled nobleman, was amongst the earliest critics of absolute monarchy. Montesquieu's classic, *The Spirit of Laws* (1748) recognises geographic influences on political systems, advocates checks and balances in government and defends liberty against tyranny in an uncompromising manner. Baruch Spinoza (1632-1677) held the view that human beings' inability to preserve themselves forced them to form societies. In doing so, the individuals surrendered their 'individual right' to 'common right'—a notion very similar to Hobbes' 'social contract'. Spinoza held that an inverse relationship existed between the power of an individual and the power of the State. Given this view Spinoza argues for democracy to create a balance of power between the state and the 'individual'. John Locke (1632-1704) views human mind as completely empirical, rather, he argues that the only knowledge is empirical knowledge. He also held that human mind at birth is a *tabula rasa* (erased board). His empiricism coupled with the notion of *tabula rasa* meant that moral as well intellectual outcomes in human development can be altered to societal advantage by changing the environment through education. Locke proposed an extension of education to every member of society. His view of education dominates the western culture even to this day. Voltaire (1694-1778) popularised Newtonian science, fought for freedom of the press, and actively crusaded against the Church. In his endeavours he turned out hundreds of plays, pamphlets, essays and novels. He wrote around 10,000 letters to different people in advocacy of his convictions. Even in his own time, he enjoyed the reputation of a legend, among kings as well as literate commoners.

5. FROM WHERE TO BEGIN?

The discussion in the foregoing sections was meant to draw lessons for our main task, from where to begin the process of institutional reform? Before we present our own arguments for Pakistan, it will prove useful to briefly recap the lessons that we have learnt from historical experiences, of different countries, discussed in Section 3.

Countries that experienced institutional change versus countries that (with similar circumstances) that did not experience institutional change	**Lessons from Historical Experiences**
17th century Britain and Netherlands versus Spain and France	Fiscal constraints and then commercial interests forced the crown in UK to yield good institutions. Similarly in Netherlands commercial interests emerged as the *de facto* power that forced the change upon the rulers.
19th century Britain and Germany versus Austria-Hungary and Russia	Rent-seekers will thwart institutional change, with success depending upon the bargaining strength that they enjoy.
18th and 19th century North America versus South America	1. Institutions are a function of initial endowments of a nation. Extreme initial inequality and population heterogeneity leads to development of institutions that restrict opportunities for the poor and thus constrain growth. 2. Economic interests enjoy primacy, if the *de jure* power is with the élites; it will not reform on its own. Some *de facto* power must emerge to force change onto *de jure* power
Korea and Taiwan versus Congo (Zaire)	1. Lesson from the experience of Korea and Taiwan: the threat of a revolution may force the authorities to reform. 2. Lesson from the experience of Congo: If the world powers have some strategic interests in a country then it would be easier for them to buy-off/install some rent-seeking rulers in the country concerned rather than a democratic set up. This may constrain institutional development in the country concerned.

5. 1. Can Commercial Interests in Pakistan Force the *Dejure* Power to Change Institutions for the Better?

If the institutions are poor and the *de jure* power is not willing to reform institutions on its own or has been held hostage by some *de facto* power that stands to gain from maintaining the status quo, then some other *de facto* power must emerge that can force change upon the incumbent *de jure* power. This is what we learned from Acemoglu, *et al.* (2005a). The experience of institutional change in 17th century UK and the Netherlands as well as the significant difference between the institutional evolution of North and South America in the 18th and 19th century corroborates this stance.

How will the *de facto* power that may force the *de jure* power to enact institutional change emerge? This is the issue. Can the commercial interests, in Pakistan, emerge as the said *de facto* power? (As has happened in the 17th century UK). This is unlikely because a rent-seeking culture has characterised the economy through much of its history. For example, in the 1950s, the trade policy relying on high tariffs and quantitative restrictions conferred windfall gains on a small group of import licensees [Hussain (1999)], while in the 1960s, the import substituting industrialisation and the export bonus scheme allowed the exporters to amass wealth at the expense of other segments of the society.[11] In the 1980s and 1990s, the bureaucratic and the political élite, and those who could afford to buy-off bank officials, benefited from bank loans that in essence were mostly not repaid. Given that large commercial interests in Pakistan, have prospered by way of rent seeking (and are used to securing favours from the *de jure* power), it is difficult for such interests to stand up against the *de jure* power to reform institutions. After all one does not bite one's own hand.

5.2. Can Fiscal Constraints Force the *de jure* Power to Strike a Bargain with the Citizens for Taxation in Exchange for Good Institutions?

Pakistan has faced fiscal constraints in the past and the situation is no different today. Will the fiscal constraints force the *de jure* power, as these had forced the *de jure* powers of UK and Netherlands, in the 17th century, to strike an implicit bargain with the citizens—taxation revenues in exchange for good institutions? Again this is unlikely. The times when the fiscal constraints could force the *de jure* power to strike a bargain with the citizens was when access to funds was neither available through borrowing from the country's central bank (money creation) nor through foreign aid. Now the instrument of money creation has enabled the governments to delay the day of reckoning till the people burdened with inflation decide to revolt against the government (which does not happen too often). Second, Pakistan because of its geo-strategic position, had enjoyed access to sufficient foreign aid for the better part of its history. Given the present geo-political environment, the trend is likely to continue—foreign aid will alleviate the fiscal constraint and the *de jure* power will not be too pushed for taxation revenues. The implicit bargain i.e., taxation revenue in exchange for good institutions will not materialise.

5.3. Strategic Interests of Foreign Powers: A Constraint to Institutional Development

Will the Congo-like situation prevail in Pakistan, that is, will the strategic interests of foreign powers constrain institutional development in Pakistan? In fact, a Congo- like situation has prevailed in Pakistan for the better part of its history. It goes without saying that foreign powers, especially the United States, do have strategic interests in Pakistan and the population of Pakistan in general does not feel pressed to pursue the strategic interests of foreign powers. Therefore it is in the interest of the foreign powers to buy off and even install an autocrat or at best a sham democracy, and ensure continuity of such rule. During its history of 61 years, Pakistan has witnessed four military regimes. Three

[11]For an exhaustive account of rent-seeking reading through the host of books written on Pakistan economy is essential. These include Zaidi (2005), Amjad (1982), Hussain (1999).

of the four military rulers ruled for almost a decade each, with implicit or explicit support of the United States. US' support to the military regimes in Pakistan, despite its avowed criticism of dictatorship, bears testimony to the 'buy-off and rule' strategy. The regimes that derive legitimacy from foreign powers rather than from the natives is not pushed to pursue institutional reforms, especially when it means shooting one's own self in the foot, e.g., judicial independence.

5.4. Will a Revolution Bring about Institutional Change in Pakistan?

Revolutions are not spontaneous. All revolutions have their thinkers whose thoughts ignite the revolutions [Masood (1991)]. The monarchy in Europe did not collapse overnight. Around the time of the Glorious Revolution (1688) in UK and much before the French revolution, the enlightenment philosophers, like Montesquie, Spinoza and Voltaire had launched a strong attack against monarchy with their pen and voice. The thoughts of people like Allama Shariati and Ayatollah Mutahiri had provided the fodder for the Iranian revolution of 1979 [Masood (1991)]. To stage a revolution that ends up in long-lasting institutional change rather than chaos, not only the society should have developed sufficient apathy with the present rule but it should also have at least some idea of how to proceed after the revolution. Above all, if the human capital required for carrying out the institutional change is not available, even a revolution may fizzle-out or turn into chaos. To conclude, to stage a successful revolution the belief system of the society must be sufficiently influenced so that the society can perceive what wrong is being afflicted upon it and how it can remedy the situation. The question is, how can the beliefs be influenced?

We have shown that fiscal constraints and commercial interests may not prove very effective in securing an institutional change in Pakistan. Besides, given the strategic interest of foreign powers in Pakistan, the possibility of foreign powers thwarting an institutional change cannot be ruled out, if the change is likely to compromise their interests. We have also discussed that given the obtaining intellectual thought process and the state of the human capital, the society in Pakistan may not be ready as yet to stage a revolution that ends up in a meaningful institutional change. How to go about institutional change then? The option that remains is the gradualist approach, strongly advocated by Douglas North and implicitly evident in the works of Darron Acemoglu and Dani Rodrik, to name a few.

5.5. The Gradual Approach

One of the key elements of North's theory of institutional change is path dependence exhibited by institutions. This implies that a quick-fix solution to poor institutions is not possible. We want to re-emphasise here that revolutions that appear to have reformed institutions with a big-bang, were rooted in the thought process that in some cases had begun almost a century before the revolution actually materialised, for example the influence of 17th century enlightenment thought upon the French revolution and the framing of the US constitution. Other key elements of North's theory that (i) institutions are influenced by beliefs, (ii) that dominant beliefs matter, (iii) the role of intentionality, and (iv) comprehension of the dominant players, provide hope that institutional change can be designed, but only with the process of change extending over

sufficient length of time. We consider below, whether North's theory of institutional change can be put to practice by way of reform of the educational system in Pakistan.

Institutions that get established, according to North, are a function of beliefs of the society. To design an institutional change, the task then is to influence the societal beliefs. The belief formation, we have learned is a function of genetics, culture and human environment. To recap, beliefs can be influenced only to the extent that today's learning and experiences influence the culture and human environment. Thus the beliefs that are conducive to desired institutional change can be developed, by providing to the citizens, the education and human environment which is conducive to the preferred institutional change.

But it is not just the individual beliefs that matter; rather it is the beliefs of the society that count. This means that in a more homogeneous society the task of securing an institutional change would be relatively less difficult. Here we need to recall the Engerman and Sokoloff (2005) thesis, reviewed in section 3.3, that the homogeneous societies that the US and Canada had facilitated the development of pro-growth institutions in these countries while in South America the presence of heterogeneous societies furthered the development of such institutions that constrained opportunities for the poor and hindered economic growth in consequence. The task then is to forge greater homogeneity in society, which is secured by forging convergence in beliefs amongst the individuals and the various sections of a society.

The question is how to forge belief-convergence? Beliefs, being a function of learning and human environment, the answer lies in providing a uniform learning system and environment for the whole society. How to do that? The answer is: a uniform and universal education system for all during the formative years of human life i.e., childhood and adolescence. To design an institutional change then, the first and foremost requirement is to have a single system of education for all segments of the society, up to a certain minimum level, say till, Grade 12. By a single system, we mean that not only the curricula should be the same, but the environment in schools and colleges should also be more or less similar. Two students reading the same material and sharing the same environment are more likely to have the same beliefs as well. Individuals of a nation, who acquired the same education and have experienced similar environment at schools, are more likely to forge a homogeneous society—a pre-requisite for developing growth - promoting institutions.

Is Pakistan's prevailing educational system capable of facilitating the development of a homogeneous society? To answer this question, we examine below the educational structure in Pakistan.

At the school/college level, Pakistan follows four different regimes that include: (i) the O/A level Cambridge system: the schools and colleges that use this system follow the curricula prescribed by the authority which manages the O/A level system in UK, (ii) the English-medium private and public schools which follow the curricula prescribed by the government, (iii) the *Urdu*-medium government school system, that also follows the syllabi prescribed by the government, but the courses here are taught in the national language—*Urdu*, and (iv) the *madressah* system. The curricula of the *madressah* system are primarily focused on religious education and little effort is made to impart knowledge of secular subjects like science, mathematics and the arts. Besides, the medium of instruction is mostly the national language, *Urdu*. All the state-owned schools, that offer

education at a negligible fee primarily serve the poor and invariably use *urdu* as the medium of instruction. It is note worthy here that higher education (i.e beyond grade 12) is offered mostly in English language which is also the working language in offices, whether in public or private sector.

. Thus the poor, having gone to *Urdu medium*, state-owned schools are at a disadvantage; their education makes them unfit for the job market. Government's education policy-2009 acknowledges that white collar jobs seem to be reserved for the graduates of English medium schools. This, coupled with the fact that the majority still goes to government *Urdu medium* schools, is bound to perpetuate inequality which in turn facilitates the development of institutions that ensure élite dominance and constrains economic opportunities for the poor. It is also obvious that the population which is the product of diverse educational systems, like that of Pakistan, is likely to develop beliefs that stand apart. The society will be heterogeneous, rather than homogeneous required for institutional change. To visualise how heterogeneity may constrain institutional change, assume that all MPs in the national parliament are educated till say grade 14, with the 50 percent of the MPs coming from the Cambridge (O/A level) system and the remaining 50 percent from *madressahs.* Will the majority of MPs in this kind of educated parliament, share views on many issues? It is no coincidence that a more or less similar education for all, up to a certain grade, by and large, is the norm in the developed world that boasts of good institutions. To make our case for common educational system stronger, we again lean on North (2005):

> "The process of learning is unique to each individual but a common institutional/educational structure will result in shared beliefs and perceptions".

Our case for reform of the educational system also finds support in studies like Rajan (2006) and Azfar (2006). Rajan argues that strengthening the institutions like property rights etc. may help jump-start the economy for a while but the lack of endowments, like education, will leave the poor unprepared for reforms. He cautions that in this situation placement of pro-market institutions may fail to do the trick. Azfar (2006) argues that the shared belief system, which a universal educational system shall produce, will help bring about a consensus among the population, about the acceptable and unacceptable behaviour of the rulers and will therefore force-in an honest government.

The hardest to reform amongst the educational systems being practised in Pakistan is the *madressah* system. *Madressahs* are believed to inculcate the so-called orthodox beliefs in pupils, (the perception may or may not be true) and therefore attempts have been made, under foreign pressures, to reform the system. Such attempts have not borne fruit. The reason is that the objective has been to find a quick-fix solution. Unfortunately such a solution does not exist—the clergy that enjoys enough *de facto* power is not willing to yield. To address the issue one has to account for who goes to a *madressah* and why. Is the enrolment there by choice or is forced by circumstances. The *madressahs* in Pakistan, not only impart religious education, free of cost, but also offer food and shelter to the pupils. (The *madressah* system has been termed as the biggest NGO in Pakistan). The *madressahs* are apparently funded by charity money. Anecdotal evidence suggests

that mostly the wards of the poor are enrolled there. For the poorest of the poor, this is the easiest way to feed their children. In Pakistan, with around 30 percent of the population living below the poverty line, the enrolment on this count is not likely to be small. So the solution lies in addressing the overall issue of poverty, which in any case is not an easy one to tackle, before a number of institutions have been reformed. An alternate is to enforce compulsory enrolment in the formal school system, other than the *madressahs.* This again involves the cost of enforcement, compensating the parents for whom the non-school going child is a bread-earner and of course tackling the opposition from the clergy.

The purpose of the foregoing discussion is not to offer a solution but only to provide a glimpse of the hurdles involved, when one attempts to reform the educational system.

The proposed common educational system also takes care of the next element in North's theory: dominant beliefs matter. If all the subjects of a country have gone through the same kind of education and have faced more or less similar human environment, at least at schools and colleges, then belief-convergence between dominant and non-dominant players is likely. Still the beliefs of the dominant players would matter but given convergence, the preferences of the non-dominant players would be automatically, taken care of.

North's argument that comprehension of an issue of the dominant players determines the kind of institutions that will be developed to confront the issue, again provides room for the education to influence an institutional change, because it is the education, and of course the right kind of education, that would influence a person's ability to correctly comprehend the issue at hand.

That the dominant beliefs matter and that the intentionality of the dominant players matters as well calls for choosing such people (through electoral process etc.) to hold *de jure* power, who share the beliefs of the society and who intend to allow the kind of institutions that the society prefers. The beliefs and intentions of the candidates aspiring for the *de jure* power can be tracked from a run down of the personal profile of the aspirants. For example, if the candidate or a political party is running for a second term, the performance in the previous term serves as a guide to judge the beliefs and intentionality of the players. However, for the constituents to correctly perceive the beliefs and intentions of the players, they must possess some education, whether formal or informal.

But this is a truth-judgment kind of a thing to say that to reform institutions to begin with, the educational system should be reformed. The issue is who would bell the cat? The natural candidate, in this context, is the *de jure* power. But the question is what motivates the *de jure* power to do this. The reform of the educational system, we expect, would reduce the voters' ignorance and thereby lead to all-round institutional reform, including the change in the very structure of the *de jure* power or the change in the *de jure* power itself. Given the damage that the reform of the educational system can inflict upon the rulers, why would the *de jure* power shoot at its own foot? So, it is difficult to believe, if not naïve, that the *de jure* power will undertake the reform of the educational system on its own.

To reform, the pre-requisite implicit in Acemoglu, *et al.* (2005b) is that some *de facto* power must force the *de jure* power, to reform institutions. This begs the question how such a *de facto* power will emerge. What incentive mechanism will facilitate the emergence of a *de facto* or *de jure* power, that may push for the reform of the educational system? This is a difficult question to answer; the popular print and electronic media may create awareness about the need for a common educational system. But the question then is; what motivates the media to do this?

We have groped in the dark, perhaps without success, to find out as to what, and who would trigger the reform of the educational system. However one thing is for sure. Reform of the educational system would meet lesser resistance as compared to reform of the other institutions. For example, an attempt to begin the process of institutional reform with the change in the structure of *de jure* power or the change in the *de jure* power itself will, in all likelihood, be resisted tooth and nail, by those who currently wield *de jure* power. Moreover if the change in *de jure* power is likely to adversely influence interests of strong foreign powers, then securing a change would become all the more difficult. The support extended to the kleptocratic regime of General Mobutu in Congo to thwart communism is just one example of how and why foreign powers may support a corrupt regime rather than encourage growth-conducive institutional change. The case of Pakistan is no different. To further their own strategic ends, the foreign powers, that matter, have comfortably co-existed with at least three military regimes, in Pakistan. Similarly an attempt to establish institutions that do not allow rent-seeking, again may not be successful if the *de jure* power itself is deriving rents. It is noteworthy that all the reforms referred to above will adversely influence the *de jure* power today.

In contrast, given path dependence, the reform of the educational system will, at best, influence the *de jure* power a generation hence. Typically, politicians being myopic, with the vision extending only up to the next elections, are not likely to be as scary of the reforms in educational system than they would be of the change in *de jure* power today, or the reform of any other institution that adversely influences their fortunes in the near-term.

Therefore the educational system, with its all-encompassing influence, global emphasis and relatively lesser resistance from the *de jure* power stands as the best candidate to begin the process of institutional reforms. The reform of the system and the increase in literacy rate will in all likelihood lessen, if not altogether eliminate, voters' ignorance and misperceptions while voting. This would raise the possibility of choosing the right kind of people to hold *de jure* power. Secondly given the voters' improved ability to choose, they are more likely to choose the ones who share their belief system. Thirdly, the rulers, having passed through the same educational system as available to the subjects, are more likely to carry the same beliefs as held by the subjects. It is the shared belief system that will facilitate reform of the remaining institutions.

To understand why educational reforms should enjoy primacy over other reforms, let us look at the case of United States—one of the countries that can boast of good institutions today. Perhaps United States had the highest literacy rate in the world at the beginning of 19th century. The common school movement that began in 1820 did such good that by the middle of 19th century nearly 40 percent of the school age population had been enrolled and nearly 90 percent of the white adults were literate [Engerman and

Sokoloff (2002)]. United States is perhaps one country where making of the constitution was debated by way of writing as many as 89 academic papers—now referred to as the 'Federalist Papers'. This was in 1870s. The relationship between literacy and institutional change, evident from the constitution making process of United States, is too apparent to be missed out.

A more recent evidence of the relations between literacy and reforms is furnished by Paul Collier in 'Bottoms Billions'. Collier (2007) argues that "countries need a critical mass of educated people in order to work out and implement a reform strategy" and substantiates it with the case of China and Tanzania. The author suggests that China and Tanzania both failed under Mao Ze Dong and Julius Nyerere respectively but given the critical mass of educated people, China was able to rethink its development strategy while Tanzania was not fortunate enough to have that critical mass.

We have determined that in a heterogeneous society, the élite-dominated *de jure* power will not facilitate the development of growth-promoting institutions. Despite some useful debate, we failed to conclude that how such a *de facto* power may emerge, that can force the *de jure* power to reform institutions. Given the inconclusive debate on the emergence of the requisite *de facto* power, the question arises, do we gain anything from the simple awareness that the educational system should be the first one to be reformed, if the society cannot force the *de jure* power to reform the system? The answer is, yes. Suppose that the discontent in a country has reached a point where for the rulers to remain in power they must agree to one or the other institutional change demanded by the society, otherwise they face the threat of a revolution. It is at this point that the society should have a clear idea as to what kind of institutional change to demand. If the *de jure* power is deriving rents from a host of avenues and the society demands an immediate end to rent-seeking then the probability of acceptance of the demand is rather low as this will affect the fortunes of the *de jure* power of today. But if the society demands that all children aged five should receive similar education, then the possibility exists that the ruler, being myopic and faced with discontent and threat of a revolution, even though weak, will yield. History stands witness that a couple of Pakistan's rulers, faced with public discontent had, in their twilight days, made an attempt to strike a bargain with the populists if not the public. It is at this moment in time that society should be aware of what it should demand? The demand should be: introduce a uniform educational system, for all and sundry.

6. CONCLUSION

We set ourselves the task of finding answers to two questions. One, is it possible to reform institutions by design and if yes which institution should be chosen to be the first one to be reformed. Given the path dependence exhibited by institutions, it is not possible to reform institutions with a big bang i.e. in one-go. This leaves us with the alternative of practising gradualism in reforming institutions—the alternative preferred by North, Acemoglu and Rodrik. Once we decide to adopt the gradual approach, the immediate issue that comes to the forefront is what to reform first? Hence our second question, i.e., from where to begin?

We excluded the possibility of commercial interests, fiscal constraints and a revolution forcing an institutional change in Pakistan. Commercial interests in Pakistan

have typically thrived on favours from the *de jure* power and are therefore unlikely to emerge as a *de facto* power against its patron. Theoretically, fiscal constraints may encourage the government to strike a bargain with the citizens i.e.,taxation revenue in return for good institutions. But in practice, the *de jure* power will enter into bargain only if funds from other sources are not available. Given the strategic interests of foreign powers, foreign aid will alleviate the fiscal constraint and the rulers-citizens bargain will fail to materialise. The country does not seem ready for a revolution either. The thought process that typically precedes revolutions seems to have barely begun. The alternative, that remains then is the gradualist approach preferred by North, Acemoglu and Rodrik.

Based on North's theory of institutional change we took the position that institutions can be reformed by conscious design. North holds that institutions are a function of the beliefs of the society and that beliefs among other things are a function of one's learning and experiences. He also holds the view that it is the beliefs of those in a position to enact institutional change that matter. Thus it is possible to mould one's beliefs by influencing what a person learns and what he experiences. Change in beliefs, would then induce an institutional change. The notion of the human mind, at the time of birth, being *tabula rasa* (erased board) put forward by the enlightenment philosopher, John Locke, also supports our stance that education can shape beliefs to suit one's end. Therefore we concluded that institutions can be reformed by conscious design.

The answer to our second, but the main question is that among the list of institutions that call for reform, the reform of educational system should top the agenda. Educational system as the top-most candidate for reform meets the three point criteria laid down in Section 1 of the paper. The current diverse educational systems serve to create and perpetuate inequality and population heterogeneity. We proposed the introduction of a common educational system, for all and sundry, up to a certain minimum level, say grade 12. The argument being that the introduction of a common educational system will reduce inequality and foster homogeneity in population, which in turn will facilitate development of growth-promoting institutions. In a relative sense, the resistance to reform of the educational system i.e. resistance to establishment of a common education system, up to grade 12, is likely to be lesser than a direct attack on rent-seeking of the *de jure* power. The former would affect those who wield *de jure* power, a generation-hence, while the latter will adversely influence them today. The politicians, being myopic, will opt for the former rather than the latter.

The educational system, as the top-most candidate for reform, also lives up to the second and third element of our criteria of choosing the first institution to be reformed. The common educational system will bring about convergence between the beliefs of the masses and those in position to enact institutional change. With the rulers and the subjects sharing beliefs, bringing about a change in the remaining institutions shall be less difficult. Thus the introduction of a common educational system will not only have an all-encompassing influence but the impact will be long-lasting as well.

We learned that a *de facto* power must emerge to force the *de jure* power to reform but failed to conclude how the said *de facto* power will emerge. Given that we do not know as to who will bell the cat, does it pay to be aware that the educational system should be the flag bearer of all institutional reforms. The answer is; yes it pays. Occasions do arise, when even a powerful dictator stands weakened and can see the eminent threat to his rule. It is at times like these that if the society has a clear idea of

what kind of institutional change is necessary, it can make the ruler yield. The demand of the society at moments like these should be for establishing a common educational system, for all and sundry, up to grade 12.

To conclude, we want to re-emphasise that we do not expect the reform of the educational system to be impediment-free. One reason why we recommend educational system as the foremost candidate for institutional reform is that we expect such reforms to face relatively lesser resistance. While evaluating our recommendation, the relative nature of the word 'lesser' should not be lost sight of.

We have identified 'commercial interest' and the 'need to generate revenue' as the inappropriate levers of institutional change in Pakistan. More such areas can be explored, e.g. social protection and greater federalism. We leave this for future works.

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© *The Pakistan Development Review*
48 : 3 (Autumn 2009) pp. 269–289

Democratic Institutions and Variability of Economic Growth in Pakistan: Some Evidence from the Time-series Analysis

MUHAMMAD ZAKARIA and BASHIR AHMED FIDA

This paper explores the empirical association between democracy and per capita output growth in Pakistan using data for the period 1947 to 2006. The findings of the paper indicate a weak negative association between democracy and output growth. Consistent with some current empirical literature, democracy is also found to influence output growth indirectly. The empirical results are robust to different democracy variables and output growth equation specifications. The empirical findings also highlight the role of other variables in determining output growth and, except for rising oil prices, show its positive linkage to physical and human capital, government consumption, openness of trade practices and inflation.

JEL classification: C22, O43
Keywords: Democracy, Growth, Time-series

1. INTRODUCTION

The relationship between democracy and economic growth has concerned social scientists since the seventeenth century. Two main positions still discussed today were staked out in the 1650s, one side arguing that democracy endorsed economic growth, while the other side arguing that democracy obstructed economic growth.[1] Proponents of democracy argue that autocracy, even when benign, weakens the rule of law required for routine economic activity. According to this view, economic growth requires 'developmental democracy', in which (legal and electoral) limits on arbitrary power provide individuals the safety to plan for their economic futures [Sklar (1987)]. Democracy promotes rule of law, brings openness in society and provides freedom of choice and stable politics, which discourage corruption and extremist policies. In other words, democracy provides a check on governmental power and thereby limits the potential of public officials to accumulate personal wealth and devise unpopular policies.

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Authors' Note: Authors are thankful to Zhou Ya Hong and Toe Ji for giving valuable comments on an earlier version of this paper.

[1]For more details on these positions reader is referred to Kurzman, *et al.* (2002).

Democracy leads to credibility of government policies, as lack of credibility tends to weaken stabilisation programmes, delay investment, depress savings, encourage capital flight and promote the growth of black market economies. Democracy limits state intervention in the economy but is responsive to public demands in areas such as education, health and justice, and thereby encourages stable and long-run growth [Rodrik (1999); Baum and Lake (2003)]. Democratic nations are better at managing conflicts, avoiding catastrophes and dealing with major public health crises. In short, supporters of democracy argue that the motivations of citizens to work and invest, the effective allocation of resources in the marketplace, and profit maximising private activity can all be maintained in a climate of liberty, free-flowing information and secured control of property [North (1990)]. With few exceptions, developed nations are also democratic states.

Opponents of democracy, in both academic and political debates, argue that democracy is an inefficient system for developing countries. According to this view, economic growth in developing countries requires 'developmental dictatorship' in which people are required to do hard work and make sacrifices [Gregor (1979)]. It is also argued that democracies lend themselves to popular demands for immediate consumption at the expense of profitable investments. Further, democracies cannot be insulated from the interests of rent-seekers and cannot utilise resources efficiently, and that democracies are prone to conflicts due to social, ethnic and class struggles. In turn, authoritarianism tends to suppress conflicts, resist sectional interests and take coercive measures essential for rapid growth. Many rich countries have become rich under authoritarian rule and have often experienced declines in growth after a democratic transformation.[2] If this conventional wisdom is correct, one might be justified in concluding that democracy is a luxury to be enjoyed only by countries rich enough to afford it. This, indeed, is a common argument among authoritarian leaders in the developing world.

These two positions have been joined in debate by a third perspective of more recent origin, which states that democracy has no significant effect on economic growth. This view, called as the 'no-effect' position, postulates that economic growth is due primarily to economic production inputs. The difference between democratic or non-democratic regimes is less important than the existence of pro-growth governmental policies. In fact, democracy affects economic growth through various channels. Some channels exhibit positive effects of democracy on economic growth while others exhibit negative effects. The net effects of democracy on economic growth thus remain ambiguous. As a result, studying the effects of democracy on economic growth is often deemed a futile endeavour. Yet this issue deserves close examination as political liberalisation is often the developed countries' precondition for providing financial assistance to developing countries like Pakistan. Therefore, determining democracy's costs and benefits is critical to formulating policies that boost economic development.

Almost all previous studies on this relationship have focused on cross-country data analysis. It is quite possible that in one country, due to its socio-cultural conditions,

[2]For example, Asian economies such as Taiwan and South Korea achieved democracy only recently after decades of high economic growth under authoritarian regimes.

democracy enhances its economic growth while in another country it may not. In cross-section data the positive (negative) effects of democracy on economic growth in one country may be cancelled out by negative (positive) effects observed in another country, leading to ambiguous conclusions. Further, cross-country data analysis uses period average data and ignores the obvious possibility that the democratic level of a country changes over time. In addition, the use of a single cumulative or average measure of economic growth makes empirical results vulnerable to period effects. This implies that cross-country data analysis may yield bias estimates. This study examines the relationship between democracy and economic growth in Pakistan using annual times-series data for the period 1947 to 2006 such that the problems of stationarity, robustness of specification, as well as the problems related to collinearity, endogeneity and non-linearity of the model are also addressed.[3]

The rest of the paper is organised as follows. Section 2 presents a brief literature review. Section 3 provides a brief history of democracy and economic growth in Pakistan. Section 4 develops the central theoretical argument of this study and outlines its methodology. Section 5 presents empirical results. The final section relates the conclusions.

2. LITERATURE REVIEW

Post-1960 empirical literature on democracy and development mainly focused on the democracy-growth relationship but has failed to arrive at a clear conclusion. Of the 13 studies surveyed by Sirowy and Inkeles (1990), three found a negative effect of democracy on economic growth, four found this negative effect in some situations, and six found no relationship whatsoever. In their review of 21 statistical findings, Przeworski and Limongi (1993) stipulate that eight found in favour of democracy, eight in favour of authoritarianism and five discovered no difference. Of the 17 papers reviewed in Brunetti (1997), nine found no effect of democracy on economic growth, four found positive effects and the other four found negative effects. Kurzman, *et al.* (2002) reviewed 47 quantitative studies, in which 19 found a positive relationship between democracy and growth, six found a negative relationship, and 10 reported no statistically significant relationship. Seven studies found a combination of positive and non-significant results, two found a combination of negative and non-significant results, two found mixed positive and negative results, and one [Barro (1996)] reported an inverted-U effect.[4] More recently, Mobarak (2005) finds that higher level of democracy promotes growth because democracy reduces volatility which in turn enhances growth. Gerring, *et al.* (2005) and Rodrik and Wacziarg (2005) have also shown that democracy promotes growth.[5]

[3]Earlier studies of time-series include Cohen (1985), Sloan and Tedin (1987), McMillan, *et al.* (1993), and Przeworski and Limongi (1997).

[4]Barro (1996) suggests a nonlinear relationship between democracy and economic growth in which democracy enhances growth at low levels of political freedom but depresses growth when a moderate level of freedom has already been obtained.

[5]Authors are unable to find any time-series study conducted for Pakistan regarding democracy-development relationship.

This literature taken as a whole is fairly inconclusive.[6] Roughly, the same number of studies stand on both sides of the argument, for and against democracy as an economic growth factor. There are various reasons for this inconsistency. The first is inconsistent econometric modelling assumptions, since the models used by different studies do vary widely. The second is sample and data selection bias. The third is the difference in estimation techniques. The fourth is that some studies examine the direct effect of democracy on economic growth while others argue that explicit specification of the channels of influence will allow a better understanding of the economic costs and benefits of democracy [Alesina, *et al*. (1996); Tavares and Wacziarg (2001); Baum and Lake (2003)]. In other words, the ambiguity of theoretical relationship between democracy and growth is another source of inconsistency in empirical results. The fifth is the construction of democracy index, since some studies used a dichotomous variable to measure democracy while others used some objective indices to measure democracy. Thus, the issue is complicated by estimates that differ due to data sources, estimation techniques, sample compositions and time periods. However, this does not imply that there is no relationship between democracy and economic growth. The conditional distribution of growth rate as a function of democracy indices might differ from the unconditional distribution, even when the conditional mean is the same [Almeida and Ferreira (2002)].

3. HISTORY OF DEMOCRACY AND ECONOMIC GROWTH IN PAKISTAN

3.1. Democracy[7]

Pakistan came into existence as a Muslim majority state under the Government of India Act of 1935, which made it a parliamentary democracy. All successive constitutions of Pakistan maintained this notion of parliamentary democracy for Pakistan. However, Pakistan has been under military governance for the majority of its 59 years of existence (1947-2006). In 1958, the army stepped in for the first time to take over political power. The second time was in 1977, and in 1999 for the third time. The nation's five elected governments were established in 1972, 1988, 1990, 1993 and 1997. But these elected governments were removed by the army. As a result, democracy did not work satisfactorily in Pakistan and even it could not perform its basic tasks such as providing law and order, making economic development and building adequate political institutions. The reasons for democracy's failure in Pakistan is attributed to:

- *Lack of Political Institutions*: Political institutions and political parties are an important element of parliamentary democracy. In Pakistan political parties are private enterprises of single persons or families lacking inner democratic structure which prevents them from putting the country on a democratic path.

[6]The inconclusive relationship between democracy and economic growth led researchers to explore also other aspects of politics and growth. For instance, Minier (1998) finds that changes in democracy, rather than the level of democracy, matter.

[7]While writing this sub-section help is taken from, among others, Belton (2004), Haqqani (2006) and Robotka (2006).

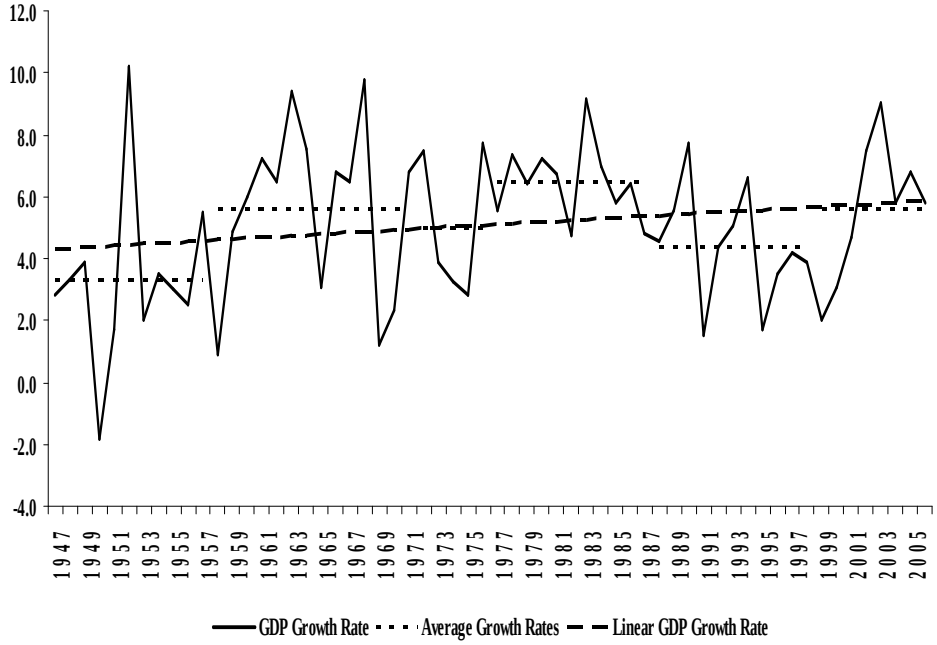
- *Lack of Sense of Responsibility*: The elected representatives are by and large not aware of their rights and responsibilities and no effective system has been evolved to train them to function as elected legislators.
- *Lack of Accountability:* There has been no public initiative to monitor the performance of the elected representatives and elected bodies and to hold them accountable on the basis of their track record.
- *Emergence of Democratic Leadership disrupted by Military Rule:* During the periods of military rule, the political process, which on its own momentum develops new leadership in the country, remained halted. Whenever democracy was restored, the process did not continue for long enough to allow new leadership to emerge.
- *Strategic Factors:* The Kashmir war and the (real or perceived) Indian military threat for Pakistan were two powerful factors which made the civilian governments concede preeminence to the army and priority to its needs. This foothold of the military in Pakistani politics has made it a full-fledged player in the country's governance.
- *Insulation of Educated Middle Classes from Politics:* Pakistan has always been dominated by a small class of the feudal élite. The educated classes mostly from the middle class have remained largely uninvolved in national politics. They have either been sidelined or have got disillusioned seeing no role or prospects for them in the political process. As a result, political activity has remained largely confined to the moneyed class..
- *International Factors:* Foreign vested interests have found it more convenient to deal with a military government in Pakistan than with a weak political one. This has also discourged the democratisation process in Pakistan.
- *Socio-economic Structure*: Due to widespread illiteracy and poverty the socio-economic structure of Pakistan has been such that people have had to vote the feudal élite or industrialists into power.

The upshot is that the basic conditions that a functional democracy requires are missing or are insufficient in Pakistan. This flaw or weakness has provided the excuse to the army to step in when political governments have failed to deal with a crisis situation.

3.2. Economic Growth

Pakistan's growth performance throughout its history has remained substandard. Growth trends have fluctuated from period to period as the country lurched from democratic system to dictatorship as Figure 1 shows. Average growth rate from 1947 to 1957 was 3.3 percent, from 1958 to 1971 it was 5.6 percent, from 1972 to 1976 it was 5 percent, from 1977 to 1987 it was 6.5 percent, from 1988 to 1998 it was 4.4 percent, and from 1999 to 2006 it was 5.6 percent. It indicates that the average growth rate of GDP remained slightly lower during democratic periods than during dictatorship periods. One reason is that Pakistan experienced high political instability during democratic periods, which adversely affected output growth. In turn, due to high political stability during dictatorship periods, GDP experienced a high level of growth. However, as the linear GDP growth rate/trend line shows, Pakistan's GDP growth rate kept on increasing throughout the period.

Fig. 1. Gross Domestic Product (GDP) Growth Rates (1947–2006)



4. ANALYTICAL FRAMEWORK

4.1. Theoretical Arguments

In theoretical debates, three schools of thought have worked on the relationship between democracy and economic growth, namely the conflict school, the compatibility school and the skeptical school [Feng (1997)].[8] Hobbes (1651) is known to have first evolved the conflict view.[9] To Hobbes, authoritarian regimes were more likely to improve public welfare simply because they could not promote their own interests otherwise. Huntington (1968) argues that democracies have weak and fragile political institutions and lend themselves to popular demands at the expense of profitable investments. According to Krueger (1974) and Bhagwati (1982) democratic governments are vulnerable to demands for redistribution to lower-income groups, and are surrounded by rent-seekers for directly unproductive profit-seeking activities. Persson and Tabellini (1992) suggest that democracies attempt to reduce material inequality through growth deterring redistributive taxation. Lipset (1959) proposes that some level of development is required for democracy to function properly. This view became popular after the growth success stories in South Korea, Taiwan, Hong Kong and Singapore in the 1950s and the 1960s.

[8]For more details on the theoretical debates liking democracy and growth, interested readers are referred to Sirowy and Inkeles (1990), Przeworski and Limongi (1993), De Haan and Siermann (1995), Nelson and Singh (1998), Durham (1999), Gasiorowski (2000), Quinn and Woolley (2001), Kurzman, *et al.* (2002) and Baum and Lake (2003).

[9]Cited in Kurzman, *et al*. (2002) and Doucouliagos and Ulubasoglu (2006).

Authoritarian systems are supposed to implement coercively the hard economic policies necessary for growth, and suppress the growth-retarding demands of low-income earners and labour in general, as well as social instabilities due to ethnic, religious, and class struggles, which democracies cannot suppress. Rao (1984) observes that absolutist regimes increase economic growth by sacrificing current consumption for investment, which makes them rather effective at mobilising savings. For economic progress, markets should come first, and authoritarian systems can easily facilitate such policies. The argument rests on several assumptions, the main one of which is that if given power, authoritarian regimes would behave in a growth-friendly manner.[10] In fact, the conflict view implies that political democracy is a luxury that developing countries cannot afford.

The compatibility school objects to the arguments made by the conflict school and stresses that rulers are potential looters [Harrington (1656)][11] and democratic institutions can act to constrain them [North (1990)]. Implementation of the rule of law, contract enforcement and protection of property rights do not necessarily imply an authoritarian regime. The latter has a tendency to confiscate assets if it can expect a brief tenure [Olson (1993)]. Even in the long-run authoritarian regimes lead to a corrupt and extravagant use of resources, internally inconsistent policies, and short-lived and volatile economic progress [Sah (1991); Bhagwati (1995)]. The motivation of citizens to work and invest, the effective allocation of resources in the marketplace, and profit maximising private activity can only be maintained in a democratic system, which leads to higher political rights and civil liberties. Democracy exhibits peaceful and predictable transfers of political power and results in political stability, which is likely to foster investment and growth by reducing the degree of uncertainty [Barro (1991); Alesina, *et al*. (1996)]. Further, democracies rarely engage in military conflict with each other, and this promotes world peace and economic growth. Proponents of democracy also propose that if not direct, democracy has indirect effects on economic growth [Alesina, *et al*. (1996); Tavares and Wacziarg (2001); Kurzman, *et al.* (2002); Baum and Lake (2003); Gerring, *et al.* (2005)]. Thus, on the question of democracy-growth relationship, one should remember the broader associations that encompass the channels, or the indirect effects, between democracy and growth rather than one-to-one causation from regime to growth.

Finally, according to the skeptical perspective, there is no systematic relationship between democracy and economic growth. The proponents of this view argue that it is the institutional structure and organisations, rather than regimes *per se*, that matter for growth. Pro-growth governmental policies can be implemented in either system. A good leadership that can resolve collective problems and be responsive to rapidly changing technical and market conditions is more critical to economic growth than a political system [Bardhan (1993)].

Another school of thought, which contains the properties of both conflict and compatible schools, suggests a nonlinear effect of democracy on economic growth

[10]However, several contrasting cases are provided where dictators pursued their own welfare, and failed apparently in Africa and the socialist world [De Haan and Siermann (1995); Alesina, *et al*. (1996)].

[11]See footnote 6.

[e.g. see Barro (1996)]. It suggests that growth will initially increase with democracy, but the relation will turn out to be negative once a moderate level of democracy is attained. One way to interpret this result is that in the worst dictatorships an increase in democracy tends to stimulate growth because the benefit from limitations on governmental power is the key matter. But in places that have already achieved a moderate amount of democracy, a further increase hinders growth because the dominant effect comes from the intensified concern with social programmes that redistribute resources. Thus, like empirical literature, theoretical literature is also highly divided on the effects of democracy on economic growth. However, in contrast to empirical literature, the theoretical literature is rich enough with micro and macro level explanations linking democracy to economic growth.

4.2. Empirical Estimation

This section examines democracy-growth linkages using regression analysis. The approach followed here is to add the democracy variable to the right-hand-side variables of a standard growth equation as an explanatory variable. Here the proposition is that democracy is likely to significantly affect output growth. The specification of output growth equation is similar to those specifications commonly used in the growth literature [see e.g. Barro (1991); Kormendi and Meguire (1985); Levine and Renelt (1992); Mankiw, *et al.* (1992)]. The following dynamic growth equation, which outlines the basic thrust of output growth model, will be estimated,[12]

$$\begin{aligned} Y_t = {} & \gamma_1 + \gamma_2\, DMC_t + \gamma_3\, k_t + \gamma_4\, hc_t \\ & + \gamma_5\, g_t + \gamma_6\, open_t + \gamma_7\, INF_t + \gamma_8\, oil_t + \mu_t \end{aligned}$$

where the lowercase letters denote that the underlying variables are in natural log form. The various variables are defined as follows.

Y_t	= Per capita output growth rate
DMC_t	= Democracy index
k_t	= Capital stock per worker
hc_t	= Human capital
g_t	= Government consumption
$open_t$	= Trade openness
INF_t	= Inflation rate
oil_t	= Oil prices
μ_t	= White-noise error term

where γ's are the parameters to be estimated, and μ_t is the stochastic disturbance term such that $\mu_t \sim N(0, \sigma^2)$.

[12]Iqbal and Zahid (1998) have also used such type of growth model for Pakistan. Also see, among others, Khan (2005); Iqbal and Sattar (2005) and Malik, *et al.* (2006) for these types of growth models in Pakistan.

Output growth is posited to be the function of a set of control variables. These control variables include an index capturing democracy, physical and human capital accumulations, government size, trade openness, domestic inflation and oil prices. Changes in any of these control variables would be expected to alter per capita output growth. [13]

5. DATA, ESTIMATION AND INTERPRETATION OF RESULTS

5.1. Overview of the Data

This study employs annual time-series data for Pakistan for the period 1947 to 2006.[14] The determining factor behind the selection of theoretically relevant variables is the availability of data. Non-availability of data restricted the use of some important growth determining variables (e.g. corruption, black market premium etc.). The dependent variable is per capita real GDP growth rate. Democracy is proxied by Polity2 score, which is taken from Polity IV dataset described by Marshall and Jaggers. Polity2 is an index ranging from –10 (full autocracy) to +10 (complete democracy). This index employs a 21-point scale and takes into account how the executive is selected, the degree of checks on executive power and the form of political competition. This indicator presents good historical coverage and allows us to consider both the degree and duration of democracy in any given country-year; so it is appropriate to use it in a time-series context.[15] A complete description of variables along with data sources is given in Appendix A.

Table 1 contains summary statistics for the main variables used in this study, which may help in the interpretation of the coefficient estimates by providing the scale of the relevant variables. Column (1) of Table 2 correlates output growth with all independent variables. The value of correlation coefficient –0.10 indicates that output growth is slightly negatively correlated with the democracy index. Output growth is also negatively correlated with oil prices. In turn, growth is positively correlated with physical capital stock, human capital, government consumption, trade openness and domestic inflation. Column (2) contains the correlations between the democracy index and all other independent variables. The democracy index is positively correlated with all independent variables with the possible exception of oil prices, which is negatively correlated with the democracy index. Since the democracy index is correlated with growth-determining variables, column (2) might help in exploring the channels through which democracy is expected to effect output growth.

[13]See Barro (1991) and Bleaney and Nishiyama (2002), among others, for theoretically predicted signs of various independent variables on output growth.

[14]In December 1971, East Pakistan became an independent political entity as Bangladesh. However, prior to 1971 certain statistics were published on aggregate basis. Our primary interest is in the democracy index, as it is not possible to disaggregate data on political grounds, therefore, we have used the published aggregate data. Also see Amjad (1982) in this regard.

[15]Hereafter the word ‘democracy index’ will connote ‘Polity2 score’ unless otherwise indicated.

Table 1

Table 2

5.2. Democracy-Growth Analysis

Before estimating the growth equation, we have first checked the stationarity of the variables using ADF unit-root test. All variables, except per capita GDP growth and the democracy index, are found to be integrated of order one.[16] It indicates that the estimated growth equation can form a long-run relationship of output growth with all explanatory variables except the democracy index; the latter has a short run relationship with output growth. To overcome endogeneity and omitted variable problems, the Generalised Method of Moments (GMM) estimation technique of Arellano and Bond (1991), Arellano (1993), and Arellano and Bover (1995) has been applied to estimate output growth equation using lagged values of the variables as instruments.

Table 3 reports the regression results. The results indicate that once all control variables are held constant, the marginal contribution of democracy to growth is slightly negative. The magnitude of the coefficient of democracy index is very small (–0.0023). This is due to the fact that the democracy index changes after a number of years (not after every year), thereby depicting a small impact on output growth in yearly time-series data. The coefficient estimate implies that, *ceteris paribus*, a one point increase in democracy index would decrease per capita output growth by 0.0023 points.[17] Thus the results are consistent with the findings of some previous studies, which suggest a weak adverse influence of democracy on economic growth. Given that the coefficient of democracy is negative, we can interpret this to mean that as a government institutionalises democracy over time, economic growth in the country should decelerate. The estimated coefficient on the democracy index remains negative and statistically significant to changing variables in growth equation specifications. The model appears to perform well from a statistical point of view.

As far as control variables are concerned, it is found that growth is enhanced by high physical and human capital accumulations. The statistical significance of human capital is greater than that of physical capital; it validates the endogenous (new growth) theory that human capital has a strong influence on growth performance. Moreover, government consumption expenditures, trade openness and domestic inflation positively contribute to growth. A possible justification for the positive effect of government consumption on growth is that, in Pakistan, the economic benefits of public goods of a larger government outweigh the cost of financing its activities through distortionary taxation. Similarly, high inflation rate, for instance, by increasing investment through reduced real interest rate, raises growth. The favourable effect of trade openness on growth is also consistent with the extant literature. In turn, an increase in oil prices distorts output growth; this result is also consistent with theoretical predictions. Overall, the explanatory variables account for about 54 percent variation in output growth. The autoregressive (AR) process has been applied to remove autocorrelation from the model. Values of Durbin-Watson (DW) statistics are reasonably close to the desired value of two, which indicates the absence of autocorrelation problem in the model.

[16]To conserve space ADF test results are not reported here. However, results may be obtained from authors upon request.

[17]To check the non-linear effect of democracy on output growth a quadratic term in democracy index was introduced in the growth regression. But its effect on growth turned out to be statistically insignificant and hence it is excluded from the estimation. Similarly, some other control variables were also incorporated in the growth regression. But due to their statistically insignificant effects on growth they are also excluded from the estimation.

Table 3

5.3. Sensitivity Analysis

5.3.1. *Sensitivity to Political Variables*

In this section, two alternative political variables, namely political constraint and democracy dummy, are used to gauge the effects of democracy on output growth. Political constraint is proxied by the POLCONV score, which is taken from POLCON data set described by Henisz. POLCONV is an index ranging from 0 (no constraints on executive's powers) to 1 (full constraints on executive's powers). The political constraint variable measures the degree of constraints on policy change using data on the number of independent veto points in the political system (executive, legislative, judicial and sub-federal branches of government) and the distribution of political preferences both across and within these branches. High constraints on the powers of the executive denote high level of democracy. The democracy dummy takes the value of 1 when there is a democratic system in a given year and zero, otherwise. It is evident from Table 2 that all three measures of democracy—the democracy index, political constraint and democracy dummy—are highly correlated with each other. The correlation coefficient between the democracy index and political constraint is 0.76, while the correlation coefficient between the democracy index and democracy dummy is 0.89. Thus both political constraint and the democracy dummy can be taken as good proxies to measure democracy.

Table 4 provides the regression results. The coefficients on political constraint and the democracy dummy bear significant negative signs. These results support the findings of the previous section that democracy in Pakistan hampers output growth. The magnitude of the coefficients of both political constraint (–0.0558) and democracy dummy (–0.0212) is greater than that of democracy index (–0.0023). The results suggest that, *ceteris paribus*, a one point increase in political constraint (democracy dummy) would decrease growth by 0.0558 (0.0212) points per year. The effect on growth of a one point change in political constraint (–0.0558) is relatively greater not only to the impact of a change in democracy dummy (–0.0212) but also to the impact of a change in the democracy index (–0.0023). The results of control variables are also in accordance with the findings of the previous section in that both physical and human capital accumulations, government consumption expenditures, trade openness and inflation positively contribute to growth while oil prices distort growth.

5.3.2. *Sensitivity to the Inclusion of Interaction Terms*

The effect of the democracy index on growth may be considered as a 'pure' effect of democracy on growth, independent of the effect of democracy working through its impact on growth determining variables. However, in literature it is well determined that the established link between democracy and economic growth is a result of the connections between democracy and other determinants of growth, e.g. physical capital stock, human capital, government consumption, trade openness, etc. [Barro (1996); Tavares and Wacziarg (2001); Kurzman, *et al.* (2002); Gerring, *et al.* (2005)]. To check the 'indirect effects' of democracy on growth via growth determining variables, different interaction terms have been included in the growth equation. Table 5 provides the regression results. In column (1) the coefficient of the interaction term 'Democracy Index*Capital Stock' is –0.0016. It shows that democracy index has decreased the

Table 4

Table 5

The GMM Estimates of the Relationship between Per Capita GDP Growth and Democracy Index [1947 to 2006]

Variables	(1)	(2)	(3)	(4)
Intercept	0.3461	0.4150	0.3985	0.4059
	(2.9562)*	(3.8464)*	(2.8115)*	(3.4399)*
Democracy Index	–0.0118	–0.0113	–0.0385	–0.0072
	(–1.7139)**	(–1.7645)**	(–2.0432)*	(–2.0893)*
Capital Stock	0.0457	0.0373	0.0343	0.0515
	(2.1166)*	(1.8451)**	(1.8301)**	(2.9512)*
Human Capital	0.0622	0.0599	0.0738	0.0609
	(4.5864)*	(4.3654)*	(4.5580)*	(5.1498)*
Govt. Consumption	0.0225	0.0249	0.0117	0.0394
	(2.0522)*	(1.9821)**	(0.6318)	(3.1080)*
Trade Openness	0.0412	0.0432	0.0272	0.0283
	(2.3465)*	(2.5611)*	(1.9944)**	(1.8554)**
Inflation	0.1979	0.1858	0.0975	0.4495
	(1.1115)	(1.1229)	(0.3463)	(3.4585)*
Oil Prices	–0.0013	–0.0037	–0.0229	–0.0057
	(–0.2025)	(–0.5913)	(–1.5792)	(–1.4110)
Democracy Index*Capital Stock	–0.0016			
	(–2.0960)*			
Democracy Index *Human Capital		–0.0017		
		(–2.1461)*		
Democracy Index*Govt. Consumption			–0.0051	
			(–1.9316)**	
Democracy Index*Trade Openness				–0.0038
				(–1.8010)**
AR(1)	–0.5429	–0.4758	–0.4297	–0.4071
	(–6.4828)*	(–5.8378)*	(–3.9730)*	(–4.2589)*
R^2	0.5834	0.5569	0.5320	0.5321
Adjusted R^2	0.5536	0.5327	0.5166	0.5139
DW	1.9891	2.0938	2.1425	2.1126

Note: Values in parentheses denote underlying student-*t* values. The *t* statistics significant at 5 percent and 10 percent levels of significance are indicated by * and ** respectively.

coefficient of capital stock by –0.0016 percentage points. In other words, it means that as the level of democracy increases, an increase in capital stock will decrease output growth by -0.0016 percentage points per year. Similarly, column (2) suggests that as the level of democracy increases, an increase in the level of human capital will decrease growth by –0.0017 percentage points per year. A similar interpretation holds for columns (3) and (4) in which democracy hinders growth via influencing government consumption expenditures and the country's commercial policy respectively. Thus our results are broadly in line with the findings of previous studies in that democracy hinders economic growth by influencing growth determining variables. However, the inclusion of interaction terms has led inflation and oil prices variables to become statistically insignificant. Similarly, the significant level of the democracy index has also decreased. Thus the results of Table 5 should be taken with caution.

6. CONCLUSION

This paper empirically examines the relationship between democracy and economic growth in Pakistan using annual time-series data for the period 1947 to 2006. The paper identifies three areas for methodological improvement in political economy of growth. First, instead of a dichotomous variable, a near-continuous measure of democracy is used. Second, rather than using static indicators employed in cross-sectional studies, this paper employs time-series data that account for the rise and fall of democracy during the period under study. Third, indirect effects of democracy on growth are also identified. Using standard econometric methodology, the empirical results reveal that, *ceteris paribus*, democracy has slightly negative effects on economic growth in Pakistan. This link between democracy and economic growth is robust to sensitivity checks, which include changing democracy variables and growth equation specifications. Democracy is also found to impair economic growth indirectly by influencing physical capital stock, human capital, government consumption expenditures and trade openness. As far as control variables are concerned, growth is positively related to capital stock per worker, human capital, large government size, trade openness and inflation, while it is negatively related to increased oil prices.

Pakistan remained under military rule for most of the time, which discouraged the proliferation of conditions required for the existence of democracy. As a result, inefficient democratic governments have halted economic growth in Pakistan. This highlights the need to establish political institutions and policies to promote strong democracies in Pakistan. Thus it will take time for Pakistan to become a fully democratic state to reap the benefits of democracy. In fact, this notion indirectly supports the 'conflict view' that democracy improves growth only when a sustainable level of development has been achieved. Since Pakistan is a developing country, it will take time for Pakistan to achieve a threshold level of development required for the existence of democracy. Moreover, independent thinking and discussion is the way to develop democractic setup in Pakistan. Political scientists and analysts have to play their role in this process of public thinking and discussion. In the process of doing so a nation-wide consensus should be evolved, which could form the basis of a concerted effort to find a solution for one of the most burning problems of Pakistan.

Although these results may extend the political economy of development literature in Pakistan in a useful way, it is important to highlight the limitations of this type of empirical work. For example, democracy indexes are subjective measures that are likely to capture other relevant determinants of economic growth other than political institutions only and the data used to construct democracy indices is not free of errors. Moreover, democracy has its greatest effect in the short term, while economic growth is better understood in longer terms. It is also difficult to control for all relevant characteristics of a country. In fact, time-series analysis, as undertaken in this paper, can settle the dispute of democracy's effect on economic growth as the 'conflict view' has been supported by the findings of the paper. Democracy appears to have complex multiple effects on growth that need to be further explored as new variables become available in the time-series format and new estimation procedures are developed for this work.

Given the fact that developing the main ingredients for democracy, namely a democratically minded people, who have free minds, are well educated and can consciously and fully participate in a democratic set-up, will take time, independent thinking and discussion is the way to develop and define such an interim set up. Political scientists and analysts have to play their role in this process of public thinking and discussion. In the process of doing so a nation-wide consensus should be evolved, which could form the basis of a concerted effort to find a solution for one of the most burning problems of Pakistan.

In view of the internal pressure for quick implementation of democracy and making adherence to democracy a decisive criterion by the West for advancing loans or development aid, the allocation of development funds and of other means of economic aid and cooperation, the incentives for 'going democractic' have risen considerably in Pakistan.

APPENDIX A

VARIABLE DESCRIPTION AND DATA SOURCES

Output Growth (Y_t) *:* Dependent variable used in growth equation is real per capita GDP growth rate. The data is collected from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Democracy (DMC_t) *:* Democracy is proxied by Polity2 score, which is taken from Polity IV dataset described by Marshall and Jaggers. Polity2 is an index ranging from –10 (full autocracy) to +10 (complete democracy). The second measure of democracy that is political constraint is proxied by POLCONV score, which is taken from POLCON dataset described by Henisz. POLCONV is an index ranging from 0 (no constraints on executive's powers) to 1 (full constraints on executive's powers). The third variable of democracy that is democracy dummy takes the value of 1 when there is democratic system in a given year and zero otherwise.

Capital Stock per Worker (k_t) *:* Capital stock per worker is defined as the ratio of capital stock to labour force. Data is taken from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Human Capital (hc_t) *:* It is proxied by total secondary school enrolment (regardless of age and gender). Data source is World Bank, *World Development Indicators*, and Government of Pakistan, *Economic Survey* (various issues).

Government Consumption (g_t) *:* It is proxied as the ratio of real government consumption (net of education and defense expenditures) to real GDP, and the data is obtained from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Trade Openness $(open_t)$: This variable is defined as the ratio of total trade to nominal GDP. Data is taken from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Inflation (INF_t): Domestic inflation rate is calculated as the growth rate of consumer price index (CPI), and the data is taken from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Oil Prices (oil_t): Data on world oil prices is taken from International Financial Corporation, *International Financial Statistics* (various issues).

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Table 1

Descriptive Statistics for Variables Included in Regressions

	Mean	Median	Maximum	Minimum	Std. Dev.	No. of Obs.
Per Capita Output Growth	0.03	0.02	0.64	–0.07	0.09	59
Democracy Index	0.63	1.00	8.00	–7.00	5.97	60
Political Constraint	0.20	0.22	0.76	0.00	0.23	59
Democracy Dummy	0.45	0.00	1.00	0.00	0.50	60
Capital Stock (ln)	7.70	7.87	9.29	5.38	1.08	60
Human Capital (ln)	7.42	7.51	9.00	5.65	0.99	60
Govt. Consumption (% of Real GDP)	0.04	0.03	0.07	0.01	0.01	60
Trade Openness (% of Nominal GDP)	26.70	28.68	37.95	10.24	6.63	59
Inflation	0.06	0.05	0.24	–0.04	0.05	59
Oil Prices (ln)	2.00	2.49	3.94	0.58	1.26	60

Table 2

Correlation Table for Variables Included in Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Per Capita Output Growth	1.00									
Democracy Index	–0.10	1.00								
Political Constraint	–0.09	0.76	1.00							
Democracy Dummy	–0.04	0.89	0.55	1.00						
Capital Stock (ln)	0.31	0.10	0.07	0.25	1.00					
Human Capital (ln)	0.25	0.17	0.07	0.33	0.98	1.00				
Govt. Consumption (Ratio of Real GDP) (ln)	0.14	0.23	0.19	0.26	0.71	0.66	1.00			
Trade Openness (Ratio of Nominal GDP) (ln)	0.26	0.16	0.09	0.43	0.68	0.65	0.38	1.00		
Inflation	0.15	0.52	0.25	0.62	0.09	0.20	–0.22	0.45	1.00	
Oil Prices (ln)	–0.16	–0.10	–0.22	0.17	0.84	0.83	0.41	0.78	0.29	1.00

Table 3

The GMM Estimates of the Relationship between Per Capita GDP Growth and Democracy Index (1947 to 2006)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Intercept	0.3961	0.0721	0.1761	0.0243	–0.0410	0.1044	–0.1853	–0.0386	0.0062	0.0494
	(4.1499)*	(13.5614)*	(10.9309)*	(2.8149)*	(–2.8557)*	(2.9534)*	(–2.5509)*	(–2.3669)*	(1.0672)	(5.4845)*
Democracy Index	–0.0023	–0.0003	–0.0015	–0.0021	–0.0018	–0.0012	–0.0011	–0.0009	–0.0016	–0.0007
	(–3.9878)*	(–3.1971)*	(–6.8629)*	(–2.6094)*	(–3.5863)*	(–2.4799)*	(–2.1359)*	(–2.0855)*	(–3.1626)*	(–2.1957)*
Capital Stock	0.0456	0.0202			0.0076					
	(3.0158)*	(7.5536)*			(3.9478)*					
Human Capital	0.0581	0.0273				0.0102				
	(5.2114)*	(11.2773)*				(2.2466)*				
Govt. Consumption	0.0320		0.0141				0.0264			
	(2.7813)*		(7.5485)*				(2.9222)*			
Trade Openness	0.0409		0.0331					0.0498		
	(2.7982)*		(4.0898)*					(3.8189)*		
Inflation	0.3616			0.2205					0.1852	
	(3.1294)*			(2.5320)*					(3.2449)*	
Oil Prices	–0.0055			–0.0068						–0.0085
	(–1.7105)**			(–2.2510)*						(–2.8966)*
AR (1)	–0.3597									
	(–4.0219)*									
R^2	0.5447	0.2419	0.2306	0.2795	0.2282	0.2287	0.2492	0.2393	0.2528	0.2142
Adjusted R^2	0.5103	0.2111	0.2170	0.2531	0.1871	0.1989	0.2147	0.1816	0.2207	0.1807
DW	2.0445	1.8747	2.1278	2.0799	2.1105	2.0252	2.0371	1.8999	2.0238	2.1031

Note: Values in parentheses denote underlying student-*t* values. The *t*-statistics significant at 5 percent and 10 percent levels of significance are indicated by * and ** respectively.

Table 4

The GMM Estimates of the Relationship Between Per Capita GDP Growth and Political Constraint/Democracy Dummy [1947 to 2006]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	*Political Constraint*				*Democracy Dummy*			
Intercept	0.1127	0.0116	–0.0330	0.0014	0.3687	0.1355	0.1762	0.0325
	(0.9028)	(0.3710)	(–0.8501)	(0.2115)	(3.8260)*	(6.3917)*	(10.8586)*	(3.4366)*
Political Constraint	–0.0558	–0.0264	–0.0236	–0.0273				
	(–4.2697)*	(–2.7893)*	(–4.1802)*	(–3.3809)*				
Democracy Dummy					–0.0212	–0.0212	–0.0142	–0.0451
					(–3.9466)*	(–3.6277)*	(–5.1525)*	(–5.3930)*
Capital Stock	0.0512	0.0591			0.0216	0.0376		
	(2.7664)*	(2.5206)*			(1.7592)**	(2.8191)*		
Human Capital	0.0511	0.0597			0.0379	0.0260		
	(4.8675)*	(2.6415)*			(4.3388)*	(1.8132)**		
Govt. Consumption	0.0068		0.0130		0.0205		0.0143	
	(0.7858)		(2.3533)*		(2.2665)*		(7.2422)*	
Trade Openness	0.0299		0.0353		0.0567		0.0265	
	(2.5004)*		(3.7008)*		(4.4129)*		(3.9273)*	
Inflation	0.1769			0.1393	0.2198			0.3166
	(2.5766)*			(3.5572)*	(2.7506)*			(4.5859)*
Oil Prices	–0.0076			–0.0055	–0.0001			–0.0060
	(–1.3439)			(–3.0121)*	(–0.0481)			(–2.7254)*
AR (1)	–0.5790				–0.3798			
	(–5.6940)*				(–4.6847)*			
R^2	0.4978	0.2666	0.2580	0.2361	0.5301	0.2381	0.2069	0.1962
Adjusted R^2	0.4537	0.2415	0.2459	0.2132	0.4927	0.2186	0.1848	0.1772
DW	2.1140	2.1257	2.1506	2.1345	2.1447	1.8798	2.1696	1.9322

Note: Values in parentheses denote underlying student-*t* values. The *t* statistics significant at 5 percent and 10 percent levels of significance are indicated by * and ** respectively.

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48 : 3 (Autumn 2009) pp. 291–311

The Impact of Occupational Stress on Employees' Somatic Symptoms, Job Anxiety and Employee's Turnover Intention—An Empirical Study

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The aim of this study is to analyse the reliability and validity of job factors in relation to the impact of occupational stress on employees' somatic symptoms, job anxiety and turnover intention through a two time cross-sectional study of the Water and Power Development Authority (WAPDA). The method employed consisted of two times self-reported cross-sectional surveys that covered 420 respondents at T1 and 388 respondents at T2. Results: Appropriate internal consistencies of the seven scales i.e. demands, control, job stress, social supports, employees' somatic symptoms, job anxiety and turnover intention were obtained. Zero-order correlation and linear and multiple regressions analysis replicated the theoretically assumed structure of the job factors and employees' somatic symptoms, job anxiety and turnover intention construct in men and women collectively. Evidence of criterion validity was obtained from cross-correlations of the scales and from their linear and multiple regression analysis. Finally, all seven measures were associated with a highly significant ratio of job stress, and the effect was strongest for the job stress ratio as predicted by the fundamental theory of Karasek. Conclusion: We examine how users, who are assimilating job factors into their work, experience the level of work related demands in their jobs, the level of autonomy/control they have over their work, and how these relate to outcomes, such as employees' somatic symptoms, job anxiety and turnover intention. Based on the results of this study the seven-version scale is considered reliable and serves as a valid instrument for measuring psychosocial pressure in work environment. These outcomes and measures are applicable to all services and manufacturing industries.

Keywords: Work Overload, Work Control, Organisational Support, Job Stress, Somatic Symptoms, Job Anxiety, and Employees Turnover Intention (ETI)

INTRODUCTION

Occupational stress has been documented as one of the most significant workplace hazards for employees in Water and Power Development Authority (WAPDA) of Pakistan. WAPDA is one of the largest commercial organisation with the sole authority to distribute power nation wide and employs a work force of 146625 employees—i.e. 134632 in Power. 9207 in Water wing 9207 and 2786 in common services (*Source:* Manpower Statistics, 2007-8). WAPDA has three power sources: hydro- power with production capacity of 6500 MW; WAPDA's own thermal power generation with

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production capacity 5000 MW; and the Independent Power Producers (IPP) with production capacity of 6000 MW in the private sector. The power wing is the largest part of WAPDA comprising 92 percent of total manpower engaged in multifarious tasks to provide electricity to commercial and domestic consumers. After preliminary investigation, literature review, and pilot study we conclude that the main internal problems of the Power wing of WAPDA that contribute to occupational stress are:

(1) Line losses ranging from 24 percent to 25 percent of Distribution Companies (DISCOs) due to weak control over work environment and lack of motivation among employees;
(2) Work environment, work control, job description, salaries structure, promotion policies, routine managerial policies, customer relationship; and
(3) Lack of training in advanced computer courses to staff at WAPDA Staff College, Islamabad and WAPDA Engineering Academy, Faisalabad to meet the requirements of advanced technology and re-engineering of the work environment (S*ource:* Standing Operating Procedure, 2005).

It is necessary to investigate job demands and job control of employees to find the root causes of stressors i.e. which specific demands and which specific controls contribute more to job stress.

Cartwright and Cooper (1997) and Bradley (2004) have pointed out that in the short term stress can lead to emotional distress, stomach disorders, headaches, somatic problems, sleeplessness, and loss of energy and, in the long term, it can contribute to serious illness and even premature death, particularly from some cardiovascular disease. Moreover, occupational stress has become endemic to the modern workplace, as national surveys (in the US) have shown that a large proportion of workers report feeling highly stressed at work [see Sauter, *et al.* (1999)]. There are a number of job factors, called *job stressors*, that make work environment stressful. Some stressors are associated with the nature of work environment. Other stressors are perceived through interpersonal relationships at workplace, such as conflicts with colleagues and conflicts with supervisors.

Several types of outcomes may result from the situations represented by the two diagonals. For example exhaustion, and psychosomatic complaints relating to strain area, and work motivation, learning, and job satisfaction in the case of the active learning area of the above diagram [de Jonge, *et al.* (1995)]. Unfortunately, cross-sectional as well as longitudinal studies on the JDCS model have not been unanimous in their results. Researches on the Karasek's original JDC model, the predicted results are obtained particularly with cardiovascular disease [Johnson (1986); Astrand, Hanson, and Isacson (1989); Johnson and Hall (1988); Johnson, *et al.* (1989)], whereas for somatic complaints and psychological strain, the results are contradictory. Andries, *et al.* (1996) claimed to support the JDCS model; they merely compared different *combinations* of the three variables and did not specifically test the 3-way multiplicative *interaction* relationship. On the other side of the picture, the results of the study by Parkes, *et al.* (1994) were mixed; the models 'worked' for somatic symptoms but not for job satisfaction or

improved productivity. Past researches on JDCS model have identified many antecedents and correlates of stress, and have confirmed that the experience of stress over prolonged periods of time is associated with a range of adverse consequences, including physical upsets, psychological pressure, interpersonal conflicts, performance deficits, absenteeism and turnover of employees [Kahn and Byosiere (1992); Travers (2001)].

The independent effects of job demands have been verified using a wide range of strain measures including job stress/anxiety/dissatisfaction [Kalimo and Vuori (1991); Landsbergis, *et al.* (1992); Parker and Sprigg (1998); Tattersall and Farmer (1995); Wall, *et al.* (1996); Williams and Alliger (1994); Vermeulen and Mustard (2000)], emotional exhaustion and/or burnout [de Rijk, Le Blanc, and Schaufeli (1998); Karasek (1979); Pomaki and Anagnostopoulou (2001); Rafferty, Friend and Landsbergis (2001)], general psychological health [Tyler and Cushway (1998); Beehr, *et al*. (2001); Morrison, Payne, and Wall (2001)], and somatic complaints/ physical illnesses [Wall, *et al.* (1996); de Croon, Van Der Beek, Blonk, and Frings-Dresen (2000)].

Most of the researchers suggest that the availability of job control can have moderate effects upon levels of job satisfaction and morale, as well as somewhat weaker effects upon work withdrawal behaviours, self-reported somatic health and psychological well- being of employees [Hart, Wearing, and Conn (1995); Spector (1986); Kasl (1989); Parkes (1989); Clegg and Jackson (1990); Landy (1992) and Pearson (1992)].

The effects of job control may also vary with a range of personality variables: for example, Hurrell and Lindstrom (1992) found that job control predicted somatic complaints differentially according to participants' age and locus of job control. One job strain researcher, Repetti (1993) noted that (a) supervisor support is more strongly and more consistently related to both job strain and anxiety than is colleaguial support, (b) both supervisor and colleaguial support are correlated, but not consistently or strongly, with somatic disorders and coronary heart disease risk factors, and (c) many of these relationships become non-significant when other stressors (e.g., work job demands, uncertain career future) are job controlled by organisation.

Payne and Fletcher (1983) pointed out five measures of job strain (depression, anxiety, obsession, somatic complaints and cognitive failures) and found the main effect for job demands on anxiety, and main effects for job control on all four factors of the other strain outcomes. Similarly, Fletcher and Jones (1993) establish job demands-support additive effects on anxiety and depression for both males and females, but, when job satisfaction was the criterion, the additive effect was obtained for females only. Likewise, Landsbergis, *et al.* (1992) established that job demands and support jointly predicted anxiety, depressive symptoms and job dissatisfaction, but only support predicted psychological outcomes. For example, in a study of strain amongst nurses, McIntosh (1990) entered both job control (autonomy) and supervisor support in standard regression analyses, and found that both job factors predicted job satisfaction, but only level job control predicted anxiety. On the other hand, Landsbergis, *et al.* (1992) suggested that job control and support contributed jointly to the prediction of job satisfaction, but only support predicted level of anxiety and only job control predicted job involvement.

Parkes, *et al.* (1994) pointed out an additive effect on job satisfaction, but not on somatic symptoms, in a sample of health-care workers. Whereas, Moyle (1998) reported, in a longitudinal study, that support predicted job satisfaction contemporaneously and prospectively, whereas job control predicted this outcome contemporaneously. The factors of strain assessed in past research over the period of fifty years, fall into three categories: emotional/psychological (e.g., tension, frustration, anger, hostility, anxiety, job dissatisfaction, reductions in morale and general well-being, burnout, emotional exhaustion, disturbed cognitive functioning and lack of motivation), behavioural (e.g., absenteeism, sleep disturbances, smoking, alcohol consumption, medication consumption, other substance abuse, reductions in work performance, accidents, medical visits, and turnover), and somatic symptoms (e.g., immune functioning, cardiovascular functions, illness symptoms, physical health risk factors, and physical exhaustion). [Bradley (2004)].

In another view, Sauter, *et al.* (1983) suggested that both job control and support contributed significantly to the prediction of job dissatisfaction, at the same time as only support predicted ill-health symptoms and somatic complaints. Karasek and Theorell (1990) noted that three job factors, job demands, job control and social support, jointly establish worker strain. Both Warr (1990) and Wall, *et al.* (1996) found the impact of job demands and job control upon levels of anxiety, depression and job satisfaction in separate samples of over 1000 British workers. Conversely, LaRocco, *et al.* (1980) suggested that the buffering role of social support varies with the type of outcome: social support buffers the relationship between stressors and such indicators of strain as stress, depression, somatic complaints, but it does not have a significant buffering effect on stressor-job satisfaction relationships. However, Karasek proposed that accumulated anxiety, as being similar to negative affectivity, was a potential outcome of work environment. Watson and Pennebaker's (1989) claimed that correlations between stressors and criterion variables (e.g., somatic complaints) are overstated because NA acts as an (antecedent) influence on both sets of variables.

HYPOTHESES

According to the objectives of our study we predicted the following six hypotheses:

H1-Job demands are positively associated with Somatic Symptoms, Job Anxiety and Turnover Intention.

H2-Job control is negatively associated with Somatic Symptoms, Job Anxiety and Turnover Intention.

H3-Social support is negatively related to Somatic Symptoms, Job Anxiety and Turnover Intention.

H4-Job control and social supports moderate the relationship between demands and Somatic Symptoms, Job Anxiety and Turnover Intention.

H5-The additive effects of job demands and job control predict levels of Somatic Symptoms, Job Anxiety and Turnover Intention better than does the main effect alone.

H6-The additive effects of job demands and social support predict levels of Somatic Symptoms, Job Anxiety and Turnover Intention better than does the main effect alone.

H7- The additive effect of job demands, job control and job social supports predict levels of Somatic Symptoms, Job Anxiety and Turnover Intention better than does the main effect alone.

RESEARCH METHOD

Participants and Procedure

This two time cross-sectional study is based on data obtained from two random samples consisting of nine distribution companies (DISCOs) of WAPDA working in all parts of Pakistan, except the Karachi region. The Employees' Statistical Reckoning (2007–08) personnel records were used to select a simple random sample of 1000 working as regular employees in DISCOs. The target population was all those having graduate and post-graduate qualifications working on various positions from BPS-9 to BPS-17. Because the number of employees between these two ends of the basic pay scales are 80 percent of the total they have a significant role in WAPDA performance. In selecting an appropriate interval between data collection points, it was important to ensure that the time lag was long enough (9 months) to permit an effect to occur without being so long as to lose touch with a large proportion of Time 1 respondents. Several factors were considered in selecting an appropriate time lag. First the intervals used in previous cross-sectional research were identified. The patterns of change observed and attrition rates reported in this past research were examined. There was also a need to ensure that the second wave also coincided with events because less number of employees have been transferred or have resigned or retired from service. On the basis of the information received, the decision was taken to dispatch the Time 2 questionnaires at any time, and thus use an interval of approximately nine months between the two phases of data collection. This time lag provided ample opportunity for the respondents' job conditions to have an impact. It ensured that both questionnaires were completed in the months of the two years that were similar in environment, and avoided the large attrition problems likely to be associated with a change of seasonal climate in the country, particularly June to August. It also follows the practice employed in several past occupational stress studies [e.g., Dormann and Zapf (1999); Schonfeld (1992, 2000); Bradley (2004)].

Finally, it is noted that there was no structured, planned intervention in both studies. No natural and minor organisational changes took place, which had to do with some organisational renewal and personnel changes between the two waves. The 1000 selected employees were delivered personally a copy of the research materials both at T1 and T2. Questionnaires were returned by 401 at T1 and 388 at T2 of these employees with nine month time gap, and all of these were usable. The response rate was 40 percent at T1 and 38 percent at T2. Demographics at T1 showed that 95 percent of the sample was male, and mean age was 26.0 years (SD = 7.1, range 24–45). The mean working time in the current organisation was 10 years (SD = 8.33). The demographic characteristics of the respondents in the second study showed that the ages ranged from 25–48 years (M = 29, SD = 10.8). Most of the respondents were male: 98 percent, and the mean working time was 11 years (SD = 6).

MEASUREMENT OF JOB FACTORS

The items measuring demands, control and social support developed for use in study 1 and study 2 were subjected to correlation and regression analyses. On the basis of

these analyses, 16 of the original total demands, total control, job stress and 8 of social support items, measuring four different job factor domains were selected for use in Study 1 and 2.

Job Demands

Job demands were measured by using a sub-dimension of Karasek, *et al*. (1985), Job Content Survey and Bradley (2004). This dimension consists of 16 items scored on a 5-point Likert scale. Respondents are asked to rate their present job on a 5-point Likert scale ranging from 1= completely false to 5= completely true. The reliability and validity of the measure are available elsewhere [Karasek, *et al*. (1985)]. Internal reliability for this scale with the current sample was a =0.81 [Daryl B. O'Connor, *et al.* (2000)]. Cammann, *et al*. (1983) reported the coefficient of reliability at 0.65, and Bradley (2004) reported a reliability of 0.746 and weighted reliability of 0.939. The reliability coefficients produced by this research for total job demands subscales consisted of [alpha] T1 =0.94 and T2= 0.90.

Job Control

We used Ganster's (1989) validated measure of job control. Ganster's original scale had 22 items, each asking the subject how much control they possessed over the various facets of their work. We reduced the scale to 16 items, removing those items that were not applicable to the employees in our sample; these included questions about control over job demands. The control-scale consisted of two dimensions; skills discretion and decision authority. *Skills discretion* was measured by four items ("keep learning new things", "job requires skill", "job requires creativity", "repetitive work", control over the physical conditions of one's work station, or control over the ability to decorate or personalise the work area. *Decision authority* was measured by some items ("have freedom to make decisions", "can choose how to perform work"), with Cronbach's alpha of .70. Scores on the items were averaged to provide an aggregate index of the amount of control perceived they had over their job, a high score indicates greater perceived control. All the items were scaled on a five-point Likert scale, ranging from 1 = have virtually no control to 5 = have complete control. Ganster (1989) reported internal reliability for this scale of also 0.85 and Bradley (2004) reported a reliability of 0.824 and weighted reliability of 0.947. The reliability coefficients produced by this research for total job control subscales consisted of [alpha] T1 =0.95 and T2= 0.94.

Social Support

Social support was measured using Bradley, (2004), Caplan, Cobb, French, Van Harrison, and Pinneau's (1975) Social Support Scale and revised social support scale. This measure includes two subscales: social support from supervisor and social support from work colleagues. The measure asks the respondents to identify the extent to which four items of support are received from each of these two sources. Example items include: How much do your department administration staffs go out of their way to make life easier for you? And how much do your colleagues go out of their way to make easier for you? The participants responded on a five-point Likert scale where 1 = not at all to 5 = very much. High scores indicate high levels of social support. The measures' internal consistency was tested with Cronbach's alpha statistic. The reliability coefficients

produced by this research for the two social support subscales consisted of [alpha] = T1 0.89 and T2 0.88 (supervisor) and [alpha] = T1 0.93 and T2 0.92 (colleagues). The Cronbach estimate of reliability for the non-commissioned officers support scale was 0.87 whereas Bradley (2004) reported reliability of 0.887 (supervisor) and 0.903 (colleague). Caplan, *et al.* report reliability coefficients of 0.83 for the supervisor support and 0.73 for the colleague support scales. Internal consistency reported by subsequent researchers is typically in excess of 0.70, and often approximates to 0.90.

Occupational Stress

Subjective stress was measured by a four-item scale developed by Motowidlo, Packard, and Manning (1986) as adopted by Bradley (2004). An illustrative item is "I feel a great deal of stress because of my job". Responses were on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). Motowidlo, *et al.* reported a coefficient alpha of 0.83 for this scale. Bradley reported a coefficient alpha of 0.898 for this scale. The reliability coefficients produced by this research for job stress subscales consisted of [alpha] T1 =0.92 and T2= 0.91.

Job Anxiety

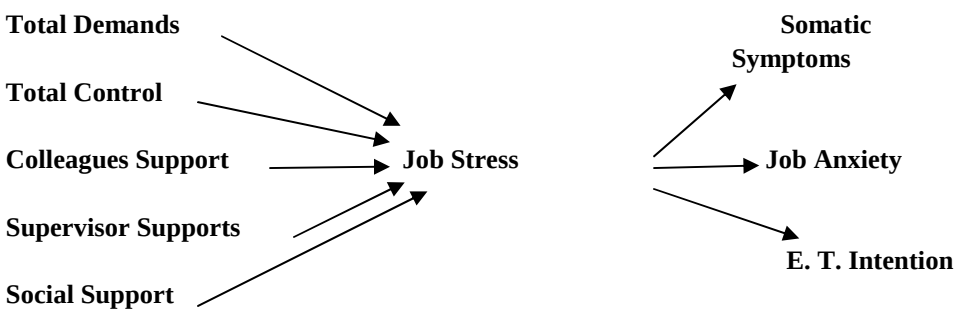
Job anxiety was measured using Spielberger, Gurush, Lusterne, Vagg, and Jacobs's (1983), Cox, Russell, and Robb (1998, 1999) State Anxiety Scale. Instructions were modified as suggested by Spector (1987) to focus respondents' attention on the work environment. To minimise respondent burden, and in line with several previous studies [e.g., Bradley (2004); Beehr, *et al.* (2000); Dollard and Winefield (1995); Spector and O'Connell (1994)], a 10-item version of the scale was used. Responses were on a five-point scale from 1 = not at all to 5 = extremely. Use of the scale is supported by extensive reliability and validity data reported in the test manual [Spielberger, *et al.* (1983)]. Past researchers who have used the scale [e.g., Bradley (2004); Elsass and Veiga (1997); Jex and Spector (1996); Jimmieson and Terry (1993); Landsbergis, *et al.* (1992); McIntosh (1990); Spector (1987a); Spector, *et al.* (1988); Steptoe, *et al.* (1993)] report reliability coefficients ranging from approximately 0.80 to in excess of 0.90. Beehr, *et al.* Dollard and Winefield, and Spector and O'Connell all reported an alpha coefficient of 0.89 for shortened versions of the scale. Bradley (2004) reported an alpha coefficient of 0.965 for this scale. The reliability coefficients produced by this research for total tension anxiety scales consisted of [alpha] T1 =0.72 and T2= 0.58.

Somatic Symptoms

A physical health checklist (see Appendix E-3 from E1 to E10) was developed based on similar scales used by Motowidlo, *et al.* (1986), Pierce and Molloy (1990), Spector (1987), University of Melbourne (1990), Daryl B. O'Connor, *et al.* (2000), Checklist 90-R (SCL-90-R, Derogatis, *et al.* (1973) and Bradley (2004). In selecting the scale, distributions of participants' responses in past research were examined to identify items that have strong floor effects. To limit the length of the current scale, ten items were selected. These ten-item versions of the scale were included in the quantitative pilot study at the beginning of the first research study. Employees reported the frequency with which they experienced each symptom using a five-point scale, ranging from 1 (not at

all) to 5 (once a week). Some of the items were shown to be non- discriminating and were deleted from the list. Reliability and validity data is reported by Derogatis, *et al.* (1973). Internal reliability for this scale with this sample was a =0.88. Bradley (2004) reported a reliability coefficient of .886. The reliability coefficients produced by this research for somatic symptoms scales consisted of [alpha] T1 =0.92 and T2= 0.86.

Research Design



Tests of Job Stress Hypotheses

Correlation Analyses

Table 1 shows the zero-order correlations between the total job factors and job stress outcomes. The three job factors variables were highly correlated (see tables) with Job Stress. Job demands and its sub-scales, were high positively and significantly related to the expected job factors and job stress, whilst job control and social supports emphasis were also negatively (and slightly less significant) related to job demands and job stress. Furthermore, the relative magnitude of these bi-variate correlations was consistent with original predictions. High levels of all job stress variables were associated with social supports, although the correlation between employees demands at T2 and job factors emphasis was slightly less significant.

Table 1

Correlation Matrix (N=402 and 388)

		Time Variables																	
		Time 1									Time 2								
S. No.	Job Factors	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
1.	Total Demands	1									1								
2.	Total Control	–.77	1								–.71	1							
3.	Colleagues Support	–.83	.73	1							–.78	.70	1						
4.	Supervisor Support	–.80	.71	.88	1						–.56	.50	.62	1					
5.	Social Supports	–.83	.74	.96	.98	1					–.62	.46	.77	.65	1				
6.	Job Stress	.83	–.75	–.84	–.85	–.87	1				.82	–.74	–.84	–.69	–.66	1			
7.	Somatic Symptom	.69	–.63	–.74	–.70	–.70	.76	1			.70	–.64	–.72	–.56	–.57	.77	1		
8.	Job Anxiety	.74	–.64	–.69	–.72	–.77	.75	.68	1		.69	–.61	–.77	–.54	–.59	.73	.66	1	
9.	E.T. Intention	.82	–.75	–.84	–.81	–.84	.82	.72	.77	1	.82	–.73	–.84	–.66	–.68	.86	.78	.79	1

Linear and Multiple Regression Analyses

Tables 2 show that, at T1, and T2 the job factors explained significant amount of the variance in Job Stress. These variances were analysed as under:

Table 2

Hierarchical Regression Analyses of Job Factors Scales upon Job Predictors of Model and their Interactions

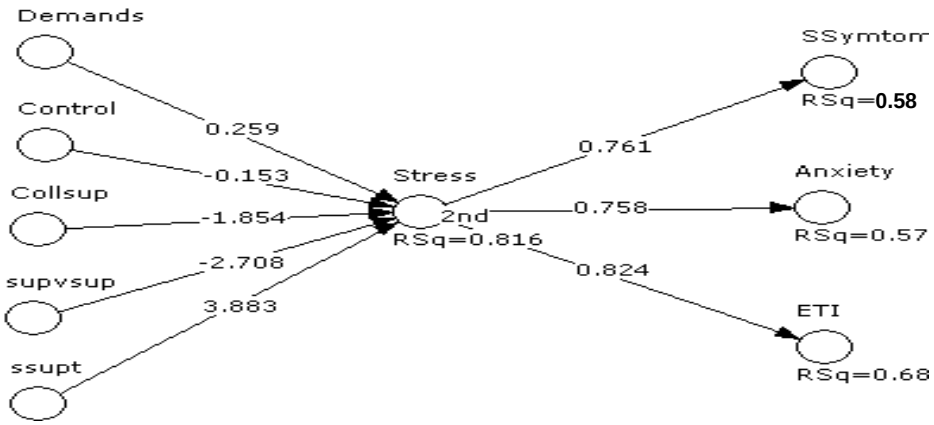
		Time 1 (N = 401)						Time 2 (N = 388)					
Independent	Dependent	β	*SE*β	*Beta*	t-Values	R^2 (Adjusted)	F-Values	β	*SE*β	*Beta*	t-Values	R^2 (Adjusted)	F-Values
Total Demands	Somatic Symptoms	.66	.034	.70**	19.55	.48	382.17**	.82	.03	.73	21.01	.53	441.41
Total Control	Somatic Symptoms	–.52	.032	–.63**	–16.42	.40	268.57**	–.56	.03	–.64	–16.46	.41	270.94
Social Support	Somatic Symptoms	–.56	.025	–.74***	–22.41	.55	501.90**	–.63	.04	–.58	–13.96	.33	195.06
Total Demands	Job Anxiety	.46	.02	.75**	22.56	.56	509.08**	.55	.02	.73	21.14	.54	447.02
Total Control	Job Anxiety	–.35	.020	–.65**	–16.97	.42	288.16***	–.36	.02	–.62	–15.39	.38	236.91
Social Support	Job Anxiety	–.38	.016	–.78**	–24.59	.60	604.36***	–.44	.03	–.60	–14.72	.36	216.89
Total Demands	E.T. Intention	1.07	.037	.83***	29.19	.68	842.09***	1.30	.04	.84	31.43	.72	988.03
Total Control	E.T. Intention	–.83	.039	–.72***	–20.78	.52	431.78***	–.88	.04	–.73	–21.47	.54	461.03
Social Support	E.T. Intention	–.87	.027	–.85**	–31.95	.72	1021.16**	–1.02	.05	–.68	–18.71	.47	350.11
Demands	Somatic Symptoms	.18	.06	.19	2.94			.49	.06	.43	7.59		
Control		–.09	.04	–.11	–2.15			–.19	.04	–.22	–4.42		
Support		–.37	.04	–.50	–8.03	.58	182.83	–.21	.04	–.19	–4.50	.57	174.01
Demands	Job Anxiety	.18	.03	.30	4.97			.35	.04	.46	8.09		
Control		–.03	.02	–.05	–1.14			–.09	.03	–.16	–3.18		
Support		–.24	.02	–.48	–8.26	.63	4.98	–.16	.03	–.22	–5.24	.57	174.59
Demands	E.T. Intention	.43	.06	.33	8.86			.77	.06	.50	12.11		
Control		–.10	.04	–.09	–2.27			–.29	.04	–.24	–6.70		
Support		–.51	.04	–.49	–10.71	.76	430.07	–.37	.04	–.25	–8.19	.78	456.87

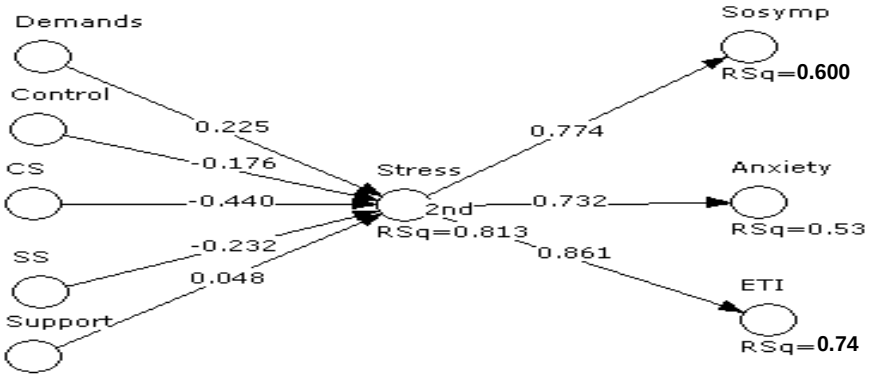
Note: β = Unstandardised Co-efficient of Regression. SE β = Standard Errors in Beta (unstandardised). *Beta*= Standardised coefficients.
All Beta and F values are significance at p<.001.

Hierarchical multiple regression analyses were performed to assess the effects of the various job factors on job stress. Main, quadratic and interaction effects were explored separately each for job demands, job control and social supports. This was done because each variable has separate entity and requisites. All these analyses used the T1 and T2 data to develop the relationship between job factors and job stress variables. Table 2 summarises findings from the main and additive analyses. These regression models explained significant and consistent variances in various sub-group domain analyses, but slightly smaller proportions of the variances in employees' Job Stress. The Job Stress dimensions were associated with significant ($p < .001$) R^2 adjusted values when entered together as a block in predicting each of the job factors. Job Stress predicted all job factors particularly supervisor support ($p < .01$), but smaller prediction in qualitative demands. Social supports (colleagues + supervisor) were also emphasised by the entire job factors especially additive effects of job factors. These findings are consistent with the above developed hypothesis' main effect of job factors on job stress.

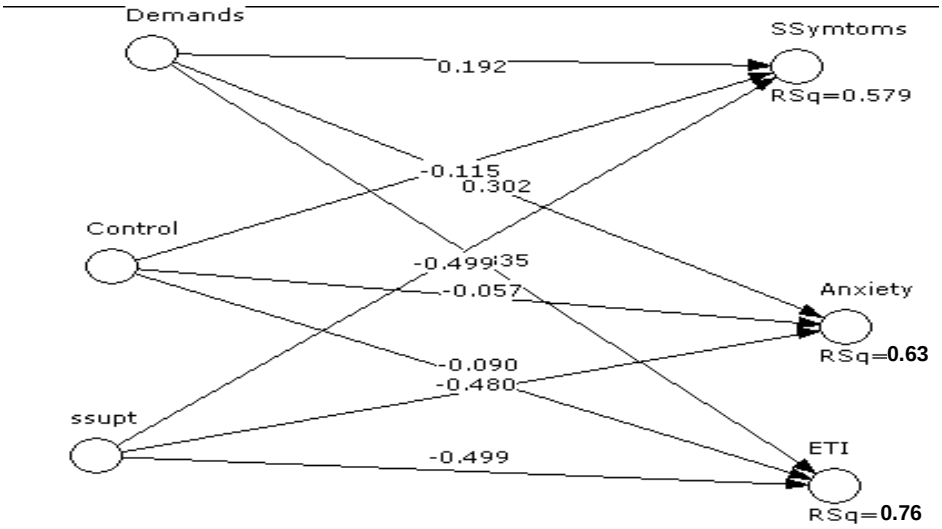
Modelling Analyses

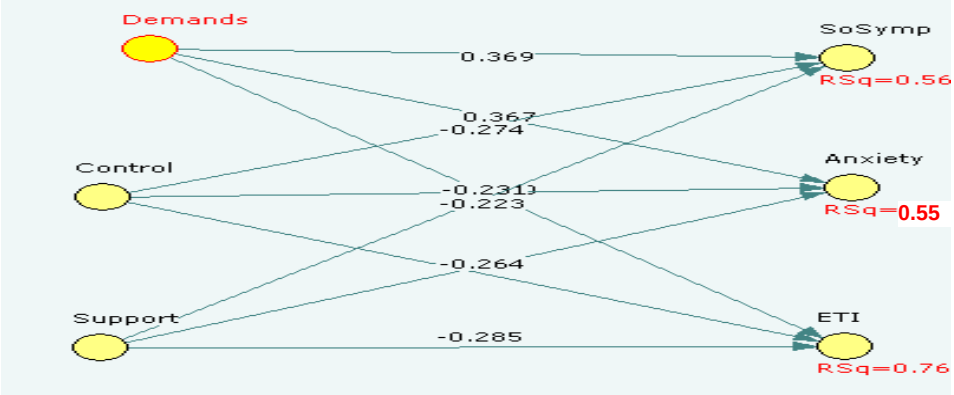
Two principal models were tested using PLS (partial least square). All models assumed that job demands and control co-varied or demands, control and social supports co-varied and that there was significant interaction term with AP variables. The models also included covariance paths between the residuals in all endogenous variables specified at the same step in the hypothesised sequence.


Demands
Control
Collsup
supvsup
ssupt
0.259
-0.153
-1.854
-2.708
3.883
Stress
2nd
RSq=0.816
0.761
0.758
0.824
SSymtom
RSq=0.58
Anxiety
RSq=0.57
ETI
RSq=0.68


Demands
Control
CS
SS
Support
0.225
-0.176
-0.440
-0.232
0.048
Stress
2nd
RSq=0.813
0.774
0.732
0.861
Sosymp
RSq=0.600
Anxiety
RSq=0.53
ETI
RSq=0.74

Time-1 and 2


Demands
Control
ssupt
0.192
-0.115
0.302
-0.499
35
-0.057
-0.090
-0.480
-0.499
SSymtoms
RSq=0.579
Anxiety
RSq=0.63
ETI
RSq=0.76



Time-1 and 2

Model 1 and 2: Modified Karasek's (1979) Core Model (Time-1 and 2)

Summary of Findings

This study summarises findings relevant to the immediate indices of occupational stress hypotheses.

Hypothesis 1: Main Effects of Demands on Somatic Symptoms, Job Anxiety and Employees Turnover Intention

Findings from total demands and specific factors domains provide impressive support for the predicted effect of job demands on Somatic Symptoms, Job Anxiety and Employees Turnover Intention. The effects were consistent across job domains, stress indices, and temporal frameworks of modelling. Mostly strong effects (direct and indirect) were found for (a) all demands scales on employees' turnover intention, and then on job anxiety and somatic symptoms. Furthermore, social support (particularly colleague support) for this effect was strongest when the outcomes were Somatic Symptoms, Job Anxiety and Employees Turnover Intention.

Hypothesis 2: Main Effects of Job Control on Somatic Symptoms, Job Anxiety and Employees Turnover Intention

Most findings supported the predicted effects of control on Somatic Symptoms, Job Anxiety and ETI. The slightly less significant relationships as compared to others (job somatic symptoms and job anxiety) were (a) total control on employees' turnover intention were slightly more significant, (b) total control on job anxiety slightly less significant, and (c) total control on somatic symptoms was less significant. Regression analyses (see Table 2) indicated that job control over issues in ETI was a more reliable predictor of occupational stress than was control in other job outcomes.

Hypothesis 3: Main Effects of Social Support on Somatic Symptoms, Job Anxiety and Employees Turnover Intention

There was significant support for this hypothesis from the ANOVAs and linear regression analyses. However, the ANOVAs and the regression analyses both indicated

that colleagues support explains significant amounts of unique variance in job anxiety, ETI, and somatic symptoms. On the other hand, colleagues support was also significant but considerably lower than supervisory support. The social support (supervisory support and colleagues support) remained significant on all indices of stress, particularly, on ETI.

Hypothesis 4: Additive Effects of Control and Social Support on Stress Outcomes

Findings were much clear in relation to this hypothesis. In the regression analyses, the effect of control + supervisor support, and effect of control + colleague support were confirmed, but the effect control + colleagues was slightly lower than the first one. This difference between the two studies of control + so

cial support at T1 and T2 remained nearly at the same variance. Multiple regression analyses indicated that control + supervisor support was a more reliable predictor of strain than was control + colleagues support, except in models that included stressors as a mediating variable.

Hypothesis 5: Additive Effects of Demands and Control on Occupational Stress Outcomes

This hypothesis was supported using various angles of regression analysis (tables and modeling analysis). Findings were supported through additive and interactive analysis that job demands and job control explained significant amounts of variance in most occupational stress outcomes better than the main effect alone. Furthermore, the total demands on occupational stress outcomes for this effect was strongest than that of total control.

Hypothesis 6: Additive Effects of Demands and Social Support on Stress Outcomes

The demands—support additive hypothesis (see Table 2) reported highly significant prediction and variance in ETI than to job anxiety and somatic symptoms. This hypothesis was strongly confirmed in correlational as well as multiple regression analyses. The effects of the two additive terms, involving supervisory support and colleague support, varied with the type of stress. For example, there was a consistently strong effect of demands—supervisor support on all indices of occupational stress and colleague support effect on stress—that was slightly less than that involving supervisor support.

Hypothesis 7: Additive Effects of Demands, Control and Social Support on Job Strain

This hypothesis received more support than did any of the other interaction hypotheses. Because, in the multiple regression analyses, the total demands + total control + social support interaction predicted ETI, job anxiety and somatic symptoms significantly at T1 and at T2, particularly ETI. This hypothesis received some special support from the regression analyses, and from the cross-sectional one-way ANOVAs. Support was also obtained from evidence that entry of all three job factors as predictors in study 1 and 2 multiple regression analyses yielded significant increases in explained variance at each step in several of the occupational stress indices, particularly job

dissatisfaction. Evidence of this kind was stronger for hypothesis (demands + control + supervisory support) than for hypothesis carried dual or main effect alone.

Discussion Regarding Occupational Stress Hypotheses

Consistent with the prior researches and our study 1 findings, demands, control and social support had significant effects on immediate outcomes of occupational stress. The effects were consistent across time frames, independent and dependent variables, and modes of analysis except in a few cases. Significant effects were typically associated with job demands and social support than with job control. The T1 job factors on T2 occupational stress have not been due to the greater instability and non-significance results. Significant findings were obtained for the hypothesised additive effect of demands and control, thus confirming Karasek's (1979, p. 287) reported finding that "occupational stress results not from a single aspect of the work environment, but from the joint effects" of demands and control. While similar additive effects have been reported in past researches and T1, the current findings were noteworthy for their consistency, especially given the relatively high correlations between corresponding measures of demands and control (see Table 1). The total proportion of variance in occupational stress explained by these two job factors was high enough (typically 60-80 percent). Furthermore, high or low level of correlation may be contributed through many variables potentially associated to occupational stress outcomes; it may be unrealistic to expect proportions of explained variance to be much higher than this [see Semner, *et al.* (1996); Bradley (2004)]. Karasek's original model is commonly interpreted as predicting a demands + control interaction upon strain indices. Most of the past researchers reported their findings in (a) male or mixed sex, blue-collar samples, (b) cross-sectional designs, and (c) congruent and occupation-specific self-report measures of the job characteristics. In the current study, considerable support for the interaction hypothesis was obtained. Somewhat interestingly, in the light of T1 findings, evidence of the buffering effects of control was stronger in the study 2 than in the T1 analyses. The extent to which control buffered the effects of demands was shown too consistent across job domains and occupational stress indices. The workload demands x workload control interaction term was particularly successful in predicting employees turnover intention (ETI) in those models that included stressors as a mediating variable, suggesting that interaction effects on occupational stress were stronger than other two indices. Several researchers [e.g., Burke and Greenglass (1995); Pomaki (2001); Sheffield, *et al.* (1994); Bradley (2004)] have found that social support does not correlate highly with occupational stress in samples of white collar employees. On the other hand, researchers such as Alloway and Bebbington (1987), Payne and Jones (1987) and Buunk and Peeters (1994), have concluded that significant findings occur significantly but not frequently than would be expected.

Some interesting comparisons can be made between the present study T1 and T2 and that reported by Dormann and Zapf (1999). Both studies included separate measures of supervisor and colleague support [scales of Caplan, *et al.* (1975)], both used longitudinal designs with an eight-month time lag and both tested the buffering hypothesis using continuous interaction terms within SEM models and reported significance of interaction of social support. Bradley (2004) reported in his cross-sectional correlations between social support and occupational stress in the region of –.20.

Despite this modest mean, their bivariate correlation, several main effects for social support were significant in the multivariate analyses. In their analysis, support from supervisors was a strong (negative) predictor of turnover intentions, whilst support from colleagues was highly predictive of ETI. Similar analyses were found in our study 1 and 2. Support from supervisors was a strong (negative) predictor of all three indices of occupational stress, whilst support from colleagues was lower in study 1, highly predictive of job outcomes in study 2. Thus, Kahn and Byosiere (1992), Mitchell, *et al.* (1982), and some others have indicated that the demands x support interaction may hold only for particular combinations of stressors and not all types of support and specific indices of occupational stress. The demands + support, and control + support, hypotheses were strongly supported by the current findings. The mean R2 adjusted associated with the control x social support prediction was .81 at T1, and .71 at T2. Indeed, the findings are more consistent with an additive than with main or independent effects with the model of the effects of demands and support upon occupational stress.

Two possible exceptions to this general pattern of non-significant effects were the interactions between (a) colleagues support and employees' demands at T1, and (b) colleague support and all stressors at T2. These significant effects provided support to hypothesis but buffering effects are most pronounced when the type of support offered meets the particular needs of the person who is experiencing stress. According to this "stress-matching concept" hypothesis, well-targeted and specific types of support are of much more use to those experiencing stress than to those who are not, and hence the beneficial effects of such support vary between employees depending on their requirements and circumstances available at work environment.

Consistent with past research, the present findings suggest that control + colleague support impacted more strongly on occupational stress outcomes than on any other strain index, while control + supervisor support had strong effects on both ETI and other indices of occupational stress. Therefore, evidence is accumulating in support of the views that the two job factors of control and social support operate in supplementary, rather than substitutive, ways to counteract all or at least some kinds of strain. Whilst some studies were made for the additive effects of control and social support, the current research provides sufficient grounds to support the claim of the interactive effect of these two job factors on occupational stress. The most consistent evidence of the hypothesised synergistic relationship was in relation to the control + supervisory support effect on job anxiety and ultimately leads to *turnover* intentions of employees. Given the current findings, there may be value in future researchers examining the impact of the control + social support interaction on this criterion. If replicated, the finding may have implications for reducing levels of staff turnover in an organisation.

This study reported findings from multiple regression analyses of several versions of four principal models of the relationships between job factors and occupational stress. Findings from these analyses suggested that model choice depended upon the relative importance attached to goodness-of-fit and parsimony and also in consideration of work environment. Model 1, (both T1 and T2) which specified direct effects from all job factors to all occupational stress indices yielded the best set of fit statistics, although greater parsimony was achieved by models that included mediating variables such as stressors and/or immediate strain indices.

All models explained similar amounts of variance in the strain outcomes. The indirect effects version of models 1 and 2 tended to provide a better fit than did the corresponding hypothesised versions, a finding that is consistent with the evidence that the best compilation fit was provided by model 1 than complex model 3 and 4. However, model 1, and the indirect versions (T1 and 2) of the other models, were highly significant and typically contained a small number of non-significant paths. In comparison, the hypothesised versions of models 1 and 2 provided satisfactory fit, with greater parsimony, while model 3 and 4 provided further clarification to researchers. Models (3 and 4) that included the stressor variable more consistently yielded significant parameter estimates associated with social support and with the demands and control interaction. In contrast, the latter models more consistently yielded significant estimates associated with social support.

The regression analyses significantly confirmed the hypothesised role of job factors in mediating the relationships between the job factors and occupational stress. Mediation paths were particularly strong when supervisor support was the job factor and/or when job-anxiety or somatic symptoms was the occupational stress index (see model 1 and 2).

Finally, it was concluded that the findings from this study provide quite strong evidence of the additive effects of demands, control and social support on self-reports of strain, and more modest evidence of main effects of these three job factors. The evidence for such independent and additive effects is less significant when job control activities at T1 and total demands at T2 were used as indices of occupational stress. The terms representing the interactions between the job factors accounted for considerable variance in all seven measures of strain. Given the number of tests conducted and the significant effects generally obtained, it seems reasonable to conclude that study 2 provides qualified support to some level for Karasek's (1979), Karasek and Theorell (1990) main and additive effects models of job strain.

Recommendations for WAPDA Management

(1) This study enables managers (of WAPDA) to understand the sources of job dissatisfaction and make decisions about how to improve the employee job satisfaction, performance and job description in consideration of our analysis of Demand Control Support Model.

(2) These studies (T1 and T2) communicate clearly the significant effect of social support on immediate and remote outcomes of strain in the work environment of WAPDA. Supervisors must have the knowhow to provide guidance; support and to organise the level of job demands, on the worker's decision-making latitude, and on the quality of social support available from management and co-workers.

(3) This study's reports (four subscales of each job demands, control and stress; two subscale of social support) give recommendations to organisations if the time and financial resources are invested in restructuring the recruitment policies (development of Human Resource Department), promotional policies, salaries structures, fringe benefits (in consideration of real wages) and training employees, it will pay huge dividends in reducing employees' job stress, job

dissatisfaction, increasing productivity and minimising turnover of competent and productive employees. The study also reports that those training programmes are most likely to be successful in which workers played key roles in work restructuring and work reorganisation.

(4) The authority must allocate work environment clearly and equitably, ensure the jobs are designed in accord with ergonomic principles, develop and maintain efficient internal systems, encourage the two-way flow of information consistency, and build effective team work.

(5) Finally, it is suggested that re-structuring and other necessary reforms at WAPDA must be designed to boost efficiency, foster good corporate governance, cut down costs, and make these entities truly commercially viable enterprises. Because the operating costs and line losses of DISCOS are too high, it was necessary to undertake a comprehensive re-structuring programme and split DISCOS into smaller companies and privatise them.

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