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SMEs and Economic Growth in Nigeria: An Autoregressive Distributed Lag Approach

Ishola Wasiu Oyeniran,[*] Oladipo Olalekan David,[**] Oluseyi Ajayi[***]

Abstract

This empirical study adopts an autoregressive distributed lag approach in order to examine how small and medium enterprises (SMEs) have contributed to economic growth in Nigeria between 1981 and 2013. We find that investment in SMEs has had a significant and positive impact on economic growth in the country. Given that Nigeria is economically underdeveloped, it is essential that the majority of its (largely rural) population be integrated into the process of economic development through entrepreneurship in small businesses. This means encouraging further investment in SMEs and prioritizing their access to credit facilities, infrastructure development, and capacity building to promote long-run socioeconomic development through this medium.

Keywords: SME, economic growth, unit root, autoregressive, entrepreneurs.

JEL classification: L26, O12.

1. Introduction

In many countries, the past few decades have witnessed renewed interest in the development of small and medium enterprises (SMEs). Various studies have acknowledged the importance of SMEs in economic growth (see Hu, 2010; Afolabi, 2013), referring to them as "the engine of growth" and as "catalysts for [the] socioeconomic transformation of any country" (Leegwater & Shaw, 2008).SMEs represent a means to attain key macroeconomic objectives such as employment generation, increased growth, and poverty reduction at low investment cost while developing a country's entrepreneurial capabilities and indigenous technology (Adebiyi, 2004).They also improve regional and sectoral economic balance by enabling industrial dispersal across sectors and locations, and

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[*]Department of Economics, Al-Hikmah University, Ilorin.
[**]Department of Economics, Al-Hikmah University, Ilorin.
[***]Department of Business Administration, Al-Hikmah University, Ilorin.

generally promote effective resource utilization, which is critical to engineering economic development and growth (Odedokun, 1988; Kongolo, 2010).

Over the past few years, there has been an impressive increase in the number and volume of Nigerian government programs that seek to encourage the unemployed, young persons, welfare recipients, and disadvantaged groups to set up their own small businesses. The government has also established several micro-lending institutions to support SMEs through access to credit and loans. These include the Nigerian Bank for Commerce and Industry, the National Economic Reconstruction Fund, the People's Bank of Nigeria, other community banks, and the Nigerian Export and Import Bank. SMEs are expected to contribute about 34 percent (the ratio of the gross value of manufacturing to GDP) to the national product and to generate 60–70 percent of total employment with sustainable yearly growth (Egbabor, 2004).

While the impact of SMEs on economic growth has received increased empirical attention in the literature (see Leegwater & Shaw, 2008; Bamidele, 2012; Afolabi, 2013),very few studies have focused on SMEs in Nigeria, especially on their contribution to macroeconomic growth in the country. Additionally, most such studies have not taken into account the properties of the time-series data used, which renders them less reliable. Our objective, therefore, is to empirically investigate the impact of SMEs on economic growth in Nigeria using the autoregressive distributed lag (ARDL) approach.

2. Conceptual and Theoretical Review

There is no generally accepted definition of a "small" business because the classification of firms as large or small is a subjective and qualitative judgment (Kongolo, 2010). The definition of an SME has changed overtime with shifts in price level, advances in technology, and other considerations. SMEs can be defined by the number of employees and turn over, by the type of industry, paid-up capital, and number of paid employees (Ekpenyong & Nyong, 1992), or by the degree of development and economic structures present (Yang, Lim, & Kanamori, 2006).

In the UK, for example, small businesses are defined as those with an annual turnover of GBP 2 million or less and with fewer than 200 paid employees. In the US, SMEs include enterprises with fewer than 500 regular employees in the case of manufacturing or with fewer than 100

regular employees and an average annual operating revenue of less than US$6 million in the case of wholesale and retail. SMEs in the services and construction sectors are classified as having an average annual income of less than US$6 million and less than US$28.5 million, respectively (Yang et al., 2006). In Japan, SMEs are defined as those firms in manufacturing with JPY 100 million in paid-up capital and up to 300 employees, those in wholesale with JPY 30 million in paid-up capital and up to 100 employees, and those in retail and services with JPY 10 million in paid-up capital and up to 50 employees (Ozigbo & Ezeaku, 2009).

In 1988, the Central Bank of Nigeria defined small enterprises as those with an annual turnover not exceeding NGN 500,000.[1] In the 1990 budget, the federal government defined small enterprises for the purpose of commercial bank loans as firms with an annual turnover not exceeding NGN 500,000. The National Economic Reconstruction Fund has put the ceiling for small firms at NGN 10 million. In July 2001, the National Council of Industries (at its 13th meeting in Makurdi, Benue) categorized small businesses as those employing (i) total capital of over NGN 1.5 million but not more than NGN 50 million (including working capital but excluding the cost of land), and/or(ii) 11–100 workers. Medium enterprises were defined as those employing (i) total capital of over NGN 50 million but not more than NGN 200 million (including working capital but excluding the cost of land), and/or (ii) 101–300 workers.

3. Empirical Review

The literature includes numerous empirical studies on the impact of SMEs on economic growth in the context of developed countries, most of which use regression techniques. Similar studies on Nigeria are, however, more limited. For instance, Iyigun and Owen (1998) find a negative relationship between economic development and self-employment in the labor force. Carree, van Stel, Thurik, and Wennekers (2002) establish a nonlinear relationship between economic development and entrepreneurship. Beck, Demirgüç-Kunt, and Maksimovic (2002) estimate a standard growth regression model for a cross-section of countries, which includes the relative size of the SME sector in terms of employment. They find that the sector has a positive, but not robust, impact on economic growth.

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[1]Monetary Policy Circular No. 22.

Using a similar approach, Audretsch and Keilbach (2005) and Mueller (2007) find that different measures of entrepreneurship have a positive impact on economic growth in the context of developed countries. Van Stel,Carree,andThurik(2004)investigate the contribution of total entrepreneurial activity to GDP growth for a sample of 36 countries and test whether this contribution depends on the level of economic development (measured as GDP per capita). Their results show that entrepreneurial activity by nascent entrepreneurs and owner-managers of young businesses does affect economic growth, but that this effect depends on the level of per capita income.

In another cross-country study, Hu (2010) uses a dataset comprising 37 developed and developing countries to examine the role of the SME sector in economic growth during the 1960s to the 1990s.The study finds that small businesses contribute to economic prosperity. Specifically, in pursuing economic growth, SMEs in high-income economies tend to exploit entrepreneurship while those in less developed economies drive job creation.

Leegwater and Shaw (2008) investigate the role of micro, small, and medium enterprises in the growth of per capita income in the US, using data on firms in the formal manufacturing sector with fewer than 10, 20, 100, and250 employees. Their regression model indicates a positive relationship between economic growth and the prevalence of medium-scale firms or smaller (250 employees or fewer). However, they find only a limited link between growth and the prevalence of small or micro firms (with fewer than 10, 20, or 100 employees). In another study on the US, Bruce, Deskins, Hill, and Rork (2009) reveal that a higher concentration of small businesses in neighboring states increases a particular state's own economic growth rate.

Most studies on the impact of SMEs on economic growth in Nigeria are descriptive (see Agbonifoh, Ehiametalor, Inegbenebor, & Iyayi, 1999; Bamidele, 2012; Muritala, Awolaja, & Bako, 2012). Although some have used inferential methods such a ssimple ordinary least squares (OLS), they do not take into account the time-series properties of the variables used. For instance, Kadiri (2012) examines the contribution of SMEs to employment generation in Nigeria, using binomial logistic regression tools. He finds that SMEs have not had a positive economic impact because they are often unable to obtain adequate business financing. Onakoya, Fasanya, and Abdulrahman (2013) examine the impact of financing small enterprises on economic growth, applying OLS to quarterly time-series data for1992–

2009. They note that loans to small entrepreneurs have a positive impact on the sector's economic performance.

Somoye (2013) evaluates the impact of finance on entrepreneurship growth in Nigeria using an endogenous growth framework. The study's results show that financing, interest rates, real GDP, unemployment, and industrial productivity are significant determinants of entrepreneurship in this case. Afolabi (2013) employs OLS to assess the effect of financing for SMEs on economic growth in Nigeria between 1980 and 2010. The study reveals that the SME sector's output—with wholesale and retail trade output as a component of GDP used as a proxy—and commercial banks' credit to SMEs both have a positive and significant impact on economic development.

Overall, the literature on the impact of SMEs on economic growth remains inconclusive. More studies that use inferential techniques and take note of time-series properties are needed. We attempt to fill this gap by using the ARDL approach and paying adequate attention to the nature of the variables used. In so doing, the study aims to contribute to the empirical literature in this field.

4. Model Specification

This study employs the neoclassical growth model in examining the role of SMEs in economic growth. The standard version of this model seeks to explain the growth rate of aggregate output based on factors such as labor, capital, and technological progress (or the Solow residual). The model is written as follows:

$$Y_t = A_t \, f \, [K_t, L_t] \tag{1}$$

where, in period t, Y_t represents output, K_t is capital input, and L_t is labor input. A_t denotes the technology level in the economy or its stock of knowledge and total factor productivity.

Given the significance of technological factors in determining economic growth and the argument that innovations by entrepreneurs contribute significantly to technology (see Schumpeter, 1934), we introduce investment in SMEs into equation (1) to capture the effect of technological change on economic growth. The exchange rate and inflation rate are also added to the equation as control variables. This yields

$$Y_t = \beta_0 + \beta_1 K_t + \beta_2 L_t + \beta_3 SME_t + \beta_4 EXR_t + \beta_5 INF_t + \mu_t \tag{2}$$

Where Y is the log of GDP, SME is the log of investment in SMEs, EXR is the exchange rate, INF is the inflation rate, K is the log of capital, L denotes the labor force, and α_i and μ are parameters and the error term, respectively.

5.   Data Sources and Methodology

We have used secondary data spanning the period 1981–2013. SME performance is captured by investment in SMEs. Gross fixed capital formation and the total labor force capture capital and labor, respectively. The inflation rate and exchange rate are represented by the percentage change in the consumer price index and the effective US dollar to Nigerian naira exchange rate. GDP at 1990 constant prices denotes income. Apart from the data on the labor force, which was sourced from the World Bank's development indicators for 2013, all other variables were obtained from the central bank's statistical bulletin for 2014 and various annual reports.

In order to empirically assess the long- and short-run impact of SME performance on economic growth in Nigeria, we estimate equation (2) using the bounds testing or ARDL cointegration procedure developed by Pesaran, Shin, and Smith (2001). The ARDL procedure can be used when the regressors are integrated of order 0 or 1, unlike the Johansen approach, which strictly requires that all variables are integrated of order 1, that is, stationary at first difference (Oteng-Abayie & Frimpong, 2006). The ARDL procedure is also more efficient in the case of small or finite samples as is the case here (see Kakar, Kakar, Khan, & Waliullah, 2011). The approach is not, however, considered efficient in the presence of variables that are stationary at second difference.

ARDL cointegration entails several stages. First, the stationary properties of the time-series variables in equation (2) are examined by implementing the unit root test. All variables are tested in levels and in the first difference using the augmented Dickey–Fuller (ADF) test and Phillip–Perron unit root test. Next, we test for the existence of a long-run relationship between economic growth, SME performance, and all other regressors within a univariate framework. Following Pesaran et al. (2001), we adopt the bounds test, modeling the long-run equation (3) as a general vector autoregressive model of order p as follows:

$$\Delta Y_t = C_0 + \beta_1 Y_{t-1} + \beta_2 K_{t-1} + \beta_3 L_{t-1} + \beta_4 SME_{t-1} + \beta_5 EXR_{t-1} + \beta_6 INF_{t-1} + \sum_{i=1}^{p} \phi_1 \Delta Y_{t-1} + \sum_{i=1}^{p} \phi_2 \Delta K_{t-1} + \sum_{i=1}^{p} \phi_3 \Delta L_{t-1} + \sum_{i=1}^{p} \phi_4 \Delta SME_{t-1} + \sum_{i=1}^{p} \phi_5 \Delta EXR_{t-1} + \sum_{i=1}^{p} \phi_6 \Delta INF_{t-1} + \mu_t \tag{3}$$

whereβ and $\phi$are the long-run and short-run multipliers, respectively, C_0 is the drift, and $\mu_t$is a white noise error.

Equation (3) is estimated using OLS to test for the existence of cointegration or a long-run relationship among the variables. This is done by conducting an F-test for the joint significance of the coefficients of the lagged levels of the variables:

H_0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$ (there is no long-run relationship)

H_1: $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq 0$

The calculated F-statistic from equation (3) is compared with the critical value tabulated by Pesaran et al. (2001). If it exceeds the upper critical value, the null hypothesis of no long-run relationship can be rejected regardless of whether the underplaying order of integration of the variables is 0 or 1.

Once cointegration is established, the conditional ARDL (p_1, q_1, q_2, q_3, q_4, q_5) long-run model for equation (2) can be estimated as follows:

$$Y_t = C_0 + \sum_{i=1}^{p} \beta_1 Y_{t-1} + \sum_{i=0}^{q1} \beta_2 K_{t-1} + \sum_{i=0}^{q2} \beta_3 L_{t-1} +$$
$$\sum_{i=0}^{q3} \beta_4 SME_{t-1} + \sum_{i=0}^{q4} \beta_5 EXR_{t-1} + \sum_{i=0}^{q5} \beta_6 INF_{t-1} + \mu_t \qquad (4)$$

All the variables are as previously defined. Next, we select the orders of the ARDL (p_1, q_1, q_2, q_3, q_4, q_5) model for the six variables, based on the Akaike information criterion (AIC). The final step involves obtaining the short-run dynamic parameters by estimating an error correction model associated with the long-run estimates. This is specified as follows:

$$\Delta Y_t = \lambda_0 + \sum_{i=1}^{p} \phi_1 \Delta Y_{t-1} + \sum_{i=1}^{p} \phi_2 \Delta K_{t-1} + \sum_{i=1}^{p} \phi_3 \Delta L_{t-1} +$$
$$\sum_{i=1}^{p} \phi_4 \Delta SME_{t-1} + \sum_{i=1}^{p} \phi_5 \Delta EXR_{t-1} + \sum_{i=1}^{p} \phi_6 \Delta INF_{t-1} + \delta_7 ECM_{-1} + \mu_t \ (5)$$

Where ϕdenotes the short-run dynamic coefficients and δ indicates the speed of the adjustment that restores equilibrium to the dynamic model.

6. Empirical Results

Table 1 gives the results of the ADF and Phillip–Perron tests. All the variables apart from capital and labor are stationary only in first difference; capital and labor are stationary both in levels and first difference. These results justify the use of the ARDL method.

Table 1: Unit root tests

Variable	ADF test		Phillip–Perron test	
	Level	**First difference**	**Level**	**First difference**
Y	-1.620579	-4.374513**	-1.723958	-4.277885**
K	-3.775140*	-3.777678*	-3.596300*	-3.571732*
L	-3.673604*	-13.166270**	-4.650099**	-12.417120**
SME	-2.158035	-6.344676**	-1.968816	-12.170530**
CRE	-2.068625	-8.835226**	-2.068625	-8.823902**
EXR	-2.090197	-5.306837**	-2.090197	-5.306770**
INF	-2.805947	-5.357068**	-2.800139	-10.354610**

Note: **and * denote significance at 1% and 5%, respectively.
Source: Authors' calculations.

6.1. Bounds Testing for Cointegration

The bounds testing approach allows us to determine whether there is a long-run relationship among the variables. We use a general-to-specific modeling approach guided by the AIC to select a maximum lag order of 1 for the conditional ARDL vector error correction model.

Table 2 indicates that the calculated F-statistic lies below the upper level of the bounds critical value of 6.32 and the lower level of 2.73 for k=5.This implies that the null hypothesis of no cointegration can be rejected, indicating there is a cointegrating relationship among the variables.

Table 2: Results of bounds test applied to equation (3)

Dependent variable	AIC lag	F-statistic	Prob.	Outcome
Y	1	6.059231	0.000463	Cointegration

Source: Authors' calculations.

Having confirmed the existence of a long-run relationship between financial integration, economic growth and the other selected variables, we then apply the ARDL method to estimate the long-run parameters of equation (2). Table 3 gives the estimated long-run coefficients. The lag length of the long-run model was selected on the basis of the AIC. The R-squared and adjusted R-squared terms are about 0.99, signifying that about 99 percent of the variations in economic growth are explained by all the independent variables included in the model. The F-statistic value of the long-run model is also significant and implies that all the independent variables are jointly significant. The Durbin–Watson (DW) test statistic shows an absence of autocorrelation in the model.

Table 3: Estimated long-run coefficients using the ARDL approach

Dependent variable =Y

Independent variable	Coefficient	T-ratio (prob.)
Y(-1)	1.102991	11.552400
		(0.000000)
K(-1)	-0.058004	-2.650350
		(0.014000)
L (-1)	0.018339	0.195016
		(0.847000)
SME (-1)	0.032566	2.102826
		(0.046200)
EXR (-1)	0.026356	2.260903
		(0.033100)
INF (-1)	0.008308	1.002562
		(0.326100)
Constant	-0.967004	-0.917933
		(0.367800)
R^2	0.995155	
Adjusted R^2	0.993944	
F-statistic	821.560200	
(p-value)	(0.000000)	
DW	1.823729	

Source: Authors' calculations.

The long-run results indicate that past income, capital investment, investment in SMEs, and the exchange rate all have a significant, positive effect on economic growth in Nigeria. Labor and the inflation rate have an insignificant effect on economic growth in the long run. An increase of 1 percent in investment in SMEs will, on average, lead to an increase of about 0.03 percent in economic growth. This implies that the Nigerian economy has been enhanced by the SME sector, possibly through innovations leading to employment generation, job creation, and poverty alleviation. This finding is consistent with those of van Stelet al. (2004), Hu (2010), and Afolabi (2013).

The short-run coefficients for the relationship between investment in SMEs and economic growth are given in Table 4. As with the long-run model, the lag length of the short-run model is selected on the basis of the AIC. The signs of the short-run estimates are similar to those of the long-run model, except for capital and labor, which both have negative signs. The estimates are insignificant at the 5 percent critical level and capital has an insignificant relationship with economic growth. The results show

that there is a significant, positive relationship between investment in SMEs and economic growth in the short run. This result is consistent with that of Afolabi (2013) who uses OLS to find that SMEs have a significant effect on economic growth in Nigeria.

Table 4: Short-run results for selected ARDL model

Dependent variable =Y

Independent variable	Coefficient	T-ratio (prob.)
Constant	0.004495	0.389393
		(0.700700)
Y	1.078379	4.037485
		(0.000600)
K	-0.048450	-1.534298
		(0.139200)
L	-0.061541	-0.907607
		(0.373900)
SME	0.032267	2.446014
		(0.022900)
EXR	0.009404	0.443279
		(0.661900)
INF	0.019720	2.578650
		(0.017100)
ECM(-1)	-0.792312	-2.429784
		(0.023700)
R^2	0.536351	
Adjusted R^2	0.388826	
F-statistic	3.635663	
(p-value)	(0.009357)	
DW	1.968156	

Source: Authors' calculations.

Past income and the inflation rate have a significant, positive impact on economic growth in Nigeria. The error correction parameter is statistically significant at the 5 percent critical level, indicating the existence of a stable short-run relationship. The coefficient of determination (R-squared) is about 0.53, which implies that about 53 percent of the variations in economic growth are explained by variations in all the independent variables. The F-statistic value is also significant and implies that all the independent variables are jointly significant. Finally, the DW statistic shows an absence of autocorrelation in the model.

7. Conclusion

This empirical study adopts an autoregressive distributed lag approach in order to examine how small and medium enterprises (SMEs) have contributed to economic growth in Nigeria between 1981 and 2013. We find that investment in SMEs has had a significant and positive impact on economic growth in the country. Given that Nigeria is economically underdeveloped, it is essential that the majority of its (largely rural) population be integrated into the process of economic development through entrepreneurship in small businesses. This means encouraging further investment in SMEs and prioritizing their access to credit facilities, infrastructure development, and capacity building to promote long-run socioeconomic development through this medium.

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Appendix

Data used in study

Year	Y	INF	EXR	SME	K	L
1981	251,052.3	20.90000	0.610000	162.1400	18,220.59	24.09000
1982	246,726.6	7.700000	0.670000	173.7800	17,145.82	24.64000
1983	230,380.8	23.20000	0.720000	176.0000	13,335.33	25.22000
1984	227,254.7	39.60000	0.760000	189.0100	9,149.760	25.70000
1985	253,013.3	5.500000	0.890000	177.2500	8,799.480	26.17000
1986	257,784.5	5.400000	2.020000	167.4100	11,351.46	26.68000
1987	255,997.0	10.20000	4.020000	159.2400	15,228.58	27.38000
1988	275,409.6	38.30000	4.540000	187.1360	17,562.21	27.98000
1989	295,090.8	40.90000	7.390000	254.4800	26,825.51	28.66000
1990	328,606.1	7.500000	8.040000	117.8000	40,121.31	30.04000
1991	328,644.5	13.00000	9.910000	118.4000	45,190.23	30.13000
1992	337,288.6	44.50000	17.30000	118.4000	70,809.16	30.99000
1993	342,540.5	57.20000	22.05000	326.6000	96,915.51	31.89000
1994	345,228.5	57.00000	21.89000	491.4000	105,575.5	32.87000
1995	352,646.2	72.80000	81.02000	354.3000	141,920.2	33.82000
1996	367,218.1	29.30000	81.25000	254.0000	204,047.6	34.80000
1997	377,830.8	8.500000	81.65000	384.0000	242,899.8	35.88000
1998	388,468.1	10.00000	83.81000	218.4000	242,256.3	36.98000
1999	393,107.2	6.600000	92.99000	436.8000	231,661.7	38.10000
2000	412,332.0	6.900000	101.7000	450.2000	331,056.7	39.25000
2001	431,783.2	18.90000	111.9000	304.3000	372,135.7	40.42000
2002	451,785.7	12.90000	121.0000	925.5000	499,681.5	41.60000
2003	495,007.2	14.00000	129.3000	2,261.000	865,876.5	54.36000
2004	527,576.0	15.00000	133.5000	2,612.700	863,072.6	43.73000
2005	561,931.4	17.90000	132.1470	3,594.100	804,400.8	57.21000
2006	595,821.6	8.200000	128.8500	2,712.200	1,546,526.0	49.62000
2007	634,251.1	5.400000	125.8330	3,868.200	1,936,958.0	50.13000
2008	672,202.6	6.980000	118.5609	2,592.400	2,053,006.0	48.62000
2009	718,977.3	13.93000	124.8700	7,317.700	3,050,576.0	48.36000
2010	776,332.2	11.80000	150.2980	8,674.200	4,012,919.0	48.33000
2011	834,000.8	12.40000	157.4994	8,689.300	3,908,280.0	51.19000
2012	888,893.0	12.20000	160.7800	8,894.500	3,357,398.0	52.64000

Note: Y= log of GDP,SME=log ofinvestment in SMEs,EXR= exchange rate, INF= inflation rate,K= log of capital, L= labor.
Source: Authors' calculations.

The Impact of Consumer Ethnocentrism on Purchase Intentions: Local Versus Foreign Brands

Mehrukh Salman[*]and Uswa Naeem[**]

Abstract

This study evaluates the impact of consumer constructs, including ethnocentrism, attitudes toward brands, and celebrity endorsement, on purchase intentions for beverages in Pakistan. A quantitative survey was administered to collect the data and a path analysis conducted to test the model. Based on a sample of 150 respondents, our results indicate a positive relationship between ethnocentrism and purchase intentions with respect to local brands. Moreover, ethnocentrism, attitudes toward brands, and celebrity endorsements all have a significant impact on purchase intentions for local brands.

Keywords: Consumer ethnocentrism, celebrity endorsement, attitudes, purchase intentions.

JEL classification: M3, M31.

1. Introduction

This study aims to investigate the role of three consumer constructs—ethnocentrism, celebrity endorsement, and attitudes toward local and foreign brands—in influencing consumers' purchase decisions in Pakistan. The first construct, consumer ethnocentrism, determines how consumers compare local and foreign brands, and whether they favor one over the other. The second construct, which relates to consumer behavior, incorporates consumers' perception of and response to a particular brand. The third construct, celebrity endorsement, explains how "any individual who enjoys public cognition… uses this cognition on behalf of a consumer by appearing within an advertisement" (McCracken, 1989).

The strength of consumer attitudes can determine purchase intentions with respect to specific brands (Kim &Park, 2013). On one hand, consumers quickly recognize and relate to local products, which they may perceive as being of better quality(Cayla & Eckhardt, 2007;

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[*] Teaching fellow, Lahore School of Economics.
[**]Graduate student, Lahore School of Economics.

Akram, Merunka, &Akram,2011). On the other hand, in many developing countries, foreign brands are seen as status symbols (Bhardwaj, Park, & Kim, 2011), giving them precedence over local brands.

The main focus of this study is to understand the impact of key consumer constructs on purchase intentions with respect to beverages in Pakistan. The beverage industry represents a range of popular and easily affordable products, and is characterized by heavy competition between foreign and local brands. The product categories we look at are tea and cola products. Specifically, we aim to identify:

A positive relationship between consumer ethnocentrism and attitudes toward local brands

The impact of consumer ethnocentrism on attitudes toward foreign products

How celebrity endorsement influences consumer purchase intentions.

Section 2 presents a literature review, Section 3 explains the methodology used, and Section 4 describes the data employed. Sections 5 and 6 discuss the results obtained, and Section 7 concludes the study.

2. Literature Review

Ethnocentrism as a sociological concept was defined by Sumner (1906) as the "view of things in which one's own group is the center of everything, and all others are scaled and rated with reference to it." This implies readily accepting similar cultural phenomena on the assumption that one's own culture is superior to others.

Shimp and Sharma (1987) have extended this concept to include consumer ethnocentrism (the present study's first construct). Consumer ethnocentric groups oppose the purchase of foreign products because they assume that it hurts the domestic economy in the form of loss of employment. Such groups see this as unpatriotic and assign a sense of morality to the choice between domestic and foreign products. Shimp and Sharma also see consumer ethnocentrism as a way of understanding purchase behavior among people from the same region or country in that it illustrates a sense of national identity.

Kumar, Fair Hurst, and Kim (2011) argue that ethnocentric consumers focus on the positive attributes of local products and are liable to reject foreign products even if they know these are better than the former. Kayankand Eksi (2011) point out that highly ethnocentric consumers will forego even the opportunity to import foreign products (which they consider substandard) in order to support domestic ally produced brands.

Akram et al. (2011) note that, although consumer ethnocentrism is not necessarily generalized across different regions or countries, it remains an important tool for marketing managers to understand consumer preferences toward foreign and local products. Kumar et al. (2011) observe that highly ethnocentric consumers in developed countries prefer locally produced goods out of a moral obligation to reject foreign products.

The second construct, attitudes, comprise "a summary evaluation of a psychological object captured in such attribute dimensions as good–bad, harmful–beneficial, pleasant–unpleasant, and likeable–dislikeable" (Ajzen, 2001).Kim and Park (2013) divide consumer attitudes into cognitive and affective attitudes: the first reflects consumers' emotional attachment and response toward a product or brand; the second considers how consumers perceive a particular brand (Herrmann, Huber, Shao, & Bao, 2007). Based on the studies cited above, we propose the following hypotheses:

H_{1a}: Consumer ethnocentrism has a positive relationship with attitudes toward local brands.

H_{1b}: Consumer ethnocentrism has a negative relationship with attitudes toward foreign brands.

The wide range of choice among different brands and products can also be understood in terms of the choice between local and foreign goods (Batra et al., 2000).Akram et al. (2011) hold that, over time, developing countries have also begun to offer an extensive range of foreign products to the point that such brands have become "global." For our purposes, however, we use the term "foreign brand" instead to make a clear distinction between goods produced locally and overseas from the perspective of consumers in developing countries.

Local brands tend to represent local consumers and their particular culture or region (Cayla & Eckhardt, 2007), while foreign brands may allow consumers to feel modern or socially superior. This

perception can propel them to purchase foreign brands rather than local ones, sometimes regardless of quality standards (Kottak, 1990). Batra et al. (2000), for instance, believe that Indian consumers tend to prefer foreign brands because of the associated social prestige. Özsomer, Batra, Chattopadhyay, and terHofstede (2012) observe that the purchase of foreign products may reflect a sense of lower self-esteem among consumers in less economically developed cultures or countries. Thus, ethnocentrism clearly has a strong impact on attitudes toward local versus foreign products.

We study the third construct, purchase intention, in terms of how it is influenced by other factors, including ethnocentrism, attitudes toward foreign versus local products, and celebrity endorsement. Yoo, Donthu, and Lee (2000) define purchase intention as the practice of maintaining brand loyalty. In this context, we propose the following hypotheses:

H_2: Attitudes toward local brands (produced in Pakistan) have a positive impact on purchase intention.

H_3: Attitudes toward foreign brands (produced abroad) have a negative impact on purchase intention.

Lee, Kim, and Lee (2012) suggest that consumers' loyalty toward a specific brand depends on whether their cognitive and affective experiences of that brand are positive. Kim and Park (2013) argue that both types of response have an equal impact on purchase intention. Thus, both the rational and emotional aspects of consumer behavior determine purchase intentions (Hirschman, 1983).

Prestige, credibility, esteem, and quality are often associated with foreign or global brands (Batra et al., 2000; Johansson & Ronkainen, 2005). Consumers take these into account when deciding whether to buy foreign products (Shimp & Sharma, 1987). Bhardwaj et al.(2011) argue that consumers in developing countries show brand loyalty toward foreign products because they tend to associate these with better quality standards. Bhatt and Reddy (1998) support this observation based on a study of consumption patterns in developing countries, which shows that consumers associate the purchase of foreign products with social prestige.

Akram et al. (2011) suggest that domestic products are also perceived positively in terms of quality and prestige, but that this attitude varies from one culture to another. Batra et al. (2000) point out that ethnocentric consumers have negative attitudes toward foreign products.

Shankarmahesh (2006) notes that ethnocentrism is one of the most important factors determining consumers' purchase intentions with respect to both foreign and local products. Han (1988) and Herche (1992) provide empirical evidence to indicate a strong and significant relationship between consumer ethnocentrism and purchase intention toward local products. Thus, our fourth hypothesis (H_4)is that consumer ethnocentrism among Pakistanis has a positive impact on their purchase intentions with respect to local brands.

The term brand is defined as a "symbol, sign, term, name, or a combination of these that recognize the services or products of an organization and differentiate it from services or products of other organizations" (Kotler & Armstrong, 2007). Roozen and Claeys (2010) define a brand as "a seller's promise to deliver a specific set of features, benefits, and services consistently to the buyers."

In this context, endorsement refers to the "stamp of approval" that a celebrity gives to a product, service, or brand (Özsomer et al., 2012). Mehta (1994) suggests that consumers are attracted to brands that carry a celebrity endorsement. This has a positive impact on their purchase intentions relative to products endorsed by people who are not celebrities (Khatri, 2006). Solomon (2009) observes that consumers are likely to relate to the perceived social values of a physically attractive celebrity endorser, who represents a positive stereo type. Winterich, Grewal, and Gangwar (2012) point out that consumers' beliefs are more likely to be influenced by a positive advertisement, thus encouraging their purchase decisions.

Evans (1988) takes this further and suggests that, in some cases, consumers may remember the endorser more than the product being endorsed, which the author terms the "vampire eeffect." It is thus important to relate the celebrity's image to that of the brand, which goes beyond the attractiveness and credibility of the endorser. Debevec and Kernan (1984) find that attractive female models often yield better results in improving attitudes toward a brand compared to male models. When consumers buy a brand because it has been endorsed by a celebrity, they do so because it reflects their ideals and aspirations (McCracken, 1989).

Most consumer behavior literature suggests that trust worthinessisan essential attribute for a celebrity to be deemed credible. Consumers with a high degree of confidence in the endorser will be more motivated to buy the product. A celebrity's perceived "expertise" stems from how people gauge his or her awareness, experience, or skills, which

in turn influences how consumers evaluate the quality of the product being endorsed. Therefore, individual perceptions of an endorser's expertise are positively correlated with consumers' purchase intentions. Our fifth hypothesis (H_5) is that celebrity endorsement has a positive impact on purchase intentions.

3. Sample and Methodology

We have used convenience sampling in this study. A total of 176 people attempted the survey questionnaire, of which 150 responses were usable. The participants comprised 40 percent (n=60) men and 60 percent (n=90) women. The sample was composed primarily of young people: about 75 percent (n=113) were 20–29 years old and about 10 percent (n=15) were 50–59 years old.

Most respondents belonged to middle-or high-income households: 36 percent (n=45) fell under the high-income category, which implies they would have had greater economic independence and the ability to choose freely between foreign and local brands. Almost 75 percent (n=112) were single and 23 percent (n=35) were married. The sample can be safely categorized as well educated since almost 75 percent (n=112) of the respondents had a Bachelor's degree while15 percent (n=23) had completed their intermediate degree or 'A' levels.

A structured questionnaire based on a five-point Likert scale (where 1 = strongly disagree and 5 = strongly agree) was developed, avoiding open-ended questions, which respondents often omit.

We have selected two beverage categories—soft drinks and tea—in order to compare local brands with their foreign alternatives. The products were selected keeping in view their accessibility and affordability across all socioeconomic groups and age groups.

Figure 1 illustrates the study's conceptual framework.

Figure 1: Conceptual framework
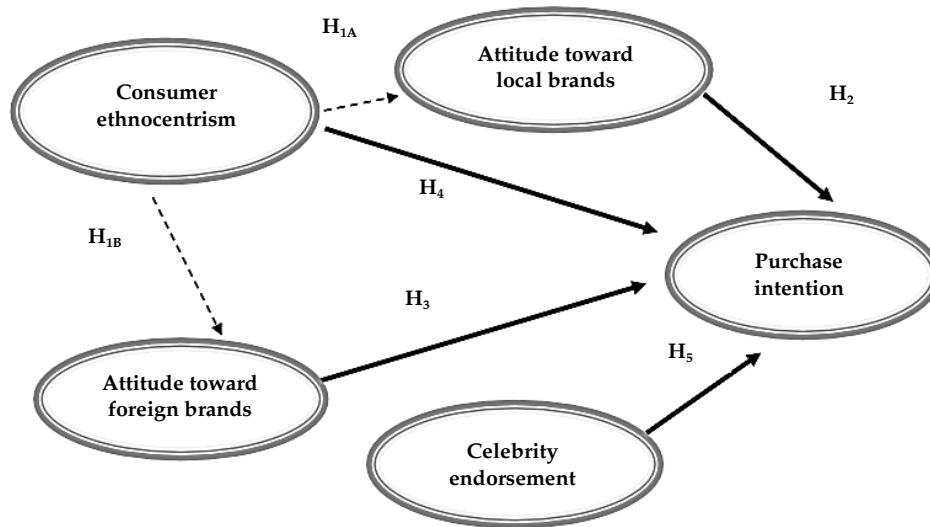
4. Data

All the scales used in this study are derived from previous research on consumer behavior. We apply several techniques to the data to validate our hypotheses and estimate the structural relations between the constructs. The quantitative analysis is carried out using AMOS: we conduct a path analysis to investigate the relationships between the variables. In order to check the validity of the scales used, we also carry out a confirmatory factor analysis (CFA).

The independent variables include consumer ethnocentrism (CE), attitudes toward local brands (ATL), attitudes toward foreign brands (ATF), and celebrity endorsement (CBE). The dependent variable is purchase intention (PI) (see also Table 1).

Table 1: Constitutive definition of variables

Variable	Constitutive definition
Ethnocentrism	The view of things in which one's own group is the center of everything, and all others are scaled and rated with reference to it (Sumner, 1906).
Consumer ethnocentrism	The tendency to prefer domestic over foreign products (Shimp & Sharma, 1987).
Attitude	A summary evaluation of a psychological object captured in such attribute dimensions as good–bad, harmful–beneficial, pleasant–unpleasant, and likeable–dislikeable.
Attitude toward local products	Produced locally and available in a specific region.
Attitude toward foreign products	Brands available to consumers under the same name in multiple countries, generally with similar and centrally coordinated marketing strategies.
Cognitive	Focus on attitude reflects brand perception in consumer's mind (Kim& Brandon, 2010).
Affective	Focus on attitude involves consumer's emotional response to brand (Kim& Brandon, 2010).
Celebrity endorsement	Any individual who enjoys public cognition and uses this on behalf of consumers by appearing in an advertisement (McCracken, 1989).
Purchase intention	Consumer practice of remaining loyal to the same brand (Yoo et al., 2000).

Consumer ethnocentrism is measured on a 10-item CETSCALE modified by Klein, Ettenson, and Morris (1998), derived from the original 17-item CETSCALE constructed by Shimp and Sharma (1987).

Attitudes toward local and foreign brands are measured on a six-item scale, where three items measure cognitive attitudes and three measure affective attitudes (see below). The scale is adapted from Kim and Park (2013). To compute ATL (ATF), we calculate the averages for attitudes toward the three local (foreign) brands and compute these as a single construct representing ATL (ATF).

Cognitive	I enjoy using this brand
	I like this brand
	This brand gives me pleasure
Affective	It provides good value for money
	I can trust this brand
	This brand is of good quality

Celebrity endorsement is measured on an eight-item scale adapted from Ohanian (1990).

Purchase intention is measured on a three-item scale derived from Riefler (2012), but modified to express PI with respect to local rather than foreign brands. The averages taken for the three product categories are used to compute a composite measure for the variable.

5. Results

We employ structural equation modeling to examine the model and test our proposed hypotheses. A three-step approach is used to confirm its reliability, uni-dimensionality, and validity (see Shah &Goldstein, 2006). The items are loaded by means of CFA to evaluate the fit of the model. An iterative process is conducted to limit items where the loading is less than 0.4. As proposed by Hair et al. (2006), items are dropped only when this is deemed hypothetically sound and then deleted one by one until the model fit meets the required criteria. The all-time availability items have low loadings (less than 0.4) due to which the variables are eventually dropped. The analysis is conducted for CE, ATL, AFL, CBE, and PI.

In the first stage, we test for reliability using the average variance extracted (AVE) and for composite reliability using the standardized solutions in CFA (see Hult, Ketchen, &Slater, 2004). A value of 0.7 or more is the generally accepted threshold for composite reliability along with an AVE of more than 0.5. Table 2 shows that the model's composite reliability ranges from 0.713 to 0.884 with an AVE of0.608 to 0.789. This verifies the reliability of all the measures used.

The second step involves testing for uni-dimensionality in order to determine whether the items in the instrument belong to a single underlying construct (see Venkatraman & Grant, 1986). The model fit is reasonable, indicating there is no uni-dimensionality (chi-square=0.000, X2/df= 1.87, CFI= 0.786, NFI= 0.855, TLI= 0.874, and RMSEA= 0.15).

Finally, we test for two types of validity: convergent and discriminant validity. Convergent validity is the extent to which several attempts are in agreement with the measures (Bagozzi & Phillips, 1982). This is measured by the significance of each t-value of the measurement indicators (Chen, Paulraj, & Lado, 2004; Sila & Ebrahimpour, 2005). If the t-values are greater than 2or if each item's coefficient is significant, then this confirms the model's convergent validity (Anderson & Gerbing, 1988).

Discriminant validity is the extent to which the constructs are dissimilar (John & Reve, 1982). Thisis tested using Fornell and Larcker's (1981) recommended method in which the AVE is compared with the squared correlation of all the constructs. The AVE should be greater in value than the values of all the squared correlations. Table 2shows that the AVE values indicate the model is reliable, uni-dimensional, and valid.

Table 2: CFA results

Item	Consumer ethnocentrism	Attitude	Celebrity endorsement	Purchase intention
CE1	0.76			
CE2	0.45			
CE3	0.79			
CE4	0.87			
CE5	0.85			
CE6	0.62			
CE7	0.79			
CE8	0.67			
CE9	0.87			
CE10	0.78			
ATL/ATF1		0.52		
ATL/ATF2		0.67		
ATL/ATF3		0.78		
ATL/ATF4		0.76		
ATL/ATF5		0.68		
ATL/ATF6		0.83		
CBE1			0.76	
CBE2			0.46	
CBE3			0.59	
CBE4			0.78	
CBE5			0.76	
CBE6			0.82	
CBE7			0.78	
CBE8			0.77	
PI1				0.67
PI2				0.71
PI3				0.78
AVE	0.789	0.763	0.720	0.608
R(reliability)	0.816	0.713	0.884	0.764

Source: Authors' calculations.

We have generated five hypotheses on the basis of the literature review. The results for hypothesis H_{1a} yield a coefficient of 0.864, (indicating a positive relationship between the variables), with a p-value of less than 0.05. Given that the critical ratio for this relationship is 4.363, the hypothesis is deemed significant and can be accepted. Hypothesis H_{1b}, however, yields an insignificant result, indicating that CE is not related to ATF in our study. Thus, the hypothesis is rejected.

We test hypothesis H_2 by establishing the relationship between ATL and PI. This yields a significant coefficient of 0.848 (indicating a positive relationship between the two variables). The CR for this relationship is 9.114, and the hypothesis is, therefore, accepted.

We test hypothesis H_3 based on the relationship between ATF and PI. There is a significant and negative relationship between the two variables (with a coefficient of –0.468). The CR is 3.205, with a significant p-value (0.001<0.05). Thus, the hypothesis can be accepted.

In order to test hypothesis H_4, we establish a relationship between CE and PI. The coefficient is 0.279, indicating a positive relationship between the variables. The CR is 1.555 with a significant p-value of 0.009<0.05. This implies that the relationship between CE and PI is significant and the hypothesis can be accepted.

Finally, hypothesis H_5 is tested by establishing a relationship between CBE and PI. This yields a coefficient of 0.336 (indicating a positive relationship). The CR is 2.984 with a p-value of 0.003<0.05. Thus, CE and PI have a significant relationship and we can accept the hypothesis.

Table 3: Hypothesis test results

Hypothesis path			Estimate	SE	CR	P
H_{1a}ATL	<---	CE	0.864	0.198	4.363	***
H_{1b}ATF	<---	CE	0.055	0.117	0.471	0.638(insignificant)
H_2PI	<---	ATL	0.848	0.093	9.114	***
H_3PI	<---	ATF	-0.468	0.146	3.205	0.001
H_4PI	<---	CE	0.279	0.180	1.555	0.009
H_5PI	<---	CBE	0.336	0.112	2.984	0.003

Note: ***$p<0.01$, **$p<0.05$, *$p<0.10$
Source: Authors' calculations.

Table 4 gives the goodness-of-fit measures, which indicate that the model has an adequate fit.

Table 4: Model fit

Goodness of fit	Criterion	Value
Chi-square		0.76
X2/df	1–3	1.56
CFI	>0.80	0.84
NFI	>0.80	0.95
IFI	>0.80	0.82
TLI	>0.80	0.81
RMSEA	<0.10	0.05

Source: Authors' calculations.

6. Discussion

The results for H_{1a} are consistent with those of previous studies: we find that consumer ethnocentrism has a strong and positive relationship with attitudes toward local brands. Over time, a number of new competitors have entered the Pakistani market for local beverages, signaling the strong consumer demand for local brands. Our sample demonstrates a high ethnocentric tendency. However, we reject hypothesis H_{1b} because there is an insignificant relationship between consumer ethnocentrism and attitudes toward foreign brands. This result contradicts previous studies such as Kumar et al. (2011), Riefler (2012), Özsomer et al. (2012), Shimp and Sharma (1987), and Kottak (1990).

The path analysis does not support H_{1b}. This might reflect the growing impact of globalization where consumers in Pakistan prefer domestically produced goods, but have also become more aware of foreign brands and of the social status associated with these. Studies conducted in developed regions such as North America find that consumers generally have a more positive perception of domestic over foreign products (Kumar et al., 2011).However, researchers such as Punyatoya (2013) hold that ethnocentrism does not necessarily help study consumer attitudes toward foreign products.

Our results show that attitudes toward local brands have a significant and positive impact on purchase intentions with respect to local beverages, presumably because consumers relate better to local brands. Akram et al. (2011) suggest that domestic products are perceived positively in terms of quality and prestige, although this attitude varies from one culture to another.

Attitudes toward foreign brands do not seem to explain consumers' purchase intentions with respect to local beverage brands. Bhardwaj et al.(2011)argue that consumers show brand loyalty toward foreign products in developing countries where such products are associated with better quality standards. This might imply that, overtime, the concept of "branded" goods has emerged due to the tough competition between local and foreign products.

The results of the path analysis are in line with previous studies such as Özsomer et al. (2012), where consumer ethnocentrismis shown to have a positive impact on purchase intentions with respect to local brands. Moreover, our results indicate a fairly strong level of consumer ethnocentrism. Finally, celebrity endorsement also has a positive impact on purchase intention. This result is in line with studies such as Mehta (1994), Khatri (2006), and McCracken (1989).

7. Conclusion

The purpose of this study was to analyze the impact of consumer ethnocentrism on attitudes toward foreign and local brands, as well as the impact of celebrity endorsement on purchase intentions in the beverages market. Overall, we have found that consumers with higher levels of ethnocentrism and favorable attitudes toward local brands are more likely to purchase local rather than foreign products.

In this context, managers for local brands should focus on local preferences so that consumers maintain such consumption patterns. Promoting the idea of national identity among consumers where product preferences are concerned could help effectively retain and increase market share and tackle foreign competition. Local brands that reflect local values are likely to do well in this industry (Ger, 1999). Managers for foreign brands, on the other hand, could try promoting their products as being prestigious and modern.

This model could be replicated and extended to compare ethnocentrism and attitudes between urban and rural consumers and between different cultures within developing countries. This would take into account Shimp and Sharma's (1987) observation that consumer behavior, values, beliefs, and consumption patterns tend to change with time and income. Moreover, this study has focused on a limited number of brands within the beverages market. Future studies could test the model with respect to other local and global brands in other product categories, such as electronics.

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Demutualization in Developing and Developed Country Stock Exchanges

Muhammad Hammad,*Adil Awan,**Amir Rafiq***

Abstract

This study considers seven different stock exchanges in order to measure the impact of demutualization announcements on stock market return volatility. This is measured based on the daily index prices of all seven indices: the Toronto Stock Exchange (TSX) in Canada, the FTSE 100 in the UK, the Straits Times Index (STI) in Singapore, the Nikkei 225 in Japan, the Kuala Lumpur Composite Index (KLCI) in Malaysia, the SENSEX in India, and the Hang Seng Index (HSI) in Hong Kong, China. A dummy variable is used to differentiate between pre- and post-event data. We use the augmented Dickey–Fuller test, the ARCH LM test and GARCH (1, 1) methodology to measure return volatility due to demutualization announcements. The results show that the decision to demutualize did not affect the UK, Singapore, and Indian stock markets, where volatility is explained by other factors. It did, however, affect the Canadian, Japanese, Hong Kong, and Malaysian stock markets. Moreover, the Canadian and Malaysian market swere negatively affected, while the Hong Kong and Japanese markets reacted positively to the demutualization announcements.

Keywords: demutualization, stock market, GARCH.

JEL classification: G150, G170, C220.

1. Introduction

Conventionally, stock exchanges have worked as a "club of brokers" under a mutual operating system, who enjoy the rights of ownership and decision-making. Stock exchanges have faced a number of challenges in recent years due to technological advancements and improvements, growing competition and globalization. Consequently, many stock exchanges are now rethinking their investment decisions, regulatory reforms and aggressive environment. The challenge for stock

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*MS student, SZABIST, Islamabad.
**PhD student, COMSATS, Islamabad.
***Assistant professor, SZABIST, Islamabad.

exchanges is to find new opportunities in the present environment, while surviving new threats.

The different forms of demutualization have become a widespread reality with growing demand in emerging markets (Elliott, 2002). In this context, stock exchanges have developed new business models and governance structures to counter their competition, transforming from members' associations to for-profit organizations; this is the process of demutualization. Exchange demutualization begins when the members of a traditional nonprofit organization that operates a stock exchange reorganizes it as a for-profit institution. It concludes when the exchange goes public and becomes listed.

Exchange demutualization is the process of converting a mutually owned association into a limited company by share. In this conversion, decision-making rights are transferred from the members' association to the number of shares issued (the shareholders). Demutualization is important if, in a competitive environment, the exchange shifts its focus from working in the best interests of its members or brokers to working to maximizes hare holder equity by providing services to its customer, i.e., investors and brokers. The Stockholm Stock Exchange was the first exchange to be demutualized in 1993. By 1999, 11 others had also been demutualized. By2002, almost 21 exchanges had been demutualized and listed (see also Table A1 in the Appendix).

Citing a survey conducted by BTA Consulting to determine the objectives behind exchange demutualization, Scullion (2001) highlights the following: (i) attracting new investors to meet the capital requirements for modifying a trading system, (ii) creating an unbiased business environment, (iii) controlling the cost of transactions, and (iv) creating a competitive and flexible environment that promotes efficiency. The impact of exchange demutualization is often studied in the context of how it affects the structure of an organization. Our aim, however, is to look at its impact on the financial market in terms of efficiency, profitability, and governance structure and to determine whether this structural change affects security prices.

Specifically, we will measure the impact of demutualization announcements on a sample of seven stock exchanges in different developed and developing countries. We will examine whether, and to what extent, stock market volatility rises or falls in these countries after

demutualization is announced. The study is limited to seven demutualized exchanges and spans a 12-year sample period.

Earlier studies have used different indicators to measure the impact of demutualization on stock exchange liquidity (e.g., Krishnamurti, Sequeira, & Fangjian, 2003; Treptow, 2006), efficiency (e.g., Serifsoy, 2008), and cost and trading volume (e.g., Hazarika, 2004). Krishnamurtiet al. (2003) and Hazarika (2004) conduct a comparative analysis of ownership structure for two stock exchanges. Mendiola and O'Hara (2003) use five measures of performance—return on assets, financial leverage, return on equity, profitability, and asset turnover—applied to eight stock exchanges. Morsy and Rwegasira (2010) carry out a pre- and post-event analysis of the impact of demutualization on stock exchange performance, based on a sample drawn from the World Federation of Exchanges. Worthington and Higgs (2005) determine the market risk of four stock exchanges, but focus mainly on the post-demutualization period.

In this context, the present study aims to contribute to the literature by using the event of demutualization announcements to measure volatility in the stock market. Having identified trends in volatility pre-and post-demutualization, we then analyze the performance of developed and developing country stock markets. On the basis of these results, the study makes recommendations for Pakistan's stock market, which is in the process of demutualization. To our knowledge, this is the first study to measure the impact of demutualization on stock exchanges using stock exchanges indices as a measure of market performance.

2.   Literature Review

This section presents an overview of the empirical and theoretical studies that measure the impact of demutualization on stock exchanges.

Hart and Moore (1996) observe that, in an environment of relatively high competition, outsider-owned structures are socially preferable to mutually owned structures. Schmiedel (2001) uses a parametric stochastic frontier model to estimate cost efficiency in a sample of European stock exchanges during 1985–99. The regression analysis indicates that demutualization has a positive effect on cost efficiency. Schmiedel (2002) uses a nonparametric model to estimate stock exchange efficiency during 1993–99, but observes no clear link between liquidity and demutualization.

Krishnamurti et al. (2003) compare the market quality of the demutualized National Stock Exchange and the mutually owned Bombay

Stock Exchange (BSE) in India. Using the Hasbrouck measure (to compute the variance of the pricing error) of market quality, they conclude that the National Stock Exchange provides a better-quality market than the BSE. Treptow (2006) studies securities that are listed simultaneously on two markets and finds that demutualization has a significant and positive effect on the liquidity of demutualized exchanges. Moreover, post-demutualization, their turnover and liquidity gap increases.

Ahmed, Butt, and Rehman (2011) examine the benefits of demutualization in Pakistan based on the literature available; these include better corporate governance, access to economic and human capital, enhanced listings, and international alliances. Islam and Islam (2011) study the implications of demutualization and conclude that its benefits are not applicable in the context of Bangladesh.

Karmel (2000) finds that, when stock exchanges become for-profit organizations, their governance structure and market capitalization improves. After the demutualization of the Stockholm Stock Exchange in 1993, many other stock exchanges followed suit in the form of mergers and issued shares to become for-profit companies (Serifsoy, 2008). Hazarika (2004) studies the impact of demutualization on cost and trading volume for the London stock exchange with respect to high competition and for the Borsa Italiana, which was mutualized by the government. The study shows that stock exchanges that were demutualized due to competition are better off, but that exchanges that were demutualized for reasons other than competition are worse off.

Mendiola and O'Hara (2003) carry out a performance analysis of publicly listed and other listed companies using their respective share prices. They find that listed stock exchanges generally outperform both the stocks on their market and the IPOs listed on these exchanges. Hence, there is a positive link between stock exchange performance and the fraction of equity sold to other investors. Worthington and Higgs (2005) study the market risk of four demutualized and self-listed stock exchanges. They estimate the time-varying beta using a bivariate generalized autoregressive conditional heteroskedastic (GARCH) model for a sample of stock exchanges that were demutualized and listed by7 June 2005. Their results indicate significant beta volatility.

Morsy and Rwegasira (2010) study the impact of demutualization on stock exchange performance by incorporating 16 different market

measures.[1] They find that demutualization leads to an improvement in only seven of these measures (the number of listed companies, total transactions, capitalization of the domestic market, total value of share trading, new capital raised by IPOs, and velocity of turnover).

3. Data

The data used in this study comprises the daily index returns of seven selected stock exchanges, all of which are members of the World Federation of Exchanges. We employ six years of data, pre- and post-demutualization, to capture volatility trends. For the sample of developed countries (Canada, the UK, Singapore, and Japan), we use the Toronto Stock Exchange (TSX), the FTSE 100, the Straits Times Index (STI), and the Nikkei 225, respectively. The indices for the developing countries or economies selected (Malaysia, India, and Hong Kong, China) are the Kuala Lumpur Composite Index (KLCI), the BSE SENSEX, and the Hang Seng Index (HSI), respectively.

The study has employed only those stock exchanges that had been demutualized by2004 and for which at least six years' pre- and post-demutualization data were available. This particular sample will enable us to comment on the demutualization of Pakistan's stock exchange (9 May 2012) in the light of other developed and developing country exchanges.

4. Methodology

The unit of analysis in this study is the stock market. We carry out a descriptive analysis to determine the temporal or stochastic properties of the data. The daily returns of each stock exchange are calculated as follows:

$$Y_t = \ln(\frac{P_t}{P_{t-1}})$$

Generally, financial time series contain a unit root, i.e., they are nonstationary, which can yield dubious regression results. Therefore, in order to obtain a representative result, it is necessary that the time series should be stationary. Both the augmented Dickey–Fuller (ADF) test and Philips–Perron test can be used to determine stationarity, but the ADF

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[1]Number of listed companies, total transactions, capitalization of domestic market, capital raised by domestic companies, value of bonds listed, total value of share trading, new capital raised by IPOs, turnover velocity of domestic shares, market capitalization of newly listed shares, number of bonds issuers, number of bonds listed, average value of transactions, capital raised by bonds, and value of bonds trading.

test is considered more reliable in the case of time-series data because it ensures a white-noise residual in the regression (Patra & Poshakwale, 2006). We reject the null hypothesis of a unit root when the value of the t-statistic is significant:

H_0: There is a unit root (nonstationary) in the time series

H_1: The series is stationary

The first step is to check the unit root of the series to establish the order of integration. This is done using the GARCH methodology to measure changes in the structure (conditional variance) and level of volatility (unconditional variance in error term).

Homoskedasticity or the constant variance of an error term is a basic assumption of ordinary least squares. The violation of this assumption forms the basis of the autoregressive conditional heteroskedastic (ARCH) model: only those time series are heteroskedastic that's how signs of time-varying variance or volatility. The ARCH condition implies that, in a time-series analysis, the variance of the error term in a specific period is dependent on the variance of the error term in the preceding period.

The main function of the ARCH models introduced by Engle (1982) was to model and forecast the conditional variance. Subsequently, the ARCH model was generalized by Bollerslev (1986) as the GARCH model. The general GARCH (p, q) model comprises a p term, which indicates the number of autoregressive lags, and a q term, which h indicates the number of moving average lags. The GARCH (1, 1) model shows the first-order ARCH term and first-order GARCH term.

The GARCH model has two specific equations: a conditional mean equation and a conditional variance equation. The conditional mean equation is written as

$$Y_t = a + by_{t-1} + \varepsilon_t \tag{1}$$

where $\varepsilon_t \sim N(0, h_t)$

The conditional variance equation is:

$$h_t = \omega + \alpha\varepsilon_{t-1}^2 + \beta h_{t-1} \tag{2}$$

where $\omega > 0, \alpha > 0, \beta \geq 0$

The conditional variance equation comprises three terms: (i) a constant, ω (ii) the volatility of the previous period, $\alpha\varepsilon_{t-1}^2$ (the ARCH term), and (iii) the forecasted variance from the previous period, βh_{t-1} (the GARCH term).

The coefficients of the GARCH model are easy to interpret and capture the propensity for volatility clustering (Joshi &Pandya, 2008), which arises in financial data because any new information leads to a change in volatility (Engle& Ng, 1993). This makes it important to determine the effect and tendency of security return dispersion due to new and old information.

Samanta and Samanta (2007) observe that the GARCH model measures the persistency of market volatility because it has two effects on the market: that of recent news (the ARCH effect) and that of old news (the GARCH effect). The volatility due to current news is determined through the variation in the results of these effects. In financial data, the ARCH effect captures the persistency of shocks in the short run, while the GARCH effect captures the long-run persistency of volatility due to shocks (Morimune, 2007). $(\alpha + \beta) < 1$ is a sufficient condition for variance stationarity. If the combined value of α and β is closer to 1,this indicates volatility clustering in the data. If, in extreme cases, $(\alpha + \beta) = 1$ or $(\alpha + \beta) = 0$, this indicates that the shock is permanent or will die out soon, respectively.

A dummy variable is used to divide the data into pre- and post-demutualization data, where 1indicates pre-demutualization data and 0, post-demutualization data.

5. Results and Discussion

Table 1 gives the results of the ADF test for all series. All seven series are stationary in levels with absolute significant values:–35.65, 47.74, 42.43, 41.33, 27.22, 50.60, and 24.01 for the UK, Singapore, Canada, Japan, Hong Kong, India, and Malaysia, respectively. The p-value is less than 0.05, which implies that we can reject the null hypothesis of a unit root.

Table 1: Results of ADF test

Market		Level	t-stat	Prob.*
UK	ADF test statistic		-35.65185	0.0000
	Test critical values	1%	-3.432319	
		5%	-2.862296	
		10%	-2.567216	
Singapore	ADF test statistic		-47.74135	0.0001
	Test critical values	1%	-3.432329	
		5%	-2.862300	
		10%	-2.567219	
Canada	ADF test statistic		-42.43039	0.0000
	Test critical values	1%	-3.432245	
		5%	-2.862263	
		10%	-2.567199	
Japan	ADF test statistic		-41.33271	0.0000
	Test critical values	1%	-3.432376	
		5%	-2.862321	
		10%	-2.567230	
Hong Kong	ADF test statistic		-27.22248	0.0000
	Test critical values	1%	-3.432364	
		5%	-2.862315	
		10%	-2.567227	
India	ADF test statistic		-50.67885	0.0001
	Test critical values	1%	-3.432358	
		5%	-2.862313	
		10%	-2.567226	
Malaysia	ADF test statistic		-24.01416	0.0000
	Test critical values	1%	-3.432370	
		5%	-2.862318	
		10%	-2.567228	

Source: Authors' calculations.

Next, we check forheteroskedasticity in the time series, which is one of the conditions for testing the GARCH (1, 1) model (Table 2). All series for the selected indices are heteroskedastic and the presence of the ARCH effect indicates time-varying volatility. These results imply that we should use the GARCH model to estimate the volatility of returns. Tables A2 to A8 in the Appendix show the auto correlation of all seven data series.

Table 2: Results of heteroskedasticity test for ARCH

Market	Statistic	Value	Statistic	Value
UK				
	F-statistic	170.378	Prob. F(1,3029)	0.000
	Obs. *R-squared	161.412	Prob. chi-square(1)	0.000
Singapore				
	F-statistic	177.211	Prob. F(1,3013)	0.000
	Obs. *R-squared	167.478	Prob. chi-square(1)	0.000
Canada				
	F-statistic	343.627	Prob. F(1,3137)	0.000
	Obs. *R-squared	309.900	Prob. chi-square(1)	0.000
Japan				
	F-statistic	27.6316	Prob. F(1,2950)	0.000
	Obs. *R-squared	27.3938	Prob. chi-square(1)	0.000
Hong Kong				
	F-statistic	486.478	Prob. F(1,2968)	0.000
	Obs. *R-squared	418.252	Prob. chi-square(1)	0.000
India				
	F-statistic	123.645	Prob. F(1,2973)	0.000
	Obs. *R-squared	118.788	Prob. chi-square(1)	0.000
Malaysia				
	F-statistic	1,568.65	Prob. F(1,2961)	0.000
	Obs. *R-squared	1,026.11	Prob. chi-square(1)	0.000

Source: Authors' calculations.

The ARCH and GARCH terms for all seven series emerge as highly significant after estimating the GARCH model. There turn series indicate persistent volatility clustering. If α (the ARCH term) and β (the GARCH term) are close to 1,this indicates the persistence of volatility shocks in the market. If they are less than 1, this implies that the volatility shocks will decrease over time. If the value of $\alpha+\beta$ is greater than 1, this indicates that the intensity of the shock will increase overtime (Chou, 1988). The significant result obtained for the dummy variable reflects the impact of the event (the demutualization announcement) on the return series.

Table 3 gives the GARCH results for the UK stock market, where $\alpha=$ 0.07 and $\beta=0.92$; both these values are significant. The ARCH and GARCH results indicate persistent volatility shocks to stock returns in this market. The dummy variable is, however, insignificant, implying that the volatility that exists is not due to the news received (the demutualization

announcement). In other words, the demutualization of the FTSE 100had no impact on market movements in the UK.

Table 3: GARCH results for UK stock market

Variable	Coefficient	SE	z-statistic	Prob.
C	6.90E-07	2.30E-07	2.999335	0.0027
RESID(-1)^2	0.071671	0.008320	8.614570	0.0000
GARCH(-1)	0.920959	0.008710	105.7425	0.0000
DF	2.56E-07	2.09E-07	1.225630	0.2203

Source: Authors' calculations.

Table 4presents the results for the Singapore market: both $\alpha$and $\beta$are significant with values of 0.12 and 0.87, respectively. The ARCH and GARCH terms confirm the persistence of volatility in the market's stock returns. The dummy variable is, however, insignificant, implying that the volatility that exists is not due to the demutualization announcement. Thus, the demutualization of the STI had no impact on market movements in Singapore.

Table 4: GARCH results for Singapore stock market

Variable	Coefficient	SE	z-statistic	Prob.
C	2.53E-06	4.18E-07	6.046118	0.0000
RESID(-1)^2	0.121282	0.008320	14.58639	0.0000
GARCH(-1)	0.870308	0.007330	118.7655	0.0000
DF	-1.14E-07	4.09E-07	-0.277770	0.7812

Source: Authors' calculations.

Table 5yields significant values for α and β 0.068 and 0.92, respectively. The ARCH and GARCH terms thus indicate the persistence of volatility in returns for the Canadian stock market. The significant dummy variable implies that the demutualization announcement contributed significantly to this volatility. However, its negative coefficient means that the demutualization of the TSX decreased the volatility of returns.

Table 5: GARCH results for Canadian stock market

Variable	Coefficient	SE	z-statistic	Prob.
C	1.32E-06	2.41E-07	5.473677	0.0000
RESID(-1)^2	0.068120	0.005000	13.61245	0.0000
GARCH(-1)	0.924697	0.004790	193.0636	0.0000
DF	-5.89E-07	2.14E-070	-2.756470	0.0058

Source: Authors' calculations.

Table 6gives an ARCH term value of 0.084 and a GARCH term value of 0.89,both of which are significant. These confirm the presence of volatility clustering and persistence in the Japanese stock market. The significant dummy variable indicates that the decision to demutualize the Nikkei 225 contributed significantly to creating this volatility. Moreover, the impact of the information shock is likely to persist in the long run and decline slowly.

Table 6: GARCH results for Japanese stock market

Variable	Coefficient	SE	z-statistic	Prob.
C	3.09E-06	6.95E-07	4.443187	0.0000
RESID(-1)^2	0.084450	0.009080	9.304344	0.0000
GARCH(-1)	0.897107	0.011110	80.71619	0.0000
DF	2.04E-06	6.96E-07	2.935295	0.0033

Source: Authors' calculations.

Table 7yields significant ARCH and GARCH term values of 0.07 and 0.92, respectively. The value of $\alpha+\beta$is equal to 1, indicating volatility clustering and persistence in the Hong Kong stock market. The significant dummy variable reflects the impact of the demutualization announcement for the HSI. Thus, the information shock is persistent and likely to decline slowly.

Table 7: GARCH results for Hong Kong stock market

Variable	Coefficient	SE	z-statistic	Prob.
C	1.32E-06	3.91E-07	3.378125	7E-040
RESID(-1)^2	0.070921	0.006350	11.17693	0.0000
GARCH(-1)	0.922996	0.006920	133.3740	0.0000
DF	1.14E-06	4.21E-07	2.701895	0.0069

Source: Authors' calculations.

Although the ARCH and GARCH terms in Table 8areboth significant with values of 0.13 and 0.84, respectively, the insignificant dummy variable indicates that the decision to demutualize the SENSEX did not affect Indian stock market returns. The volatility does not, therefore, incorporate the impact of the event, although there are signs of persistent volatility in the data.

Table 8: GARCH results for Indian stock market

Variable	Coefficient	SE	z-statistic	Prob.
C	6.48E-06	9.24E-07	7.020530	0.0000
RESID(-1)^2	0.133962	0.009000	14.88253	0.0000
GARCH(-1)	0.847536	0.008930	94.89060	0.0000
DF	1.02E-07	8.90E-07	0.114621	0.9087

Source: Authors' calculations.

Table 9indicatesvolatility clustering and persistence in the case of the Malaysian stock market. Both the ARCH and GARCH terms (0.13 and 0.80, respectively) are significant. The dummy variable is also significant, implying that the decision to demutualize the KLCI had a negative effect on the volatility of this market. Thus, the volatility of stock returns decreased after the demutualization was announced, although it still incorporates the impact of the announcement.

Table 9: GARCH results for Malaysian stock market

Variable	Coefficient	SE	z-statistic	Prob.
C	1.57E-05	4.02E-07	38.97273	0.0000
RESID(-1)^2	0.131271	0.006760	19.42109	0.0000
GARCH(-1)	0.807440	0.004720	170.9136	0.0000
DF	-6.83E-06	5.87E-07	-11.62340	0.0000

Source: Authors' calculations.

6. Conclusion

We have used a sample of seven stock exchanges to measure the impact of demutualization announcements on market volatility. On applying the GARCH (1, 1) methodology, the results show that the Canadian, Japanese, Hong Kong, and Malaysian markets were able to incorporate the effect of demutualization announcements in their return volatility. However, post-event, the volatility of the Canadian and Malaysian markets was negative while that of the Japanese and Hong Kong markets was positive. The volatility of returns in these markets

increased after demutualization was announced and the corresponding shock persisted in the long run, increasing overtime. In addition, the volatility of the previous period contributed to the volatility of the present period.

In the case of the other three stock markets in the UK, Singapore, and India, the impact of the demutualization announcements was insignificant, although volatility clustering and persistence remained significant. This implies that these markets, while volatile, did not incorporate the impact of demutualization. Their volatility is, therefore, due to other factors. Janakiramanan and Lamba (1998) report that similar locations and investor behavior can cause such markets to affect one another. Thus, a weak market in one country may be strongly influenced by a strong market in a neighboring country. This would imply that Asian markets such as Hong Kong and Japan might exercise a spillover effect on closer markets such as Pakistan, and we might expect demutualization in the latter to lead to volatility in the future.

In a country such as Pakistan where the demutualization of stock exchanges is still a relatively new practice, it would be advisable to manage the change effectively. Other countries where the process is underway are, for example, required to conduct market and geographical analyses before implementing the decision to demutualize.

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Appendix

Table A1: Demutualization of major stock exchanges

Stock exchange	Year of demutualization	IPO listing date	Domestic market capitalization	Major capitalization
London Stock Exchange	2000	20Jul 2001	2,865,243	Equity
Euronext	2000	10Jul 2001	2,441,261	Equity; equity, currency, commodity and interest rate derivatives
Deutsche Börse	2000	5Feb 2001	1,194,517	Equity; equity and interest rate derivatives
BME Spanish Exchanges	2001	No plan	940,673	Equity; equity and interest rate derivatives
Swiss Exchange	2002	No plan	826,041	Equity
Borsaltaliana	1997	No plan	789,563	Equity and equity derivatives
OMX Group	1993	1Jan 1993	715,779	Equity; equity and interest rate derivatives
Oslo Børs	2001	28May 2001	141,624	Equity and equity derivatives
Hellenic Stock Exchange	1999	28Jul 2000	121,921	Equity
Tokyo Stock Exchange	2001	2006	3,557,674	Equity and equity derivatives
Osaka Stock Exchange	2001	2Apr 2004	2,287,048	Equity and equity derivatives
Hong Kong Stock Exchange	2000	27Jun 2000	861,463	Equity; equity and interest rate derivatives
Singapore Stock Exchange	1999	16Nov 2000	217,618	Equity; equity and interest rate derivatives
Bursa Malaysia	2004	18Mar 2005	181,624	Equity; equity and interest rate derivatives
New Zealand Stock Exchange	2003	4Jun 2003	43,731	Equity

Source: Hughes and Zargar (2006).

Table A2: Series of exchange indices for theUK

Autocorrelation	Partial correlation		AC	PAC	Q-stat	Prob.
| |	| |	1	0.002	0.002	0.0121	0.912
| |	| |	2	-0.034	-0.034	3.4235	0.181
*| |	*| |	3	-0.094	-0.094	30.271	0.000
| |	| |	4	0.031	0.031	33.247	0.000
| |	| |	5	-0.035	-0.041	36.886	0.000
| |	| |	6	-0.043	-0.050	42.455	0.000
| |	| |	7	-0.018	-0.015	43.426	0.000
| |	| |	8	0.049	0.038	50.708	0.000
| |	| |	9	0.032	0.025	53.898	0.000
| |	| |	10	-0.046	-0.045	60.211	0.000
| |	| |	11	0.008	0.017	60.431	0.000
| |	| |	12	-0.010	-0.013	60.740	0.000
| |	| |	13	0.037	0.030	64.888	0.000
| |	| |	14	-0.024	-0.015	66.682	0.000
| |	| |	15	0.032	0.033	69.822	0.000
| |	| |	16	-0.018	-0.017	70.839	0.000
| |	| |	17	-0.006	-0.013	70.934	0.000
| |	| |	18	-0.043	-0.032	76.461	0.000
| |	| |	19	-0.030	-0.034	79.209	0.000
| |	| |	20	0.001	-0.002	79.210	0.000
| |	| |	21	-0.028	-0.039	81.662	0.000
| |	| |	22	0.042	0.037	87.027	0.000
| |	| |	23	-0.039	-0.044	91.703	0.000
| |	| |	24	0.012	0.000	92.142	0.000
| |	| |	25	0.006	0.014	92.237	0.000
| |	| |	26	0.030	0.017	94.970	0.000
| |	| |	27	-0.016	-0.006	95.797	0.000
| |	| |	28	0.023	0.022	97.462	0.000
| |	| |	29	-0.003	0.003	97.491	0.000
| |	| |	30	0.028	0.024	99.969	0.000
| |	| |	31	-0.048	-0.040	107.03	0.000
| |	| |	32	0.011	0.020	107.39	0.000
| |	| |	33	-0.035	-0.038	111.14	0.000
| |	| |	34	0.030	0.026	113.94	0.000
| |	| |	35	-0.005	-0.007	114.00	0.000
| |	| |	36	0.006	0.004	114.11	0.000

Notes: Date = 01/06/2013,time = 12:18
Sample period =04/05/1994 to 04/03/2006, included observations = 3,032.

Table A3: Series of exchange indices for Singapore

Autocorrelation	Partial correlation		AC	PAC	Q-stat	Prob.
|*|	|*|	1	0.139	0.139	58.032	0.000
||	||	2	0.013	-0.006	58.531	0.000
||	||	3	0.020	0.020	59.747	0.000
||	||	4	0.007	0.002	59.893	0.000
||	||	5	-0.011	-0.012	60.255	0.000
||	||	6	-0.032	-0.030	63.443	0.000
||	||	7	-0.004	0.005	63.492	0.000
||	||	8	-0.008	-0.007	63.664	0.000
||	||	9	-0.021	-0.018	65.008	0.000
||	||	10	0.037	0.043	69.088	0.000
||	||	11	0.035	0.024	72.763	0.000
||	||	12	0.009	0.001	73.012	0.000
||	||	13	0.053	0.051	81.481	0.000
||	||	14	-0.000	-0.018	81.482	0.000
||	||	15	-0.011	-0.010	81.875	0.000
||	||	16	-0.003	0.001	81.899	0.000
||	||	17	0.007	0.009	82.056	0.000
||	||	18	0.005	0.005	82.145	0.000
||	||	19	-0.027	-0.024	84.439	0.000
||	||	20	-0.013	-0.007	84.945	0.000
||	||	21	-0.061	-0.062	96.102	0.000
||	||	22	-0.009	0.011	96.339	0.000
||	||	23	0.033	0.030	99.559	0.000
||	||	24	0.050	0.042	107.17	0.000
||	||	25	-0.000	-0.013	107.17	0.000
||	||	26	0.017	0.016	108.10	0.000
||	||	27	0.007	-0.003	108.25	0.000
||	||	28	0.028	0.027	110.61	0.000
||	||	29	0.017	0.013	111.48	0.000
||	||	30	0.003	-0.001	111.50	0.000
||	||	31	0.003	0.006	111.52	0.000
||	||	32	-0.035	-0.029	115.26	0.000
||	||	33	0.022	0.032	116.72	0.000
||	||	34	0.037	0.033	120.95	0.000
||	||	35	-0.001	-0.012	120.95	0.000
||	||	36	-0.008	-0.012	121.13	0.000

Notes: Date = 01/01/2013,time = 10:32
Sample period = 12/01/1993 to 12/01/2005,included observations = 3,016.

Table A4: Series of exchange indices for Canada

Autocorrelation	Partial correlation		AC	PAC	Q-stat	Prob.
| |	| |	1	-0.029	-0.029	2.5759	0.109
| |	| |	2	-0.053	-0.054	11.493	0.003
| |	| |	3	0.027	0.024	13.830	0.003
| |	| |	4	-0.002	-0.003	13.843	0.008
*| |	*| |	5	-0.073	-0.071	30.566	0.000
| |	| |	6	-0.010	-0.016	30.901	0.000
| |	| |	7	0.018	0.010	31.903	0.000
| |	| |	8	0.020	0.023	33.111	0.000
| |	| |	9	-0.017	-0.015	34.070	0.000
| |	| |	10	0.026	0.021	36.174	0.000
| |	| |	11	0.012	0.009	36.612	0.000
| |	| |	12	-0.043	-0.038	42.513	0.000
| |	| |	13	0.041	0.042	47.722	0.000
| |	| |	14	-0.005	-0.009	47.794	0.000
| |	| |	15	-0.008	-0.000	48.001	0.000
| |	| |	16	0.011	0.010	48.394	0.000
| |	| |	17	-0.051	-0.056	56.625	0.000
| |	| |	18	0.013	0.015	57.194	0.000
| |	| |	19	-0.005	-0.009	57.273	0.000
| |	| |	20	0.005	0.009	57.359	0.000
| |	| |	21	0.018	0.015	58.413	0.000
| |	| |	22	0.015	0.013	59.167	0.000
| |	| |	23	0.027	0.030	61.541	0.000
| |	| |	24	-0.046	-0.047	68.139	0.000
| |	| |	25	0.024	0.032	69.989	0.000
| |	| |	26	0.050	0.044	77.879	0.000
| |	| |	27	-0.012	0.000	78.356	0.000
| |	| |	28	0.040	0.049	83.302	0.000
| |	| |	29	0.006	-0.007	83.435	0.000
| |	| |	30	-0.043	-0.031	89.412	0.000
| |	| |	31	0.057	0.059	99.542	0.000
| |	| |	32	-0.035	-0.036	103.54	0.000
| |	| |	33	0.035	0.046	107.46	0.000
| |	| |	34	-0.024	-0.032	109.27	0.000
| |	| |	35	-0.008	-0.005	109.46	0.000
| |	| |	36	0.035	0.028	113.34	0.000

Notes: Date = 01/04/2013,time = 17:21
Sample period =01/03/2000 to 06/27/2012,included observations = 3,140.

Table A5: Series of exchange indices for Japan

Autocorrelation	Partial correlation		AC	PAC	Q-stat	Prob.
| |	| |	1	-0.042	-0.042	5.1943	0.023
| |	| |	2	-0.051	-0.053	12.914	0.002
| |	| |	3	0.036	0.032	16.836	0.001
| |	| |	4	-0.041	-0.041	21.909	0.000
| |	| |	5	0.018	0.018	22.825	0.000
| |	| |	6	-0.017	-0.021	23.683	0.001
| |	| |	7	-0.003	0.001	23.703	0.001
| |	| |	8	-0.007	-0.012	23.838	0.002
| |	| |	9	-0.014	-0.012	24.428	0.004
| |	| |	10	0.033	0.030	27.710	0.002
| |	| |	11	0.007	0.009	27.856	0.003
| |	| |	12	0.002	0.006	27.869	0.006
| |	| |	13	-0.001	-0.002	27.870	0.009
| |	| |	14	-0.010	-0.008	28.197	0.013
| |	| |	15	0.003	0.001	28.229	0.020
| |	| |	16	-0.047	-0.047	34.770	0.004
| |	| |	17	0.020	0.017	35.930	0.005
| |	| |	18	0.027	0.024	38.162	0.004
| |	| |	19	-0.010	-0.002	38.468	0.005
| |	| |	20	-0.013	-0.017	38.991	0.007
| |	| |	21	0.005	0.005	39.080	0.010
| |	| |	22	-0.018	-0.020	40.059	0.011
| |	| |	23	-0.018	-0.019	41.031	0.012
| |	| |	24	0.031	0.027	43.848	0.008
| |	| |	25	0.021	0.023	45.144	0.008
| |	| |	26	-0.017	-0.010	46.005	0.009
| |	| |	27	-0.009	-0.011	46.259	0.012
| |	| |	28	0.025	0.022	48.198	0.010
| |	| |	29	0.006	0.007	48.312	0.014
| |	| |	30	0.002	0.005	48.328	0.018
| |	| |	31	-0.003	-0.003	48.359	0.024
| |	| |	32	0.001	0.002	48.362	0.032
| |	| |	33	-0.001	0.001	48.369	0.041
| |	| |	34	0.006	0.007	48.463	0.051
| |	| |	35	-0.038	-0.042	52.782	0.027
| |	| |	36	-0.009	-0.014	53.051	0.033

Notes: Date = 01/01/2013,time = 10:16
Sample period = 11/01/1995 to 11/01/2007,included observations = 2,953.

Table A6: Series of exchange indices for Hong Kong

Autocorrelation	Partial correlation		AC	PAC	Q-stat	Prob.
| |	| |	1	0.032	0.032	2.9868	0.084
| |	| |	2	-0.039	-0.040	7.5483	0.023
|*|	|*|	3	0.086	0.089	29.687	0.000
| |	| |	4	-0.048	-0.056	36.556	0.000
| |	| |	5	-0.049	-0.038	43.760	0.000
| |	| |	6	0.018	0.010	44.753	0.000
| |	| |	7	-0.014	-0.010	45.338	0.000
| |	| |	8	0.002	0.009	45.348	0.000
| |	| |	9	0.016	0.008	46.152	0.000
| |	| |	10	0.012	0.014	46.613	0.000
| |	| |	11	0.026	0.025	48.604	0.000
| |	| |	12	0.009	0.005	48.836	0.000
| |	| |	13	0.032	0.034	51.906	0.000
| |	| |	14	0.010	0.006	52.234	0.000
| |	| |	15	-0.003	0.002	52.255	0.000
| |	| |	16	-0.038	-0.041	56.601	0.000
| |	| |	17	0.005	0.010	56.684	0.000
| |	| |	18	-0.013	-0.013	57.207	0.000
| |	| |	19	-0.022	-0.014	58.636	0.000
| |	| |	20	0.024	0.019	60.389	0.000
| |	| |	21	0.008	0.003	60.572	0.000
| |	| |	22	-0.014	-0.010	61.130	0.000
| |	| |	23	0.005	-0.003	61.194	0.000
| |	| |	24	-0.029	-0.032	63.698	0.000
| |	| |	25	-0.020	-0.013	64.876	0.000
| |	| |	26	0.001	-0.003	64.878	0.000
| |	| |	27	0.003	0.008	64.905	0.000
| |	| |	28	0.006	0.006	64.999	0.000
| |	| |	29	0.031	0.031	67.938	0.000
| |	| |	30	-0.049	-0.053	75.077	0.000
| |	| |	31	0.005	0.011	75.152	0.000
| |	| |	32	0.010	0.000	75.425	0.000
| |	| |	33	-0.007	0.006	75.579	0.000
| |	| |	34	0.023	0.020	77.126	0.000
| |	| |	35	0.008	0.002	77.321	0.000
| |	| |	36	-0.016	-0.008	78.055	0.000

Notes: Date = 01/01/2013,time = 10:19

Sample period =03/01/1994 to 03/08/2006,included observations = 2,971.

Table A7: Series of exchange indices for India

Autocorrelation	Partial correlation		AC	PAC	Q-stat	Prob.
| |	| |	1	0.073	0.073	15.891	0.000
| |	| |	2	-0.035	-0.041	19.596	0.000
| |	| |	3	-0.011	-0.006	19.978	0.000
| |	| |	4	0.015	0.015	20.650	0.000
| |	| |	5	-0.035	-0.038	24.321	0.000
| |	| |	6	-0.053	-0.047	32.789	0.000
| |	| |	7	0.024	0.029	34.443	0.000
| |	| |	8	0.044	0.036	40.230	0.000
| |	| |	9	0.037	0.033	44.343	0.000
| |	| |	10	0.023	0.021	45.858	0.000
| |	| |	11	-0.019	-0.024	46.984	0.000
| |	| |	12	-0.001	0.002	46.990	0.000
| |	| |	13	0.016	0.019	47.717	0.000
| |	| |	14	0.036	0.039	51.608	0.000
| |	| |	15	-0.009	-0.010	51.844	0.000
| |	| |	16	0.010	0.012	52.120	0.000
| |	| |	17	0.046	0.038	58.356	0.000
| |	| |	18	-0.006	-0.014	58.460	0.000
| |	| |	19	-0.037	-0.028	62.467	0.000
| |	| |	20	-0.044	-0.037	68.189	0.000
| |	| |	21	0.002	0.001	68.197	0.000
| |	| |	22	0.008	0.004	68.371	0.000
| |	| |	23	0.020	0.021	69.617	0.000
| |	| |	24	0.014	0.006	70.190	0.000
| |	| |	25	0.025	0.018	72.067	0.000
| |	| |	26	0.002	-0.005	72.084	0.000
| |	| |	27	0.007	0.011	72.227	0.000
| |	| |	28	-0.000	0.006	72.227	0.000
| |	| |	29	-0.034	-0.029	75.783	0.000
| |	| |	30	-0.015	-0.011	76.502	0.000
| |	| |	31	0.002	-0.003	76.510	0.000
| |	| |	32	-0.004	-0.006	76.556	0.000
| |	| |	33	0.000	0.003	76.556	0.000
| |	| |	34	-0.018	-0.021	77.493	0.000
| |	| |	35	0.019	0.017	78.552	0.000
| |	| |	36	-0.024	-0.026	80.360	0.000

Notes: Date = 01/01/2013,time = 10:24
Sample period: 05/19/1999 to 05/20/2011,included observations = 2,976.

Table A8: Series of exchange indices for Malaysia

Autocorrelation	Partial correlation		AC	PAC	Q-stat	Prob.
*| |	*| |	1	-0.093	-0.093	25.625	0.000
| |	| |	2	0.025	0.017	27.549	0.000
| |	| |	3	0.024	0.028	29.256	0.000
*| |	*| |	4	-0.092	-0.088	54.356	0.000
|*|	|*|	5	0.093	0.076	79.841	0.000
| |	| |	6	-0.020	-0.002	80.997	0.000
| |	| |	7	0.014	0.012	81.553	0.000
| |	| |	8	0.006	-0.003	81.658	0.000
| |	| |	9	0.004	0.019	81.706	0.000
| |	| |	10	0.018	0.010	82.618	0.000
| |	|*|	11	0.069	0.076	96.690	0.000
| |	| |	12	0.011	0.020	97.032	0.000
| |	| |	13	-0.042	-0.043	102.37	0.000
| |	| |	14	0.060	0.051	112.94	0.000
| |	| |	15	-0.011	0.010	113.29	0.000
| |	*| |	16	-0.058	-0.071	123.26	0.000
|*|	|*|	17	0.105	0.088	156.10	0.000
| |	| |	18	-0.056	-0.024	165.37	0.000
| |	| |	19	-0.022	-0.045	166.81	0.000
| |	| |	20	0.035	0.022	170.49	0.000
| |	| |	21	0.011	0.043	170.87	0.000
| |	| |	22	0.026	-0.002	172.85	0.000
| |	| |	23	-0.012	-0.008	173.31	0.000
| |	| |	24	0.017	0.027	174.18	0.000
| |	| |	25	0.055	0.052	183.08	0.000
| |	| |	26	-0.024	-0.019	184.79	0.000
| |	| |	27	0.025	0.028	186.64	0.000
| |	| |	28	0.004	-0.003	186.68	0.000
| |	| |	29	-0.001	0.004	186.68	0.000
| |	| |	30	0.022	0.029	188.09	0.000
| |	| |	31	0.005	-0.002	188.16	0.000
| |	| |	32	0.012	-0.002	188.61	0.000
| |	| |	33	-0.005	0.012	188.69	0.000
| |	| |	34	0.020	0.007	189.88	0.000
| |	| |	35	0.021	0.016	191.21	0.000
| |	| |	36	0.016	0.020	191.93	0.000

Notes: Date = 01/01/2013,time = 10:27
Sample =04/13/1998 to 04/14/2010,included observations = 2,964.

Workplace Bullying and Employee Performance Among Bank Personnel in Pakistan

Hafsa Hussain[*] and Qais Aslam[**]

Abstract

This study investigates the prevalence of workplace bullying for a sample of bank employees in Lahore. It also examines whether workplace bullying (measured as work-related bullying and person-related bullying) affects employees' performance in this context. On analyzing the data in terms of frequency and correlation, we find evidence to support the prevalence of bullying in these organizations, but none to suggest any association between workplace bullying and work performance.

Keywords: Work-related bullying, person-related bullying, work performance.

JEL classification: J16, J27, M14.

1. Introduction

Workplace bullying has become a general concern for many organizations. It refers to the repeated mistreatment of an employee by his or her colleagues or employers (Kohut, 2007) and can include being ridiculed, humiliated, threatened, or harassed to the point that it affects one's performance at work. This has potential costs both to the employee and the organization itself, making it important to investigate the reasons, forms, and impact of workplace bullying on work performance.

Many studies distinguish between person-related and work-related bullying. Work-related bullying can include, among other things, assigning unfair workloads or deadlines to an employee. Person-related bullying often includes unpleasant behavior such as insolence, teasing, spreading rumors, and playing practical jokes against someone (Bano & Malik, 2013).

[*]Graduate student of commerce, University of Central Punjab, Lahore.
[**]Professor of economics, University of Central Punjab, Lahore.

In this context, many organizations recognize the need to change the culture of the workplace and have developed clear policies to protect their employees from bullying (Bashir & Hanif, 2011). A number of studies have also looked at the prevalence of this problem in Pakistan (see Anjum, Yasmeen, &Yasmeen, 2011; Bano & Malik, 2013; Bashir & Hanif, 2011; Imran, Jawaid, Haider, & Masood, 2010; Tahir & Konstantinos, 2011). While the Protection against Harassment of Women at the Workplace Act 2010 was designed to counter instances of bullying against women, the success of its implementation remains uncertain.

The objectives of this study are to (i) identify the prevalence of bullying in banks in Pakistan, and (ii) establish the association between workplace bullying (both work-related and person-related) and employee performance. In this way, we hope to contribute to the literature on banking management and bank policies. We look at a sample of employees at two banks in Lahore: Allied Bank and Askari Bank.

2.   Literature Review

Although the problem of bullying has always existed, it was not studied empirically until the 1970s, with researchers initially focusing on schools, workplaces, paramilitary organizations, and prisons(Tahir & Konstantinos, 2011).Workplace bullying involves the use of authority to undermine or intimidate another person, often leaving the victim feeling powerless, under stress, incompetent, or ashamed (Yahaya et al., 2012; Imran et al., 2010).Moreover, this form of psychological abuse is carried out persistently over time and has a negative impact on the target's performance and wellbeing (Georgakopoulos, Wilkin, &Kent, 2011).

Tariq and Ali (2012) define workplace bullying as persistent verbal and nonverbal aggression, which can include personal attacks, social ostracism, and hostile interaction. Lutgen-Sandvik, Namie, and Namie (2009) point out that workplace bullying usually involves a power disparity between both parties, with the targeted party often unable to stop or prevent the abuse. Turney (2003) identifies workplace bullying as a health and safety issue that is related to but separate from other forms of bullying.

Work-related bullying can include assigning unachievable targets, impossible deadlines, unmanageable workloads, or meaningless tasks to an employee. It can also include giving an employee deliberately unclear instructions or threatening his or her security. Workplace bullying

ultimately has a negative impact on company performance and profitability (Yahaya et al., 2012; Bashir & Hanif, 2011; Bano & Malik, 2013). Person-related bullying, which tends to have a negative effect on workers' mental health (Yahaya et al., 2012),can include social exclusion, spreading rumors, ignoring someone's opinions, teasing, and making inappropriate sexual advances (Bashir & Hanif, 2011;Bano & Malik, 2013).

Work performance is a fundamental element of any organization (Khan et al., 2012) and entails successfully accomplishing an assigned task, subject to the normal constraints of reasonable utilization of the resources available (Dar, Akmal, Naseem, & Khan, 2011).In this context, the consequences of workplace bullying (low motivation, absenteeism, high turnover, and low job satisfaction) are liable to affect work performance (Anjum et al., 2011).

Georgakopoulos et al. (2011) use qualitative data collected from a series of focus groups (comprising 112 undergraduate students, 72 Master's students, and 40 doctoral students) to conduct interpretive structural modeling. They find that certain organizational cultures can exacerbate workplace bullying when employers do not understand the problem or dismiss it as a form of tough management.

Yahaya et al. (2012) apply t-test and multiple regression techniques to a sample of 217 employees and find that person-related bullying is strongly correlated with work performance; this relationship varies, however, for local and foreign employees. Dar et al.(2011) collect data from a sample of 143 employees, using a structured questionnaire. They apply the chi-square and t-tests and find a negative relationship between job-related stress and work performance.

Bashir and Hanif (2011) use purposive convenient sampling to collect data for a sample of 280 telecommunication personnel in Pakistan. The data was drawn from a negative-acts questionnaire and analyzed through a pilot and a main study. The authors show that respondents had experienced workplace bullying at different points in their professional lives, where the incidence of work-related bullying was higher than that of person-related bullying. There were no significant gender differences. Anjum et al. (2011)gather qualitative data from 50 employees of different organizations in Bahawalpur and find that frequent bullying has severe health- and job-related consequences for people who are unable to prevent it.

3. Research Model and Hypotheses

Based on the literature review above, Figure 1 show show the dependent variable, employee work performance, relates to the independent variable, workplace bullying.

The study's hypotheses are listed below:

H_1: workplace bullying is prevalent in the organization.

H_0: workplace bullying is not prevalent in the organization.

H_1: there is an association between workplace bullying and work performance in the organization.

H_0: there is no association between workplace bullying and work performance in the organization.

H_2: there is an association between work-related bullying and work performance in the organization.

H_0: there is no association between work-related bullying and work performance in the organization.

H_3: there is an association between person-related bullying and work performance in the organization.

H_0: there is no association between person-related bullying and work performance in the organization.

Figure 1: Research model
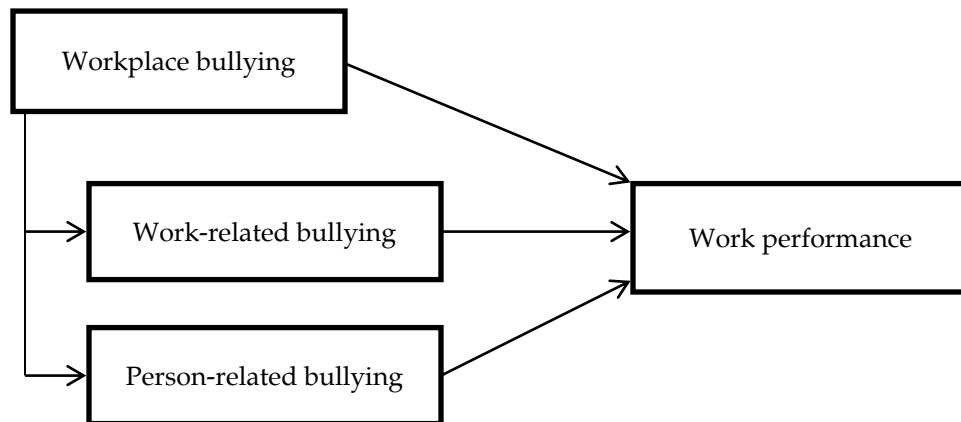
4. Methodology

In establishing the relationship between various dimensions of workplace bullying and employees' work performance, we identify the first as the independent variable and the second as the dependent variable. There are no control variables. The data collection method allows us to construct this as a cross-sectional study, with data available for the two variables at a single point in time.

Our sample was drawn from two banks in Lahore: Askari Bank and Allied Bank. We assume that the results obtained from the analysis can be generalized across all banks in the city. The data was collected using convenience nonprobability sampling and yielded a sample size of 117. A self-administered survey comprising 16 questions relating to the two dimensions of workplace bullying and their impact on work performance was conducted in both banks. Work performance was evaluated on the basis of task completion. The questions on work-related and person-related bullying were taken from Yahaya et al. (2012); those on work performance were structured by the study's authors.

The data collected was entered into Excel and then transferred to SPSS in order to run frequency, percentage, and correlation analyses to determine the prevalence of bullying in the sample and the association between workplace bullying and work performance.

5. Results and Interpretation

Table 1 indicates the results of the frequency analysis of work-related bullying (see also Figures A1 to A7 in the Appendix). The sample comprised 117 responses with a mean of 3.0991 and a standard deviation of 0.65725. Overall, respondents agreed that the given dimensions of work-related bullying existed in their workplace.

Table 1: Frequency analysis of work-related bullying

Aspect of work-related bullying		1	2	3	4	5
Someone withholds information, which affects	F	12.0	13.0	30.0	55.0	7.0
your work performance.	%	10.3	11.1	25.6	47.0	6.0
Your opinions and views are ignored.	F	10.0	47.0	20.0	29.0	11.0
	%	8.5	40.2	17.1	24.8	9.4
You are assigned tasks with unreasonable or	F	7.0	30.0	31.0	36.0	13.0
impossible targets or deadlines.	%	6.0	25.6	26.5	30.8	11.1
Your work is subject to excessive monitoring.	F	6.0	33.0	31.0	27.0	20.0
	%	5.1	28.2	26.5	23.1	17.1
You are pressured not to claim something to	F	11.0	30.0	31.0	32.0	13.0
which you are entitled (e.g., sick leave, travel	%	9.4	25.6	26.5	27.4	11.2
expenses).						
You are assigned an unmanageable workload.	F	7.0	36.0	34.0	33.0	7.0
	%	6.0	30.8	29.1	28.2	6.0
People you don't get along with carry out	F	9.0	18.0	40.0	38.0	12.0
practical jokes at work.	%	7.7	15.4	34.2	32.5	10.3

Notes: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.
Mean = 3.0991, SD = 0.65725, n = 117.
Source: Authors' calculations.

The table shows that more than half (47 and 6 percent) the respondents felt that withholding information affected their work performance. Over a third(25 and 9 percent) felt their opinions and views were ignored. About 43 percent indicated that colleagues with whom they did not get along had carried out practical jokes at work. About 42 percent felt they had been given tasks with unreasonable or impossible targets or deadlines. Just over 40 percent agreed that their work was subject to excessive monitoring. Almost 39 percent felt they had been pressured not to claim something to which they were entitled, such as sick leave or travel expenses. Finally, about 34 percent agreed they had been exposed to an unmanageable workload.

Table 2 gives the results of the frequency analysis of person-related bullying (see also Figures A8 to A14 in the Appendix). The sample mean is 3.4316 with a standard deviation of 0.81024. Overall, respondents agreed that the given dimensions of person-related bullying existed in their workplace.

Table 2: Frequency analysis of person-related bullying

Aspect of person-related bullying		1	2	3	4	5
You are humiliated or ridiculed in connection with your work.	F	9.0	22.0	23.0	38.0	25.0
	%	7.7	18.8	19.7	32.5	21.4
You are ordered to carry out tasks below your level of competence.	F	4.0	9.0	21.0	53.0	30.0
	%	3.4	7.7	17.9	45.3	25.6
You have had key areas of responsibility removed from your charge or replaced with more trivial or unpleasant tasks.	F	5.0	24.0	19.0	42.0	27.0
	%	4.3	20.5	16.2	35.9	23.1
People spread gossip or rumors about you.	F	9.0	26.0	15.0	40.0	27.0
	%	7.7	22.2	12.8	34.2	23.1
You are deliberately ignored or excluded.	F	4.0	24.0	38.0	31.0	20.0
	%	3.4	20.5	32.5	26.5	17.1
People make offensive remarks about your personality (habits and background), your attitudes, or your private life.	F	17.0	21.0	16.0	31.0	32.0
	%	14.5	17.9	13.7	26.5	27.4
You have been shouted at or been the target of spontaneous anger.	F	12.0	30.0	28.0	23.0	24.0
	%	10.3	25.6	23.9	19.7	20.5

Notes: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.
Mean = 3.4316, SD =0.81024, n = 117.
Source: Authors' calculations.

More than half the respondents reported having been humiliated or ridiculed in connection with their work, with 32.5 percent indicating they agreed and 21.4 percent indicating they strongly agreed with this dimension. Almost 71 percent said they had been ordered to carry out tasks below their level of competence, while 59 percent reported having had key areas of responsibility removed from their charge or replaced with more trivial or unpleasant tasks. More than half the sample (34.2 and 23.1 percent) said they had been the target of gossip and rumors at work. Almost 44 percent said they had been deliberately ignored or excluded at work, while more than half (26.5 and 27.4 percent) said that colleagues had made offensive remarks about their habits, attitudes, or background. Finally, about 40 percent said they had been shouted at or been the target of spontaneous.

Table 3 gives the results of the frequency analysis of work performance (see also Figures A15 to A16 in the Appendix). The sample mean is 3.6282 with a standard deviation of 1.13933. Almost 60 percent of the sample said they completed their assigned tasks within the given time, while over 61 percent reported carrying out their assignments according to the instructions they had been given.

Table 3: Frequency analysis of work performance

Aspect of work performance		1	2	3	4	5
You complete your assigned tasks in the given time.	F	7.0	17.0	23.0	31.0	39.0
	%	6.0	14.5	19.7	26.5	33.3
You carry out your assignments in the manner instructed.	F	13.0	14.0	18.0	35.0	37.0
	%	11.1	12.0	15.4	29.9	31.6

Notes: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.
Mean =3.6282, SD =1.13933, n = 117.
Source: Authors' calculations.

A comparison of the means of work-related and person-related bullying (3.0991 and 3.4316, respectively) indicates that the latter dominates workplace bullying.Table4shows that the significance values of work-related and person-related bullying are greater than 0.01. This implies that there is no significant association between work performance and either dimension of workplace bullying.

Table 4: Correlation analysis

Variable		Work-related bullying	Person-related bullying	Work performance
Work-related bullying	Pearson correlation	1	0.113	0.095
	Sig. (2-tailed)		0.224	0.311
	N	117	117	117
Person-related bullying	Pearson correlation	0.113	1	0.119
	Sig. (2-tailed)	0.224		0.200
	N	117	117	117
Work performance	Pearson correlation	0.095	0.119	1
	Sig. (2-tailed)	0.311	0.200	
	N	117	117	117

Note: **= correlation is significant at 0.01 level (two-tailed).
Source: Authors' calculations.

6. Conclusion

This study has attempted to analyze the prevalence of workplace bullying in banks in Pakistan and to identify any association between workplace bullying and work performance. Our results show that, although workplace bullying is prevalent in the sample, there is no significant association between workplace bullying and work performance. This could be for the following reasons:

Given the low availability of good jobs in Pakistan, people are less likely to risk losing such jobs, even if it means putting up with abusive behavior at work.

People (and especially women) may not feel empowered enough to report instances of bullying by senior or powerful colleagues.

Respondents may not have answered all the survey questions accurately on account of a lack of trust.

In light of these results, we present the following recommendations:

Management should develop and implement policies that allow people—and especially women—to report instances where they feel their work performance is being affected by workplace bullying.

Employees should be able to work in a friendly, secure environment in which they can easily share work-related issues with the management without fear of losing their jobs.

Seminars could be conducted regularly to help employees analyze and cope with such problems.

Laws that penalize workplace bullying must be introduced and implemented by the government.

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Appendix

Questionnaire

Rate the following aspects of workplace bullying and work performance where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

	Aspect	Scale
1	Someone withholds information, which affects your work performance.	1 2 3 4 5
2	You are repeatedly reminded of your mistakes.	1 2 3 4 5
3	People you don't get along with carry out practical jokes at work.	1 2 3 4 5
4	You are assigned tasks with unreasonable or impossible targets or deadlines.	1 2 3 4 5
5	People spread gossip or rumors about you.	1 2 3 4 5
6	People make allegations against you.	1 2 3 4 5
7	You are assigned an unmanageable workload.	1 2 3 4 5
8	You are humiliated or ridiculed in connection with your work.	1 2 3 4 5
9	You are ordered to carry out tasks below your level of competence.	1 2 3 4 5
10	You have had key areas of responsibility removed from your charge or replaced with more trivial or unpleasant tasks.	1 2 3 4 5
11	Your work is subject to excessive monitoring.	1 2 3 4 5
12	You are deliberately ignored or excluded.	1 2 3 4 5
13	People make offensive remarks about your personality (habits and background), your attitudes, or your private life.	1 2 3 4 5
14	You have been shouted at or been the target of spontaneous anger.	1 2 3 4 5
15	Your opinions and views are ignored.	1 2 3 4 5
16	You are subjected to intimidating behavior (finger pointed at you, personal space invaded, shoved, your path blocked, hints that you should quit your job).	1 2 3 4 5
17	Your work or effort is persistently criticized.	1 2 3 4 5
18	You carry out your assignments in the manner instructed.	1 2 3 4 5
19	You are subjected to threats of violence or physical abuse or to actual abuse.	1 2 3 4 5
20	You are the object of excessive teasing and sarcasm.	1 2 3 4 5
21	You are pressured not to claim something to which you are entitled (e.g., sick leave, travel expenses).	1 2 3 4 5
22	You complete your assigned tasks in the given time.	1 2 3 4 5

Gender: (i) male or (ii) female
Qualifications: (i) undergraduate, (ii) postgraduate, or (iii) doctoral
Designation: (i) low-level, (ii) mid-level, or (iii) top-level

Years employed in present organization: (i) less than 5 years, (ii) less than 10 years, or (iii) 10 years or more

Years in current position: (i) less than 5 years, (ii) less than 10 years, or (iii) 10 years or more

Frequency analysis

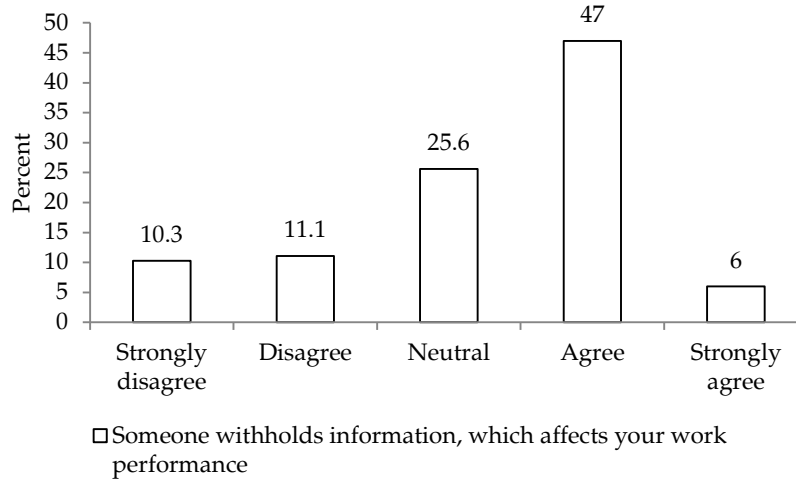### Figure 2: Someone withholds information, which affects your work performance

☐ Someone withholds information, which affects your work performance
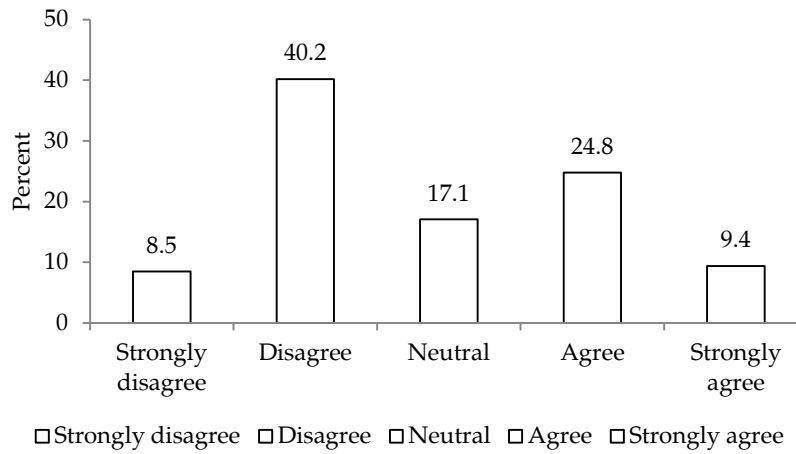
Figure 3: Your opinions and views are ignored

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

Figure 4: You are assigned tasks with unreasonable or impossible targets or deadlines

You are assigned tasks with unreasonable or impossible targets or deadlines
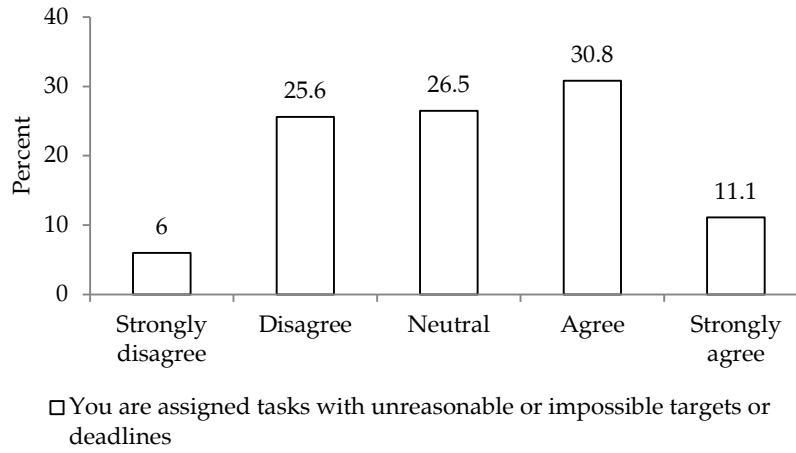
Figure 5: Your work is subject to excessive monitoring

Your work is subject to excessive monitoring
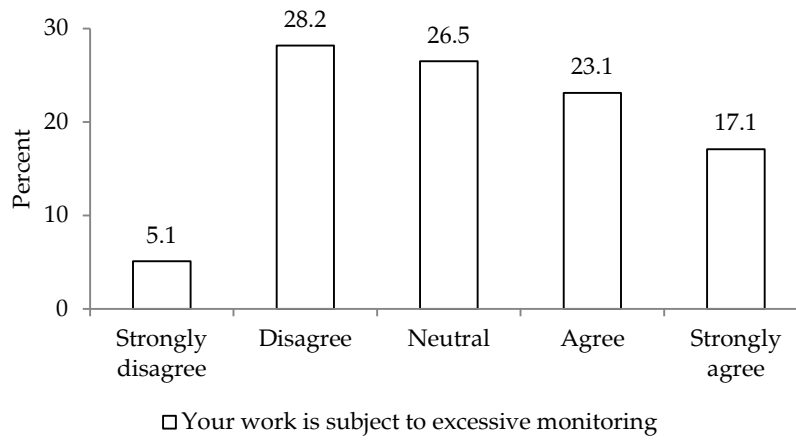
Figure 6: You are pressured not to claim something to which you are entitled

☐ You are pressured not to claim something to which you are entitled (e.g., sick leave, travel expenses)
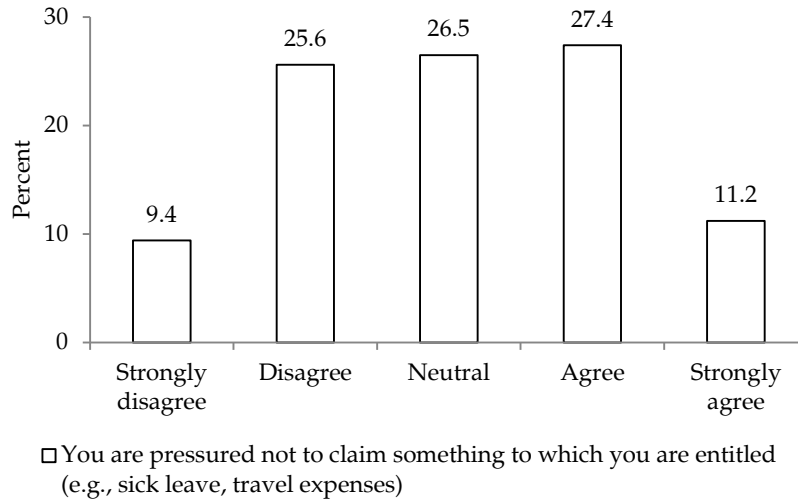
Figure 7: You are assigned an unmanageable workload

☐ You are assigned an unmanageable workload
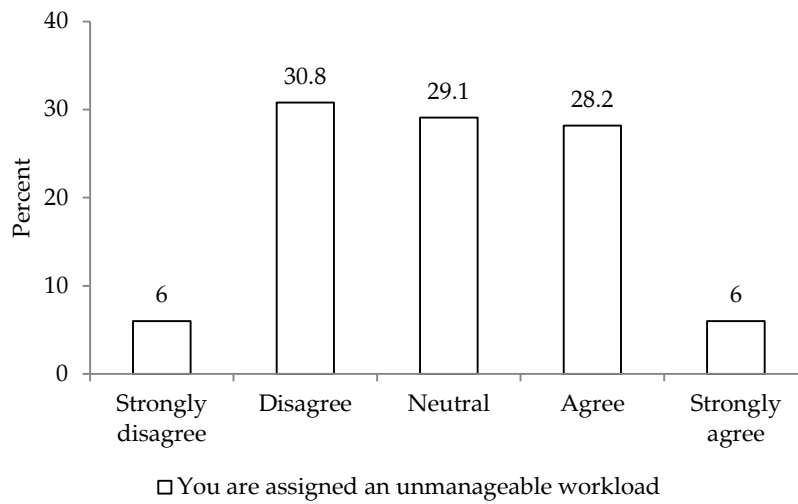
Figure 8: People you don't get along with carry out practical jokes at work
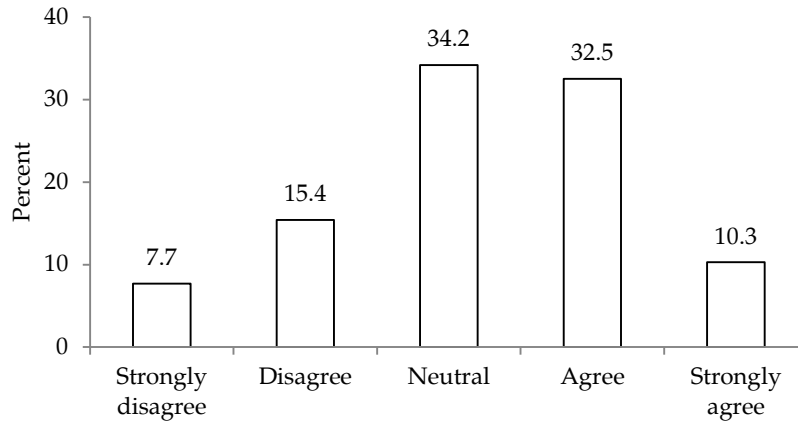
□ People you don't get along with carry out practical jokes at work

Figure A8: You are humiliated or ridiculed in connection with your work
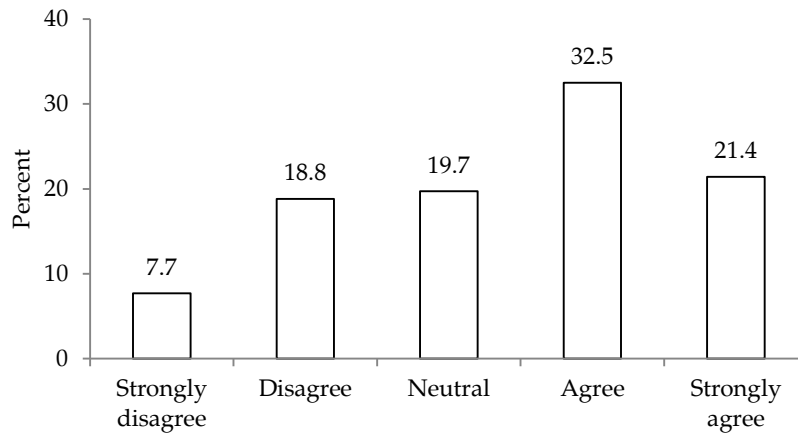
□ You are humiliated or ridiculed in connection with your work

Figure A9: You are ordered to carry out tasks below your level of competence
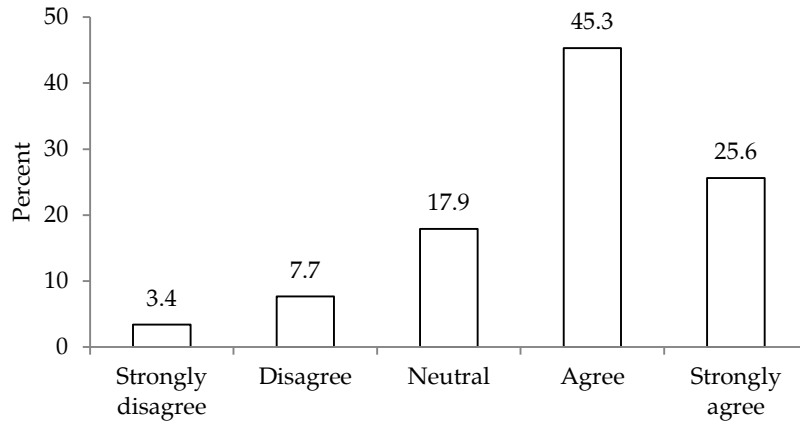
☐ You are ordered to carry out tasks below your level of competence

Figure A10: You have had key areas of responsibility removed from your charge or replaced with more trivial or unpleasant tasks
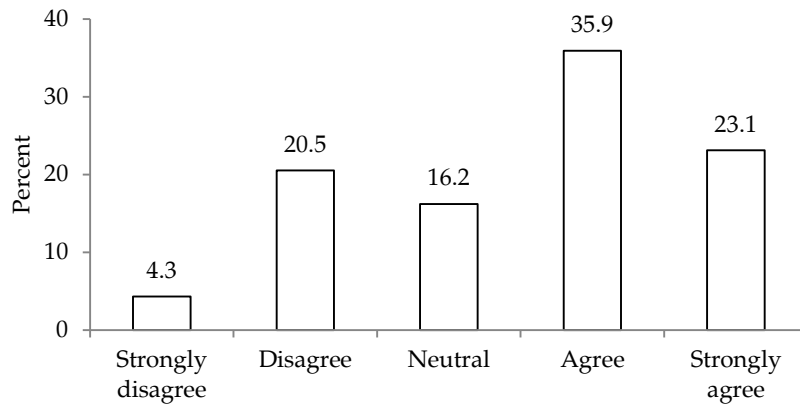
☐ You have had key areas of responsibility removed from your charge or replaced with more trivial or unpleasant tasks

Figure A11: People spread gossip or rumors about you

People spread gossip or rumors about you
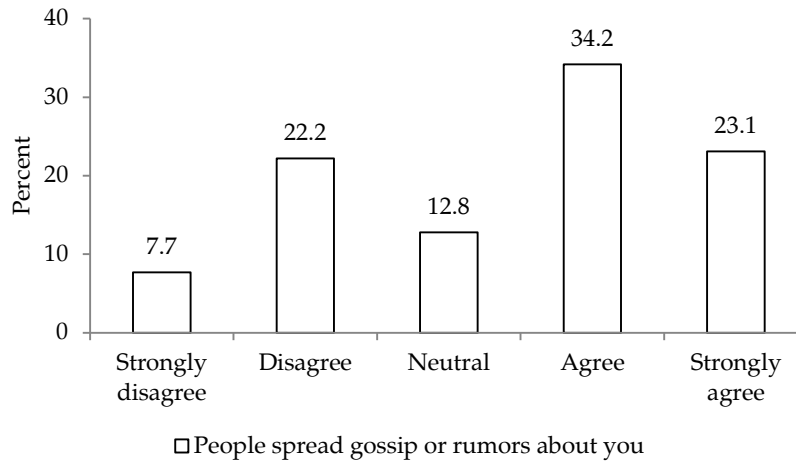
Figure A12: You are deliberately ignored or excluded

You are deliberately ignored or excluded
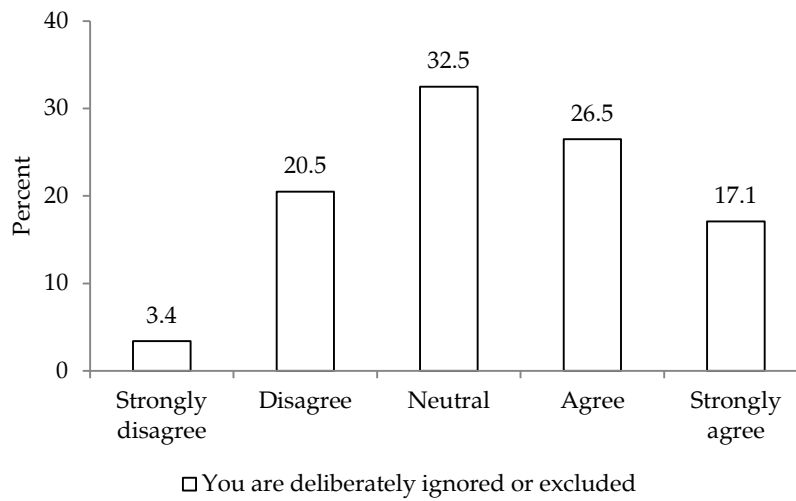
Figure A13: People make offensive remarks about your personality, your attitudes, or your private life

☐ People make offensive remarks about your personality, your attitudes, or your private life
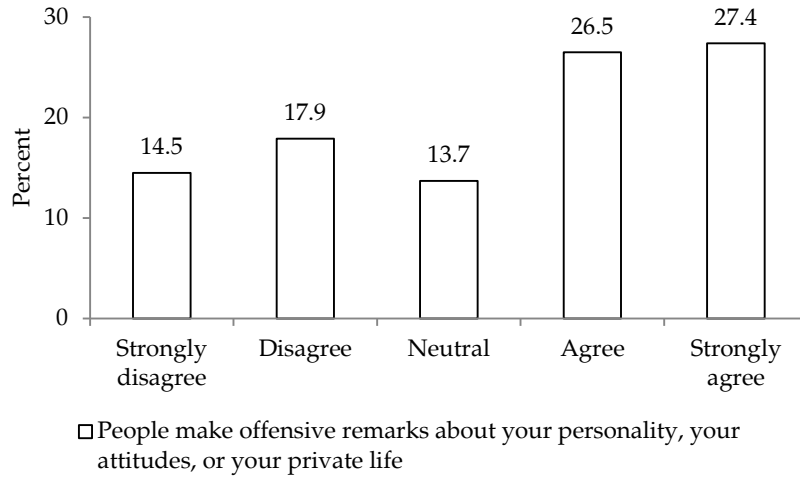
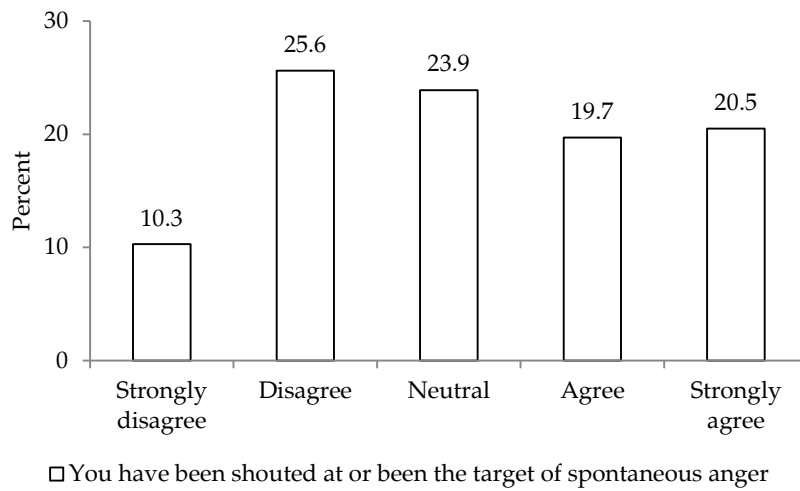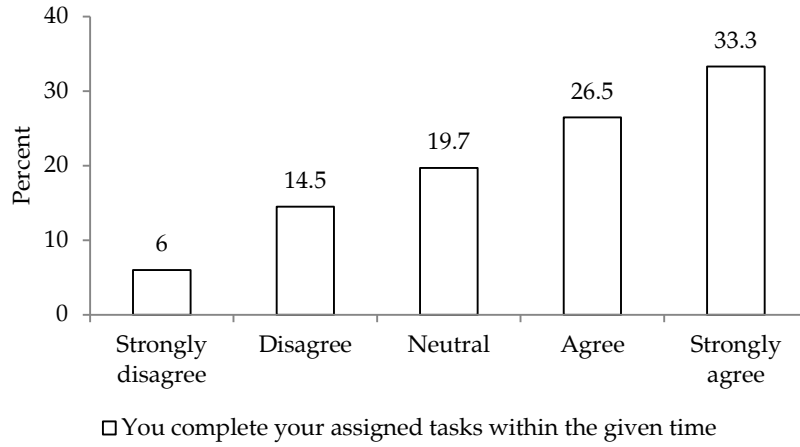**Figure A14: You have been shouted at or been the target of spontaneous anger**
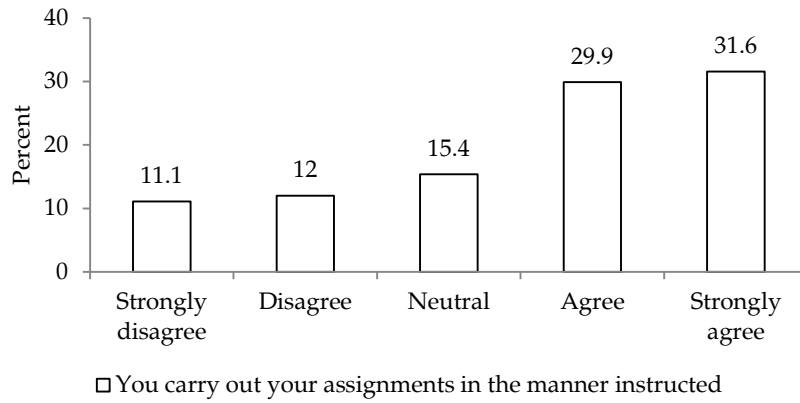

☐ You have been shouted at or been the target of spontaneous anger

Figure A9:You complete your assigned tasks within the given time

☐ You complete your assigned tasks within the given time

Figure 10: You carry out your assignments in the manner instructed

☐ You carry out your assignments in the manner instructed

The Impact of Grade Incentives and Gender on Student Performance: An Experiment

Mehreen Amjad Furqan,[*] Sohnia Salman,[**] Sohail Zafar[***]

Abstract

This experiment was conducted to determine the impact of grade incentives and gender on student performance at the university level. We perform a two-way analysis of variance on a sample of three groups of students taking a first-year core mathematics course and another three groups taking a fourth-year compulsory accounting course. We find that grade incentives significantly affect student performance for both sampled courses across all six groups. Gender is found to significantly affect the performance of mathematics students, but not of accounting students. The interaction between gender and grade incentives does not have a significant impact on performance in either experiment.

1. Introduction

Students' academic performance has been extensively researched over the last eight decades from numerous perspectives. It is affected by cognitive as well as motivational factors (Richardson, Abraham, & Bond, 2012). Performance-related motivation is divided into intrinsic and extrinsic factors (Griffin, MacKewn, Moser, & VanVuren, 2013; Matei & Abrudan, 2011). Of the latter, grades are an important factor affecting student performance (Maksy, 2012a, 2012b). MacDermott (2013) reports that alternative grading policies have a significant impact on student performance: when different methods are employed to improve students' grades, such as dropping the lowest graded assignment, they perform

better on their final exam for that course. Grant and Green (2013), however, find that grade incentives have no significant impact on performance.

The literature exploring the effect of gender on academic performance, while extensive, is not necessarily conclusive. Some studies report that gender has a significant effect on performance while others find it is not a significant factor. Many studies have looked at the impact of gender on performance in conjunction with other factors, such as personality type. Russo and Kaynama (2012) report that women students with a "judging type" personality perform better. Arthur and Everaert (2012) find that gender has a significant impact on examination performance: based on a sample of accounting students, they note that women performed better overall in the examination, but that gender played a more significant role in subjective questions than multiple-choice questions. On the other hand, Picou (2011) and Borg and Stranahan (2002) find no significant impact for gender on student performance.

Adopting an experimental approach, this study runs univariate tests to determine the impact of grade incentives and gender differences on student performance at the university level. We address the following research questions:

Do grade incentives influence student performance?

Do gender differences influence student performance?

Does the interaction between grade incentives and gender differences affect student performance?

2. Theoretical Background

Earlier discussions have focused on how students perform in different subjects. Harbeson (1943) observes that better textbooks and course material improve student performance in any subject. How students participate in the learning process is also discussed as an important aspect of learning and performance. Joseph (1965) examines role-play by students of economics and argues that exercises in which they were asked to act out real-life scenarios enabled a better understanding of the concepts being taught. Doney and Neumann (1965) find that neither teaching methodology nor the weekly frequency of classes affect student performance on accounting courses.

Recent studies have focused on a number of new aspects that might affect student performance. An important factor leading to better

performance is computer-based problem solving, especially for accounting students (King &Mo,2013). Hatcher, Henson, and LaRosa (2013) discuss grade point average (GPA) as an intervening factor in the relationship between mode of teaching and performance, where the mode of teaching ceases to be a significant factor while GPA becomes more important.

Motivational factors remain the most widely discussed topic in the literature. Chung's (1968) model predicts student performance based on ability, needs, incentives, and expectations. Grades are an important motivational factor in this context. Carpenter and Strawser (1971) have carried out an experimental study of how grading systems affect student performance. Drawing on a sample of accounting students, they find that a proper grading system improved performance compared to one in which students were told merely whether they had performed satisfactorily. Artés and Rahona (2013) observe that questions assigned as graded problems in an examination increased the performance of a sample of Spanish students compared to questions from an ungraded problem set.

Dobrow, Smith, and Posner (2011) identify a "grading paradox" where by grades are supposed to increase students' interest in a class, but can also do the opposite. Giving students more choice in the classroom increases their interest in that particular subject. Aloysius (2013) builds on this idea and finds that student empowerment is an important factor affecting performance: students who feel they have more choice in what they study are likely to perform better.

The findings on student performance and gender are mixed. Very few studies have looked at the impact of gender alone; most focus on its effect in interaction with other factors. Buckless, Lipe, and Ravenscroft (1991) conclude that gender has a significant impact on performance with women performing better than men on accounting courses. This result also holds when student gender and instructor gender interact, but the effect of gender on performance is reduced if students' previous grades are considered a covariate.

Tan and Laswad (2008) find that gender has a significant impact on students' performance through its effect on their meta-cognitive knowledge. Huh, Jin, Lee, and Yoo (2009) test the effect of several student characteristics on academic performance and observe that gender affects performance more significantly for a sample of offline accounting students than for online accounting students. Marks (2008) studies the impact of

gender on performance for different socioeconomic groups of students, but does not find that gender has any significant impact in this context.

3. Framework and Research Hypotheses

The purpose of this study is to test whether grade incentives and gender affect student performance independently as well as when interacting with each other. The conceptual framework is given in Figure 1.

Figure 1: Model testing student performance
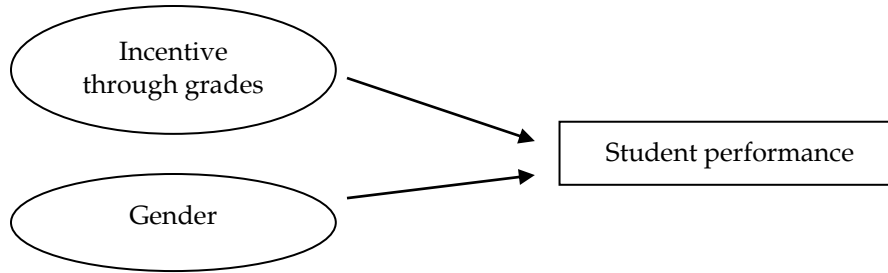
We test the following hypotheses:

Hypothesis 1(H_0): There is no significant difference in the means of performance across all levels of grade incentives offered to students.

Hypothesis 1(H_1): There is a significant difference in the means of performance across all levels of grade incentives offered to students.

Hypothesis 2(H_0): There is no significant difference in the means of performance across gender.

Hypothesis 2(H_1): There is a significant difference in the means of performance across gender.

Hypothesis 3(H_0): There is no significant interaction effect in the means of performance across three levels of grade incentives and both genders.

Hypothesis 3(H_1): There is a significant interaction effect in the means of performance across three levels of grade incentives and both genders.

4. Methodology

This section describes the sample and methodology used, and the variables employed.

4.1. Sample

The study's sample comprised 247university students studying toward a BBA degree. Of these, 120 were studying a first-year core mathematics course and 127 were studying a fourth-year cost accounting course at the same university. The sample included 53 percent men and 47 percent women, and their average age was 21 years.

4.2. Procedure

We have employed an experimental factor design (Table 1) to test the relationship between (i) performance and grade incentives, (ii) performance and gender, and (iii) performance and the interaction between grade incentives and gender. The two subsamples (of first-year and fourth-year students divided across six sections) were tested separately. As a laboratory experiment, the study was conducted during class over the same semester. The first-year students were given the same mathematics test and the fourth-year students were given the same accounting test. Both tests had been announced a week before, giving all six sections equal time to prepare.

In both cases, the mathematics and accounting courses represent a separate experiment. Students on each course were divided into two experiment groups and one control group. The first experiment group was given a 5 percent incentive, i.e., they were told the test was worth 5 percent of their course grade. The second experiment group was given a 10 percent grade incentive and the third group (control group) was told that the test was merely for practice and would not be marked.

Table 1: Experimental design

Grade incentive	Performance observation	
	Male	Female
5%	Y11	Y12
10%	Y21	Y22
None(control group)	Y31	Y32

Observations were recorded only after the treatments had been applied. Overall, 96 students were given the 10 percent grade incentive (45 for mathematics and 51 for accounting), 81were given the 5 percent grade incentive (35 for mathematics and 46 for accounting),and 70were assigned the no-incentive condition (40 for mathematics and 30 for accounting).

We minimized the order-effects bias by changing the order of the experiment groups and control groups for both courses. Thus, in the case of the mathematics course, the no-incentive test took place first, followed by the 5 percent and 10 percent grade incentive tests. In the case of the accounting course, the 5 percent and 10 percent grade incentive tests took place first, followed by the no-incentive test. At the end of the week, once all the tests had been completed, the students were told about the experiment and their grades were included in the study with their consent.

4.3. Variables

We have employed three independent variables: grade incentive, gender, and their interaction. In the first case, two levels of grade incentive were offered. Students in the first and second sections were told they could easily improve their performance by sitting a test that would count toward 5 and 10 percent, respectively, of their overall grade. They were also told that the test would include basic questions. The third section or control group was told that sitting the test would not add anything to their grade.

The second independent variable was gender. The sample comprised both men and women, and the purpose was to test for significant differences, if any, in their academic performance. The interaction term was used to determine if grading incentives had a more significant impact on men or women, that is, whether women performed better than men when given a grading incentive (in the two experiment groups) relative to none.

We have hypothesized that academic performance, the dependent variable, is affected significantly by the different levels of incentive given to students. In testing this hypothesis, we have used the marks they obtained as a measure of their performance. According to the second hypothesis, gender is expected to play a significant role in affecting performance and is, therefore, included in the experiment as an independent variable.

5. Analysis and Results

A two-way ANOVA was run to test the relationship between the dependent variable (student performance) and independent variables (the different levels of grade incentive and gender).This was done separately for the mathematics and accounting class samples because both courses constitute two different experiments.

5.1. Results for Mathematics Students

Table 2 gives the descriptive statistics (mean performance scores) for the first experiment. Levene's test statistic for the equality of error variances is found to be insignificant, which satisfies our basic assumption about the model being employed. As Table 3 shows, the different levels of grade incentive (F= 9.923, p = 0.000) have a significant impact on student performance. Students tended to perform better when given a higher incentive level. This finding supports the first hypothesis (H$_1$) proposing that there are significant differences in the means of performance across different levels of grade incentive.

Table 2: Mean performance scores for mathematics students

Incentive	Gender	Mean	SD	N
None	Male	9.4091	4.23600	22
	Female	7.1944	3.86971	18
	Total	8.4125	4.17546	40
5%	Male	10.4750	4.90830	20
	Female	8.6333	4.05967	15
	Total	9.6857	4.59393	35
10%	Male	13.5435	3.30947	23
	Female	10.7727	3.94826	22
	Total	12.1889	3.85724	45
Total	Male	11.2000	4.47720	65
	Female	9.0182	4.17772	55
	Total	10.2000	4.46009	120

Source: Authors' calculations.

Post hoc comparisons also support this finding: students given a 10 percent grade incentive performed better (had a higher mean score on the test) than those given a 5 percent incentive or no incentive. This finding is supported by the literature, which argues that increasing the level of grade incentive motivates students, who then tend to perform better.

Table 3: Two-way ANOVA results for mathematics students

Dependent variable: performance

Source	Type III sum of sq.	DF	Mean square	F	Sig.	Partial eta sq.	Noncentr. parameter	Observed power [a]
Corrected model	479.021 [b]	5	95.804	5.784	0.000	0.202	28.921	0.992
Intercept	11,752.307	1	11,752.307	709.553	0.000	0.862	709.553	1.000
Incentive	328.724	2	164.362	9.923	0.000	0.148	19.847	0.982
Gender	152.014	1	152.014	9.178	0.003	0.075	9.178	0.852
Incentive * gender	4.355	2	2.178	0.131	0.877	0.002	0.263	0.070
Error	1,888.179	114	16.563					
Total	14,852.000	120						
Corrected total	2,367.200	119						

[a]Computed using alpha = 0.05.
[b]R-squared = 0.202 (adjusted R-squared = 0.167).
Source: Authors' calculations.

Our results also support the second hypothesis (H_1) proposing that there are significant differences in the means of student performance with respect to gender. Table 3 indicates a significant difference between the performance of men and women students (F = 9.178, p = 0.003). As Table 2 shows, men tended to perform better than women, as seen from their mean scores on the test (11.2 for men and 9.01 for women).

As far as the interaction effect on the means of student performance across different levels of grade incentive and gender is concerned, our results do not support the third hypothesis (H_1). There is no statistically significant interaction between gender and grade incentives with respect to student performance, meaning that there is no significant difference in the performance (as measured by the test mean scores) of men and women students for the different levels of incentive; the six means are not significantly different.

5.2. Results for Accounting Students

Table 4 gives the descriptive statistics (mean performance scores) for the second experiment. Levene's test statistic is insignificant, satisfying the basic assumption that the variance of errors for performance are the same across all groups. We can thus apply the ANOVA technique, the results of which are given in Table 5.

Table 4: Mean performance scores for accounting students

Incentive	Gender	Mean	SD	N
None	Male	10.7273	5.95364	22
	Female	10.4167	4.39285	24
	Total	10.5652	5.14091	46
5%	Male	11.9286	4.68162	14
	Female	12.4375	5.53737	16
	Total	12.2000	5.07462	30
10%	Male	16.0333	5.46767	30
	Female	12.4286	7.13142	21
	Total	14.5490	6.39473	51
Total	Male	13.3939	5.93783	66
	Female	11.6393	5.74466	61
	Total	12.5512	5.88880	127

Source: Authors' calculations.

The results of the two-way ANOVA (Table 5) show that, for fourth-year accounting students, grade incentives affect their performance significantly ($F = 5.079$, $p = 0.008$) at a confidence interval of 90 percent. Thus, there are differences in the performance of students who were given a grade incentive and those who were not. This supports our first hypothesis proposing that grade incentives affect student performance.

Post hoc tests run using Scheffe's test reconfirm these results. Students who were given a 10 percent grade incentive performed significantly better than those given a 5 percent grade incentive or no incentive at all. Table 4 indicates a mean score of 10.56 for no incentive, 12.2 for a 5percent incentive, and 14.5 for a 10 percent incentive.

Table 5: Two-way ANOVA results for accounting students

Dependent variable: performance

Source	Type III sum of sq.	DF	Mean sq.	F	Sig.	Partial eta sq.	Noncentr. parameter	Observed power[a]
Corrected model	552.245[b]	5	110.449	3.501	0.005	0.126	17.506	0.905
Intercept	18,118.560	1	18,118.560	574.338	0.000	0.826	574.338	1.000
Incentive	320.481	2	160.240	5.079	0.008	0.077	10.159	0.812
Gender	38.423	1	38.423	1.218	0.272	0.010	1.218	0.195
Incentive * gender	100.871	2	50.435	1.599	0.206	0.026	3.197	0.333
Error	3,817.173	121	31.547					
Total	24,376.000	127						
Corrected total	4,369.417	126						

[a]Computed using alpha = 0.05.
[b]R-squared = 0.126 (adjusted R-squared = 0.090).
Source: Authors' calculations.

Our results do not, however, support the second hypothesis (that gender affects performance) because there is no significant difference between the performance of men and women (F= 1.218, p = 0.272). Both genders performed equally well on the test. The third hypothesis (that the interaction of gender and grade incentives affects student performance) is also unsupported by the results. Gender appears not to play a role as neither men nor women's performance was significantly different at different incentive levels (F = 1.599, p = 0.206).

6.   Conclusion and Implications

This experimental study on the effects of grade incentives and gender on performance yields some interesting results. Grade incentives appear to have a significant impact on performance for both mathematics and accounting students, whether first-year or fourth-year. Increasing levels of grade incentive are found to motivate students who want to improve their course performance.

Gender, on the other hand, is found to have a significant impact on performance among first-year mathematics students, but not fourth-year accounting students. Men appear to have performed better than women on the mathematics test, contradicting the general perception that women perform better. One reason for this could be that the first-year students sampled were from both coeducational and segregated

backgrounds, accounting for a potential gender bias in their previous education. On the other hand, such bias would likely have been eliminated among the fourth-year students as a result of having already spent three years together at university.

We can also conclude that, although grade incentives affect performance, they do not affect the performance of men or women differently in either the mathematics or accounting courses.

Our research findings imply that course instructors at the university level could use the grading system as an effective tool to improve students' performance and that such incentives are likely to work equally well for both men and women students.

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Contact Info
Ms. Sehrish Nisar
Assistant Editor, Lahore Journal of Business
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Lahore Journal of Business (LJB), a peer reviewed publication of Lahore School of Economics, is aimed at providing a specialized forum for dissemination of qualitative and quantitative research in various areas of business administration. LJB invites researchers, policy makers and analysts to submit competitive theoretical and empirical papers that explore and contribute to the understanding of various areas in business domain. The Journal aims at bringing together state of art research findings, particularly from emerging markets, in various business disciplines including (but not limited to) accounting, banking, management, marketing, finance, investments, human resource management and organizational behavior.

Paper Submission and Review Process

The submission of articles will be followed by an editorial review to determine the relevance of manuscript and scope of the Journal. On editorial acceptance, there will be a double-blind review by our advisory panel that comprise of eminent international and local researchers and scholars. The recommendations/comments of the referees will be communicated to the corresponding authors. The papers are now being considered for publication. The manuscript can be submitted in electronic format (.doc and .docx only) to ljb@lahoreschool.edu.pk

Key Areas of Interest: *Accounting, Banking, Management, Marketing, Finance, Strategy, Human Resource Management, Organizational Behavior etc.*

Contact Info
Ms. Sehrish Nisar
Assistant Editor, Lahore Journal of Business
Lahore School of Economics, Lahore, Pakistan
T +92 (0) 42 111-656-111 Ext. 198
ljb@lahoreschool.edu.pk, ljbs@ymail.com

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OF

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