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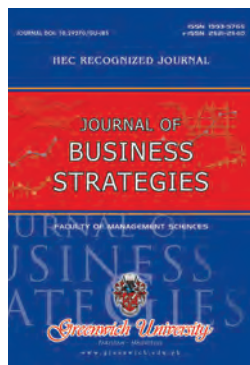
Journal of Business Strategies

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EDITORIAL NOTE

It is an immense pleasure to announce latest issues of the Business Strategies, this issue has considered excellent work from the different established and emerging scholars in the domain of business administration. Those scholars belong to different universities of the country and different universities. Quality and standard is ensured in case of the context and contents with respect to the Journal of Business Strategies.

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In this way, journal will keep this commitment to publish articles on the emerging fields in the research and burning issues around the globe while considering the new methodological approaches and research designs introduced and used by the established scholars and research students.

Dr. Muhammad Nawaz Tunio
Editor
Journal of Business Strategies

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FINANCIAL RISK ASSESSMENT AND QUICK RECOVERY STRATEGY DURING MAJOR DISASTERS IN PAKISTAN (A STUDY OF QUALITATIVE AND QUANTITATIVE ANALYSIS)

Waqas Ahmed and Dr. Sohaib-Uz-Zaman

ABSTRACT

Pakistan is one of the most shamble inclined nations in South Asia, with harm and misfortune assessed at $ 18 billion over the previous decade (World Bank 2017), however no investigations have been led to decide the harm, cost and recuperation examination of areas influenced by serious debacles (tremor 2005, tropical storm 2007, floods 2010). This review fills this hole by including a presentation that characterizes the debacle by giving an outline of each serious calamity as well as economic crisis. Its approach focuses on the economic impact of disaster outcomes as well as government and institutional frameworks for the implementation of reconstruction and recovery programs in each affected area, and statistical interventions (correlation, regression) will be used to analyze the relationship between the cost of immediate damage as well as the cost of repairing a partially damaged or completely damaged part of the property as part of a pecuniary danger evaluation. The essential result will decide if a catastrophe the board strategy or recuperation measure has been effective in diminishing danger in the influenced regions.

INTRODUCTION

Quakes, volcanic ejections, avalanches, floods, dry seasons and different debacles have killed multiple million individuals over the most recent twenty years, causing torment, infection, vagrancy and wretchedness just as it influences one billion individuals and billions of dollars in land. As

indicated by one review, by 2025, 80 percent of the total populace will live in agricultural nations, and up to 60 percent of those will have genuine wounds. The world's prosperity for catastrophes, regardless of whether normal or man-made, is expanding step by step. The impacts of fiascos have for quite some time been viewed as problematic locally improvement measure. The fiascos halted this present city's improvement cycle. As indicated by the 2001 World Disasters Report, 97% of ruinous happen in non-industrial nations and just 2% in created nations. Subsequently, given the idea of worldwide fiasco, its greatness and its danger, center on great calamity executives as displayed in Table 1 beneath:

Table 1: Death Toll in South Asia between 2000-2009

Detail	Afghan-istan	Bangla-desh	Bhutan	India	Mal-dives	Nepal	Pakistan	Sri Lanka
Droughts	37	0	0	20	0	0	143	0
Earth Quakes	1214	4	0	37705	102	0	73576	35399
Epidemics	3525	245	0	1217	0	377	163	2
High Temperature	348	1200	0	4806	0	108	527	0
Floods	1106	2388	200	12166	0	948	2163	345
High Scale Rains	33	0	0	609	0	773	239	0
Storms	1648	5391	0	790	0	0	369	14
Forest Fires	0	0	0	0	0	0	0	0

(Jain, 2018)

As far as hazard, Pakistan is one of the most catastrophe inclined nations in South Asia, enduring harm and misfortune assessed at US $ 18 billion over the previous decade (World Bank, 2017). Outrageous degrees of flood risk happened in the Indus River during the storm season in July and September because of occasional changes in the Arabian Sea or Bay of Bengal (NDMI, NDMA, UNDP, 2007). By and large, catastrophic events in Pakistan influence around 3,000,000 individuals every year, which is about 1.6% of the all-out populace. Figure 1 shows the quantity of individuals influenced by debacles since 1973, by sort of danger.

Figure 1: Number of disaster victims in Pakistan, 1973-2012, by type of disaster.
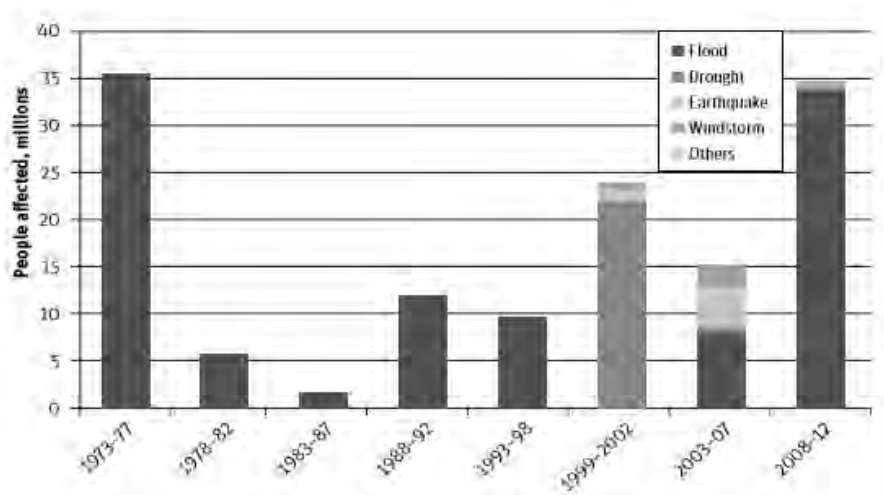
(No, 2015 Fiscal Disaster Risk Assessment Options for Consideration.)

Floods influenced around 77% of all catastrophe casualties in Pakistan somewhere in the range of 1973 and 2012 (Figure 2). Dry spell is the second most wrecking danger, trailed by quakes, typhoons and other ruinous events (like weighty downpours and avalanches).

Figure 2: The impact of the disaster on the population of Pakistan, 1973-2012, by type of disaster.
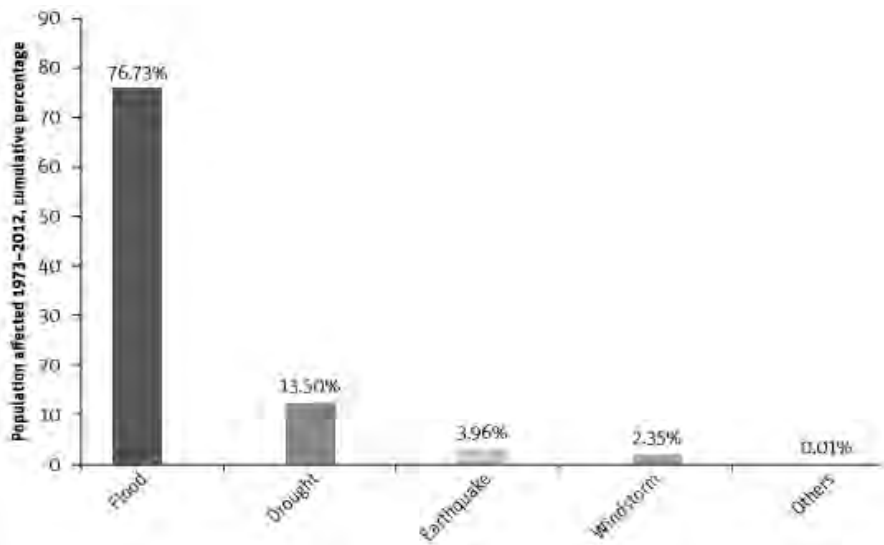
(No, 2015 Fiscal Disaster Risk Assessment Options for Consideration.)

Since 1973, 11 catastrophic events have struck Pakistan, influencing multiple

million individuals. Eight out of eleven fiascos accepted to influence multiple million individuals. Furthermore, the three headliners (surges of 2010,1976 and 1973) each influenced in excess of ten million individuals (Fig. 3).

Figure 3: Disasters affected more than 4 million people in Pakistan from 1973 to 2012.
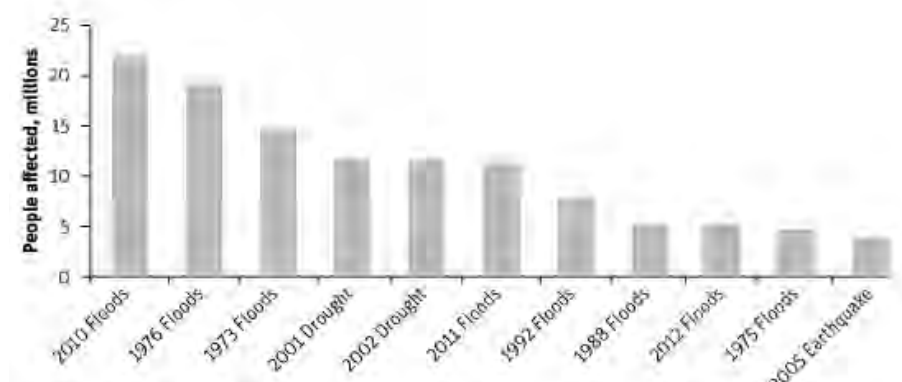
(No, 2015 *Fiscal Disaster Risk Assessment Options for Consideration*.)

To lay it out simply, this report will focus on economic impacts, financial peril examination, and fast recovery preparing for genuine failures in Pakistan (seismic quake 2005, storm 2007 and floods 2010) along with statistical interference relations among the direct cost and reconstruction cost of fairly or completely damaged assets to come to know how the aftermath of these ruinous costs are immovably associated with each other.

Literature Review

Literatures taken as secondary sources are:

A comprehensive study from the Asia Journal of Environment and Disaster Management (AJEDM 2009) has done and focused on the reduction of hazards in the Asian region. If it focuses on the environment as well as disaster-related issues in the Asian region. This newsletter provides an opportunity to present research findings not only through academic research, but also through the application of field research. (Sanderson & Burnell, 2017; Tunio, 2020).

Description by "Paulina Aldunce": Opportunity to improve disaster management in Chile - a study was born. This research paper seeks appropriate mechanisms to improve the management of rain-related disasters in Chile. This document covers the social aspects (e.g. community participation, social

disadvantages, etc.) as well as disaster management.(Aldunce & León, 2007l Katper, et al., 2020).

"The Conference on 'Disaster Resilience 2009 - International Conference on Resistance through Local Government' held in Kathmandu, Nepal from 11-12 November 2009 - focuses on mechanisms for the protection of human and animal life and property against disasters. It also discusses the use of new technologies, information technologies as well as social components (Andrew Collins, 2009).

The book Gujar R. K. and Jatt BC - "National Disaster" Jaipur (Raj.) - describes the nature and extent of disasters in the state of Rajasthan. This book contains ground planning, reports, disaster risk management, preparation for mitigating the effects of disasters. (Gurjar R. K. and Jatt, B.C. 2001).

The book Dekens, Julie published and edited, "Regional knowledge for disaster preparedness" (2007) is based on a review of the literature on local knowledge and practice as well as an attempt to provide an overview and context of local knowledge and disaster preparedness, its own understanding in disaster management, as well as benefits and related issues. (Dekens, 2007).

Research gap

Pakistan suffered major disasters such as the 2005 earthquake, the 2007 torrential downpour, the 2010 floods, but no research has been conducted to assess financial risks, damage, economic impact (such as GDP cuts, job losses leading to increased poverty etc.). Based on the above literature this study focused on the analysis of damage to key sectors during earthquakes, floods and storms, the economic impact, and the financial risk assessment mainly as costs which are: direct damage, indirect loss and the cost of repairs, as well as strategies provided for the rapid recovery of the sectors as well as suggestions for improving national disaster management and lowering the mitigation impact of disasters.

RESEARCH METHODOLOGY

The study centers around both qualitative and quantitative (secondary data) information to layout the adverse consequence of fiascos on economic elements, as well as evaluating the damage and surveying the requirements of the most influenced areas like housing, education, agribusiness. It will likewise survey the financial cost appraisal (direct damage, indirect loss, and remaking cost) of the influenced areas during serious fiascos, as well as

statistical interference (correlation, regression) for assessing the interlinkage among direct and rebuilding cost of harmed financial resources, also strategies that have been executed to facilitate the recuperation of influenced areas. In view of the data gave above, following hypothesis has been defined:

✓ H1: Post disaster consequences significantly lead to negative impact on economic factors

✓ H2: Post disaster consequences significantly lead to greater financial risk assessment (financial costs) in affected sectors.

✓ H3: Proper reconstruction strategy could significantly lead to quick recovery of affected sectors.

✓ H4: Replacement cost (reconstruction cost) will have significant relationship with direct damage cost of monetary assets in 2005 earthquake.

✓ H5: Replacement cost (reconstruction cost) will have significant relationship with direct damage cost of monetary assets in 2007 cyclone

✓ H6: Replacement cost (reconstruction cost) will have significant relationship with direct damage cost of monetary assets in 2010 flood.

Data collection

The information from the report "Primer Damage and Needs Assessment" will be essentially utilized for exploring the effect of the tremor, flood, and tornado, just as assessing the recuperation of influenced areas. Asian Development Bank and World Bank arranged this report. The appraisal was co-ordinate by the ADB and WB DNA center groups with the Economic Affairs Division, Planning Commission, and National Disaster Management Authority at the government level, just as the commonplace/state/FATA Planning and Development Departments and Disaster Management Authorities (or counterparts).

DATA ANALYSIS AND INTERPRETATION
OF SECONDARY DATA

i) 2005 Earthquake

The quake that struck Pakistan on October 8, 2005, left broad destruction afterward, killing somewhere around 73,000 individuals, seriously harming another 70,000, and dislodging 2.8 million individuals. AJK and the eastern KPK took the brunt of the harm, with broad harm to financial resources and

framework, as well as trade, and transportation.

Economic Impact

The tremor's effect on Pakistan's true GDP development (barring AJK GDP) is relied upon to be little which was 0.4 percent. Because of an extended decrease in KPK yield for FY06, the extra effect of the tremor was probably going to diminish yield development significantly further, to around 6.1 percent. Without balancing income increments or expenditure reductions, the quake is relied upon to build the Government of Pakistan's FY06 deficiency by 0.6 to 1% of GDP.

Keeping up with quick development and decreasing neediness while dispatching the quake recuperation

The public authority had expressed that it would retain a portion of the monetary effect of the quake by cutting low-need spending and raising extra homegrown income. The quake has brought about extra spending prerequisites for help, remaking, and recovery.

Impact on Major Sectors

Misfortunes in the housing area represent 84% of the complete housing stock in the influenced AJK Districts and 36 percent of the housing stock in the five influenced Districts (K.P.K). 61.2 billion (US$1.03 billion) in harms: The tremor annihilated 203,579 housing units in AJK and N.W.F.P (new name K.P.K), while 196,573 were harmed to changing degrees. In AJK, 116,572 individuals were killed and 88,368 were harmed, while in KPK, 87,007 individuals were killed and 108,205 were harmed. The influenced houses were generally provincial, with metropolitan units representing just 10% of the aggregate. A significant part of the provincial housing was based on steep inclines, making access troublesome. Beside harm to instructive establishments (education) and workplaces, the training area had likewise experienced huge human misfortunes, including understudies, instructors, and staff. As indicated by starter gauges, around 18,095 understudies and 853 instructors and instructive staff were killed across the NWFP (new name KPK) and AJK. The water system subsector had experienced the most harm, with water channels, redirection structures, water lifts, spillways, and water tanks experiencing the most harm. 9 billion, which incorporates the

deficiency of enormous and little ruminants and poultry, animal sheds, and harm to augmentation and exploration structures.

Reconstruction Strategy

In housing area support the utilization of peril safe development principles and plans; Reconstruct nearby; Ensure that the revamping is driven by the proprietor; Rebuild utilizing recognizable strategies and promptly accessible materials; Only move settlements when totally important; Ensure that metropolitan redevelopment is restricted and vital; Provide steady, non-compensatory help; Coordination of different recreation drives and value norms; Connection of housing to occupations and framework recovery. In institutional area (education) giving brief and semi-extremely durable elective learning spaces, giving learning materials, preparing instructors to supplant the people who have passed on, and rejuvenating training authoritative constructions. Schools that had been somewhat harmed would likewise be repaired, and continuous educator preparing would be needed in the medium term. In agriculture sector the prompt requirements are for winter crops, principally wheat development, the development of temporary animal sheds to shield creatures from outrageous cold, and the maintenance of water channels. On the off chance that wheat development help was not reached out promptly, the influenced individuals would not be able to develop wheat, which is their primary type of revenue. In longer term, the accentuation ought to be on reestablishing animals' inventories and restoring seriously harmed patios and soil preservation framework.

ii) 2007 Cyclone

Yemyin cyclone with winds of up to 130 km/h, caused heavy rains in Pakistan and India on June 26, 2007. 420 passing, 109 missing individuals, 371,092 individuals without cover, and roughly 72,000 houses obliterated. More than 6,400 towns in 28 regions of Balochistan and Sindh were influenced.

Economic Impact

Floods would contrarily affect the economy, especially the financial shortfalls of the area, provincial, and central governments. The public authority had declared a Rs.15000 grant for each influenced family. It was expected to have minor effect on Pakistan's GDP, in the scope of 0.3 percent. The general effect of the fiasco on GDP development was probably going to

be minor. Pakistan had encountered essentially high swelling rates, with food cost increments dominating non-food expansion. The nation presently had a current record shortage of 5.5 percent of GDP because of the sharp decrease in trade execution.

Impact on Major Sectors

As indicated by information from the provincial and regional governments at the time of the appraisal, 71,596 housing units were annihilated in the influenced spaces of Balochistan and Sindh, incorporating 41,718 and 29,878 in Balochistan and Sindh, addressing 6% of the absolute housing stock in the influenced areas of Balochistan and Sindh, separately. These include incorporate remittances for insignificantly harmed houses and a potential increment of up to 15% in the quantity of completely annihilated houses because of current detachment, in addition to other things. Considering a common structure plan and unit material and work costs, the complete worth (substitution cost, not deteriorated) of the housing lost in the influenced regions was US$76.4 million. Roughly 85% of the houses influenced by the twister and flooding were in rustic regions, as indicated by the 1998 evaluation. Additionally, flood and twister seriously hurt the agribusiness sector in both Balochistan and Sindh. Direct misfortunes of collected and standing yields (crops), perish animals, partially damaged or totally obliterated water system foundation, and different resources were assessed to be Rs13.2 billion. With Rs6.0 billion in misfortunes, the yield sub-area experienced the most, trailed by water system (34.3 percent) and animals (19.2 percent). In instruction (education) area it was assessed that 1,359 public area schools had been influenced to fluctuating degrees by the floods; these are principally rustic schools. 33% of the harmed structures should be revamped, while the rest to be repaired.

Reconstruction Strategy

In agribusiness the World Bank had distinguished an aggregate of US$67.81 million as the quick and momentary necessities to help Sindh's ranchers adapt with the impacts of floods. The most squeezing need for instruction was the restoration of classes in every single instructive foundation. In housing area the assessed cost of recreation ranges from US$103 million to US$244 million, contingent upon the approach taken by the public authority. Recreation should ideally be built on acceptable structural standards, had appropriate hazard-resistant elements, and be in less flood-prone areas. A second alternative entails flood and cyclone-resistant house renovation (but

not seismic resistance), while a third option assumes no developments in construction technologies and materials.

iii) 2010 Flood

The floods in Pakistan had been the most exceedingly terrible since 1929 and had influenced more than 20 million individuals. Whole towns had been washed away, urban areas have been overflowed and homes had been annihilated. Huge number of sections of land of yields and farming grounds had been harmed, with huge soil disintegration happening.

Economic Impact

The floods were expected to have significant economic effect on Pakistan. The absolute harms and misfortunes to farming were projected to be roughly PKR 429 billion. Harvest horticulture's worth added was currently expected to fall by roughly 10%. The effect on inflation was now seen, with month-to-month expansion arriving at its most significant level in very nearly two years.

Impact on Major Sectors

More than 1.6 million dwelling units in the country were completely or partially destroyed as a result of the floods. An estimated 913,307 homes had been destroyed, with an additional 694,878 slightly damaged. Sindh's housing stock had been the worst affected among provinces, with nearly 880,000 dwelling units fully or partially damaged. The DNA team gathered unit material and labor prices from the field to estimate the cost of a typical ruin houses. The country's record floods had destroyed a total of 10,407 educational institutions, with 3,741 destroyed and 6,666 partially damaged. However, afflicted institutions account for only 6.2 percent of all institutions. The quick and unforeseen surge of water diverted individuals, structures, harvests, animals, food, and seed stocks in the rockier regions. Harvests were crushed on the fields, but since the water was streaming gradually, most occupants had the option to evacuate themselves, their merchandise, and creatures to higher ground. The general misfortune in yields, creatures, and fisheries is projected to be around US$ 5.0 billion. Yield misfortunes were the most noteworthy (89% of in general harm), with direct annihilation to 2.1 million hectares of standing Kharif crops. Aberrant mischief might happen if future harvests were not planted inferable from issues with land readiness and sources of info.

Reconstruction Strategy

The costs of home reconstruction and repair had been calculated and

ranges between US$1.483 and 2.206 billion. The team also calculated the costs of activities intended to reinforce important policy and regulatory frameworks. The anticipated recovery costs were PKR 42,906.58 million (US$ 504.8 million), including US$ 63.7 million for short-term repair and restoration work. Efforts should be done in the short term to ensure that the educational process continues in the affected areas. The expenses of reestablishing ordinariness in the agriculture, animals, and on-ranch water management, and fisheries sub-areas had been evaluated carefully. The group had additionally assessed the expenses of activities pointed towards the fortifying significant strategy and administrative structures.

RESULTS OF STATISTICAL INTERFERENCE AND INTERPRETATION

These disasters and their aftermath have inflicted a major financial strain on Pakistan. The cost of reconstruction, also known as the replacement cost, is directly tied to the direct damage cost of monetary assets, and statistical analyses have been performed to evaluate whether or not there is a substantial association or not. The accompanying tests are directed utilizing the SPSS 20 Version software:

i) 2005 Earthquake

Table 2: Fundamental Estimate of Total Losses and Reconstruction Costs as of November 10, 2005

Sr. #	Sector	Direct Damage (Rs. Mill.)	Indirect Losses (Rs. Mill.)	Reconstruction Costs* (Rs. Mill.)	Reconstruction Costs* (US$ mill.)	Shares of Total Reconst. Costs (%)
1.	**Social Infrastructure**					
	Private Housing**	61,220	7,218	92,160	1552	44
	Health	7,114	1,378	18,012	303	9
	Education	19,920	4,133	28,057	472	13
	Environment	12		8,985	151	4
	Public Administration	2,971	687	4,254	72	2
2.	**Physical Infrastructure**					
	Transport***	20,165	4,061	24,699	416	12
	Water Supply and Sanitation	1,165		1,900	32	1
	Irrigation	324		623	10	0
	Energy, Power and fuel	744	1,561	2,377	40	1

3. Economic Sectors****					
Agriculture and livestock	12,933	6,770	17,846	300	9
Industry and Services	8,578	8,379	9,178	155	4
4. Total=1+2+3(in Rs. Million)	135,146	34,187	208,091	3,503	100
o/w: Azad Jammu and Kashmir	76,375	17,671	116.625	1,963	56
: North West Frontier Province	58,771	16,516	91,467	1,540	44
o/w: Public Assets	48,131	12,175	82,187	1,384	39
: Private Assets	87,015	22,012	125,904	2,120	61
o/w: Urban Areas	26,490	13,675	46,163	777	22
: Rural Areas	108,656	20,512	161,928	2,726	78

(Asian Development Bank & World Bank, 2005)

Correlation

Correlations

		REPLACEMENT COST	DIRECT DAMAGE
REPLACEMENT COST	Pearson Correlation	1	.774**
	Sig. (1-tailed)		.000
	N	17	17
DIRECT DAMAGE COST	Pearson Correlation	.774**	1
	Sig. (1-tailed)	.000	
	N	17	17

**. Correlation is significant at the 0.01 level (1-tailed).

According to table 2, which shows the direct damage and reconstruction costs of monetary assets in the 2005 earthquake, the overall direct damage cost is PKR 135146 million, and the reconstruction cost of affected sectors, which is heavily reliant on the direct damage cost, is estimated to be PKR 208091 million. To establish the link between the variables, a statistical Pearson correlation analysis was performed. Table 3 shows that direct damage cost has a strong and positive significant connection with dependent variable replacement cost, with $r=0.774$ at $p<0.01$ significance level.

b) Regression Analysis:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.774[a]	.599	.572	32616.46440

a. Predictors: (Constant), DIRECT DAMAGE

The value of R is 0.774 in the table above, which represents the correlation value between the dependent and independent variables. The existence variation of independent factors on the dependent variable is exemplified by R square = 0.599 in the preceding model description. It calculates how much of the variance in the dependent variable is explained by the model's independent variables. The R2 result indicates that the dependent variable, rebuilding cost, is explained by the direct damage cost of monetary assets in the modal, indicating a good modal fit. Similarly, the adjusted R square of 0.572 denotes the proportion of variance described by just those independent variables (direct damage cost) that contribute significantly to the explanation of the dependent variable (replacement cost).

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	23795728294.707	1	23795728294.707	22.368	.000[b]
	Residual	15957506251.411	15	1063833750.094		
	Total	39753234546.118	16			

A. Dependent Variable: Replacement Cost
B. Predictors: (Constant), Direct Damage

The degree of significance and F-Status value are shown in the table ANOVA test. The results of this test demonstrate that direct damage cost adds considerably to replacement cost, indicating that the modal is fit (F=22.368 & P=0.000).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	12259.914	10873.602		1.127	.277
	DIRECTDAMAGE	1.109	.235	.774	4.729	.000

a. Dependent Variable: Replacement Cost

The unstandardized beta (B) in the above coefficient table indicates how many units the dependent variable changes for everyone unit change in the independent variable. In this case, the partial change in replacement cost due to one unit change in direct damage cost is 1.109, which is statistically significant at p<0.05, implying that replacement cost has significant relationship with direct damage cost accepting the alternative hypothesis.

ii) 2007 Twister

Table 7: Fundamental Estimate of Total Losses and Reconstruction Cost

Sr. #	Sector	Direct Damage Mil Rs	Indirect Losses Mil Rs	Total Losses Mil Rs	Reconstruction Costs* Mil Rs	Reconstruction Costs* Mil US$	Shares of Total Reconst. Costs (%)
1	**Social Infrastructure**	4,451	179	4,630	(9,653) 18,095 [1/]	(161) 302 [1/]	55.2
	1.1 Private Housing	2,750	179	2,929	(6,180) 14,622 [1/]	(103) 244 [1/]	44.6
	1.2 Health	94	-	94	579	10	1.8
	1.3 Education	1,599	-	1,599	2,883	48	8.8
	1.4 Environment	-	-	-	-	-	-
	1.5 Governance	8	-	8	12	-	-
2	**Physical Infrastructure**	7,818	2,511	10,329	11,027	184	33.6
	2.1 Transport and Communication [2/]	2,970	2,438	5,408	4,810	80	14.7
	2.2 Water Supply and Sanitation	125	-	125	224	4	0.7
	2.3 Energy, Power and fuel	187	73	260	205	3	0.6
	2.4 Irrigation	4,536	-	4,536	5,788	96	17.7
3	**Economic Sectors**[3/]	8,169	9,096	17,265	3,657	61	11.2
	3.1 Agriculture, livestock and Fishing	7,850	4,679	12,529	3,178	53	9.7
	3.2 Industry and Services	320	4,417	4,736	479	8	1.5
4	**Total=1+2+3(Rs. Mill)**	20,438	11,786	32,224	(24,337) 32,779 [1/]	(406) 546 [1/]	100
	Of which: Balochistan	15,056	8,616	23,671	(16,570) 21,488 [1/]	(276) 358 [1/]	65.6
	Sindh	5,419	3,170	8,589	(7,740) 11,264 [1/]	(129) 188 [1/]	34.4

(Asian Development Bank & World Bank, 2007)

Like 2005 quake the consequence of 2007 tornado likewise force enormous expenses as displayed in above table; the immediate harm cost is assessed to be PKR 20438 million and recreation expenses of harmed resources is assessed to be PKR 32779 million. To know huge connection between them correlation and regression tests has been led; there results are clarified as under:

Correlation

Correlations

		REPLACEMENT COST	DIRECT DAMAGE COST OF CYCLONE
REPLACEMENT COST	Pearson Correlation	1	.689**
	Sig. (2-tailed)		.005
	N	15	15
DIRECT DAMAGE COST	Pearson Correlation	.689**	1
	Sig. (2-tailed)	.005	
	N	15	15

**. Correlation is significant at the 0.01 level (2-tailed).

The above table shows Bivariate correlation which is a tool that used to find out the relationships among dependent and independent variable, therefore the result also indicates that direct damage cost of cyclone has significant correlation with reconstruction cost with r=0.689 at p<0.01 significance level.

Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.689[a]	.474	.434	5305.61633

a. Predictors: (Constant), DIRECT DAMAGE COST OF CYCLONE

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	330236382.307	1	330236382.307	11.731	.005[b]
	Residual	365944340.627	13	28149564.664		
	Total	696180722.933	14			

A. Dependent Variable: Replacement Cost
B. Predictors: (Constant), Direct Damage Cost of Cyclone

Linear regression is used to examine the predictability of the dependent variable with the independent variable. In modal summary table the value of R2 is 0.474 which means that 47.4% variation in reconstruction cost is explained by direct damage cost in the modal and in ANOVA table the value of F is 11.371which is significant at p=0.005<0.01 showing that overall regression modal is statistically significant or showing goodness of fit measure.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1891.036	1931.346		.979	.345
	DIRECTDAMAGE	1.140	.333	.689	3.425	.005

a. Dependent Variable: REPLACEMENT COST

The above table shows that how much predictor individually contributes to the variation in dependent variable so as shown in direct damage cost of monetary assets in 2007 cyclone its p value is less than 0.05 (ß = 1.140, p<.05); indicating that this variable has significant amount of explaining variance in reconstruction cost which is the additional cost needed for rebuilding of damaged assets.

iii) 2010 Flood

Table 12: Estimate of Total Damage Costs by Sector

Sector	Direct Damages PKR millions	Indirect Losses PKR millions	Total Damage PKR millions	Total Damage USD millions
1. Social Infrastructure				
Housing	91,843	43,171	135,014	1,588
Health	1,562	2,661	4,222	50
Education	22,047	4,418	26,464	311
Subtotal	**115,451**	**50,249**	**165,700**	**1,949**
2. Physical Infrastructure				
Irrigation & Flood Management	23,600		23,600	278
Transport & Communications	62,491	50,420	112,911	1,328
Water Supply & Sanitation	3,194	6,112	9,306	109
Energy	13,184	13,116	26,300	309
Subtotal	**102,469**	**69,648**	**172,117**	**2,025**
3. Economic Sector				
Agriculture, Livestock & Fisheries	315,547	113,257	428,805	5,045
Private Sector & Industries	14,463	9,468	23,932	282
Financial Sector	110	57,141	57,251	674
Subtotal	**330,120**	**179,866**	**509,987**	**6,000**
4. Cross Cutting Sectors				
Governance	3,141	2,835	5,976	70
Environment	992		992	12
Subtotal	**4,133**	**2,835**	**6,968**	**82**
Total	**552,173**	**302,599**	**854,771**	**10,056**

(Asian Development Bank & World Bank, 2010)

Table 13: Estimate of Total Reconstruction Costs by Sector

Sector	Reconstruction Option 1 PKR millions	Reconstruction Option 1 USD millions	Reconstruction Option 2 PKR millions	Reconstruction Option 2 USD millions	Reconstruction Option 3 PKR millions	Reconstruction Option 3 USD millions
1. Social Infrastructure						
Housing	126,075	1,483	143,676	1,690	187,491	2,206
Health	4,151	49	4,151	49	4,151	49
Education	42,907	505	42,907	505	42,907	505
Subtotal	*173,133*	*2,037*	*190,734*	*2,244*	*234,549*	*2,759*

2. Physical Infrastructure						
Irrigation & Flood Management	36,294	427	36,294	427	83,499	982
Transport & Communications	200,260	2,356	200,260	2,356	200,260	2,356
Water Supply & Sanitation	6,292	74	6,292	74	7,982	94
Energy	9,038	106	9,038	106	9,038	106
Subtotal	*251,884*	*2,963*	*251,884*	*2,963*	*300,779*	*3,539*
3. Economic Sector						
Agriculture, Livestock & Fisheries	21,879	257	56,925	670	89,134	1,049
Private Sector & Industries	8,636	102	8,636	102	10,923	129
Financial Sector	39,358	463	39,358	463	39,358	463
Social Protection & Livelihoods	58,076	683	58,076	683	58,076	683
Subtotal	*127,949*	*1,505*	*162,995*	*1,918*	*197,491*	*2,323*
4. Cross Cutting Sectors						
Governance	4,900	58	4,900	58	4,900	58
Disaster Risk Management	2,295	27	2,295	27	2,295	27
Environment	17,746	209	17,746	209	17,746	209
Subtotal	*24,941*	*293*	*24,941*	*293*	*24,941*	*293*
Total	**577,908**	**6,799**	**630,554**	**7,418**	**757,761**	**8,915**

(Asian Development Bank & World Bank, 2010)

This terrible catastrophe has also resulted in significant financial costs, as seen in the table above. Correlation and regression modals have been used in the same way as in previous catastrophes to determine if they are statistically significant:

Correlation

Correlations

		REPLACEMENT COST	DIRECT DAMAGE COST
REPLACEMENT COST	Pearson Correlation	1	.940**
	Sig. (2-tailed)		.000
	N	14	14
DIRECT DAMAGE COST	Pearson Correlation	.940**	1
	Sig. (2-tailed)	.000	
	N	14	14

**. Correlation is significant at the 0.01 level (2-tailed).

As Pearson correlation indicates that whether two variables are associated with each other or not so in this the value of r=0.940 significant at p=0.000 showing strong relation between direct damage cost and reconstruction cost of monetary assets in 2010 flood.

Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.940[a]	.884	.874	12585.83399

a. Predictors: (Constant), Direct Damage Cost

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	14495018954.934	1	14495018954.934	91.507	.000[b]
1	Residual	1900838607.994	12	158403217.333		
	Total	16395857562.929	13			

A. Dependent Variable: Replacement Cost

B. Predictors: (Constant), Direct Damage Cost

In a linear regression study, R Square is a measure of how much variability in the dependent variable is explained by the predictor variable (Bordens & Abbott, 2011). Mitchell and Jolley (2010, p. 735) propose looking at the significance of a F test of ANOVA to see if the R-squared is significant. As a result, the value of R2 is 0.884, and the value of F=91.507 is significant at p=0.000, suggesting that the overall regression pattern is significant.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5824.341	3967.250		1.468	.168
	DIRECTDAMAGE	1.112	.116	.940	9.566	.000

a. Dependent Variable: REPLACEMENT COST

As shown in direct damage cost of monetary assets in 2010 flood its p value is less than 0.05 indicating that this independent variable has significant amount of explaining variance in reconstruction cost of damaged assets ((ß = 1.112, p<.05).

DISCUSSION OF THE RESULTS

Based on secondary data and SPSS results, the findings support the hypothesis that major disasters such as earthquakes, cyclones, floods had a significant negative impact on the economy as well as imposing high costs such as direct damage, indirect loss, and monetary asset reconstruction. Because the p value of each catastrophe cost is less than 0.05, the statistical

results of the 2005 earthquake, 2007 cyclone, and 2010 flood also show that there is a strong linkage between direct damage costs and reconstruction costs.

CONCLUSION AND RECOMMENDATION

Suggestions

Citizens should be given clear roles and responsibilities in disaster management, as well as clear training on the various aspects of disasters and the benefits of prevention measures. Many women should be involved in disaster reduction and planning, while the community serves as a hub for partnerships with local and national disaster managers.

Conclusion and Recommendation

Global disaster management and humanitarian assistance requires a comprehensive plan that derives from the talent, infrastructure and promise of a business, government agency, and unpaid team. Good relations include connecting people, data and systems and organizations, which requires not only innovative technologies and socially accepted values, but also the removal of as many political and legal obstacles as possible. Pakistan's main objective is to keep the country safe and secure through strong efforts, a partnership of national power and citizenship. To reduce the time between natural disaster and response, disaster response must begin at the scene of the disaster. Information and communication technologies act as primary responders to help and alleviate the loss of life, property, family reunification and alleviate human suffering.

REFERENCES

Aldunce, P., & León, A. (2007). Opportunities for improving disaster management in Chile: A case study. *Disaster Prevention and Management: An International Journal*, *16*(1), 33–41. https://doi.org/10.1108/09653560710729794

Asian Development Bank, & World Bank. (2005). Pakistan 2005 Earthquake: Preliminary Damage and Needs Assessment Report. *Report*.

Asian Development Bank, & World Bank. (2007). Pakistan 2007 cyclone: Preliminary Damage and Needs Assessment Report. *Report*.

Asian Development Bank, & World Bank. (2010). Pakistan 2010 flood: Preliminary Damage and Needs Assessment Report. *Report*.

Collins, A. (2009). *Dealing with disasters 2009: resilience through local governance. Northumbria University Newcastle.*

Dekens, J. (2007). *Local Knowledge for Disaster Preparedness: A literature Review*. *January 2007*. http://lib.icimod.org/record/22470

Gurjar, R. K. & Jatt, B.C. (2001). Natural Disaster. Jaipur (Raj.): Surbhi Publication.

Jain, M. K. (2018). *Disaster Management : A Study of An Institutional Arrangements in Rajasthan with Special Reference to Kota District*.

Katper, N. K., Tunio, M. N., Hussain, N., Junejo, A., & Gilal, F. G. COVID-19 Crises: Global Economic Shocks vs Pakistan Economic Shocks (2020). *Advances in Science, Technology and Engineering Systems Journal. 5(*4), 645-654.

No, R. (2015). *Fiscal Disaster Risk Assessment Options for Consideration*. *94474*.

Sanderson, D., Sharma, A., Kennedy, J., & Burnell, J. (2017). Lost in Transition: Principles, Practice and Lessons from Haiti for Urban Post-Disaster Shelter Recovery Programs. *Asian Journal of Environment and Disaster Management. 6*(2)*,* 131–151. https://doi.org/10.3850/S1793924014003629

Tunio, M. N. (2020)2. Role of ICT in promoting entrepreneurial ecosystems in Pakistan. *Journal of Business Ecosystems (JBE), 1*(2), 1-21.

FIRM SPECIFIC DETERMINANTS AND PERFORMANCE OF CEMENT FIRMS IN PAKISTAN

Tarique Mahmood Arain, Dr. Abdul Sattar Shah, and Dr. Sobia Shafaq Shah

ABSTRACT

This paper examines the association between firm specific determinants and the performance of cement firms' in Pakistan over the period 2010 to 2019 for sixteen sampled cement firms quoted at Karachi stock exchange using the panel least square technique. Return on Investment (ROI) is the dependent variable of the regression model and five firm specific determinants are expressed as the independent variables. The results of data analysis disclose that the variables of liquidity, activity and profitability are positively associated with cement firms' performance measure, ROI. Besides, the variables of leverage and growth are negatively associated with it. In addition, the regression results highlight that all the variables except the growth are significant and have significant influence on cement firms' performance. The analysis results may be very encouraging and useful for management as well as for the investors to plan investment and operational activities to accomplish profitability goals more efficiently and effectively.

INTRODUCTION

Cement is arguably the most essential prime ingredient in any kind of construction activity. It is indeed, cement industry is one the top most industries of Pakistan and has been playing a differential role in the infrastructural development of the country from the past two decades. Owing to the country's vast geographical scale and enormous population, different construction activities are undertaken by the private sector, which produce massive demand for cement. Moreover, the market demand for cement for private use is constantly rising day by day due to a rise in the living standard of inhabitants (Kamal and Moudud-Ul-Huq, 2014; Tunio, 2020). Hence,

it is significant to ensure that cement companies in Pakistan perform in a remarkable and productive way.

Each corporate firm in today's competitive market is concerned with its performance and good performance doesn't just build its market value yet help in the (Kamal & Moudud-Ul-Huq, 2021) growth of the industry over time, consequently prompting general prosperity of the economy (Ahmed et al., 2011; Tunio, et al., 2021). Mostly, the shareholders who have made an investment into an organization expect positive returns in terms of performance whether it is a cement company or other sort of firm. There are many performance measures however the foremost wide used seems to be profitability.

At present, there's found a number of studies aimed at discovering firm specific determinants and their relationship with performance of cement companies. Researchers in various fields of research and strategic management have main focus on financial performance (Amal et al., 2012; Tunio, et al., 2021). Due to the impact of financial performance on an organization's health and its sustainability, it has become the primary concern of business professionals in different organizations. Management productivity and efficiency in employing the resources of a firm is expressed in high performance and aids to contribute to the economy (Naser & Mokhtar, 2004). From past two decades in the sector of corporate finance, organization performance has attracted the attention of researchers but as it relates to cement industry, little attention has been given (Ahmed et al., 2011; Chaudhry, et al., 2021).

Performance is essentially important for firms as it aids their endurance in the cement industry. Over the years the variations in profit gradually increases as reported in annual reports of cement companies in Pakistan. This led to the idea that certain firm specific determinants must have been responsible for affecting the performance of cement companies over time. In Pakistan, to the best of our understanding, very few of the research studies have examined the firm specific determinants like liquidity, leverage, firm size, firm age, profitability, activity and cash conversion cycle in relation to cement firms' performance.

Preceding studies in Pakistan (Aqeel, Munir, & Shahzad, 2016; Muhammad, Ameen, & Shahzadi, 2017; Farah, Ijaz, & Naqvi, 2016; Tunio, et al., 2021) examined liquidity, leverage, profitability, activity and cash conversion cycle in relation to financial performance of cement companies

in Pakistan. These conclude with mix findings on the link between these firm specific determinants and performance of cement companies in Pakistan. Hence, the paper struggles to empirically examine the impact of firm specific determinants on performance of firms' in cement sector, Pakistan.

The paper introduces growth as a new variable in the examination of determinants of cement firms' performance in Pakistan. Studies conducted outside Pakistan like Batchimeg (2017), Hajihassani (2015), Sumathi & Jothti (2016), and Kamran, Ramiyani, Shirkouhi & Badizadeh (2014) used growth in their corresponding studies. The study results conducted outside Pakistan may not be applicable to cement firms' in Pakistan. The reason is that the environments in which the cement firms' operate differ in terms of regulation and operation. Hence, the obligation to analyze the impact of growth in addition to other specific determinants on cements firms' performance in Pakistan.

Literature Review

Performance and its Measurement

The term performance originates from French word 'Parfournir' meaning thereby to do, to carry out or to render. Performance is the outcome obtained by an executive or group of executives in an organization relevant to its authority and responsibility to accomplish the purpose lawfully 'not against the law' and in compliance with morals and ethics (Amal et al., 2012 ; Shaikh, et al., 2021). According to Mayowa and Ogieriakhi (2018) the measure used in evaluating firms' performance depends on the type of the organization which is to be analyzed and the purpose of carrying out the evaluation. It serves as an indicator to select the useful measure for evaluating performance. Different scholars offered different models for evaluating firms' performance in the field of strategic management. The multifaceted perspective on performance implies that the used of multiple models will create distinct relationship between predicted and predictor variables in the projected model (Ostroff & Schmidt, 1993 ; Tunio, et al., 2021).

According to Ali and Eneizan (2018) the two distinct types of performance are the financial and the non-financial performance. A distinction is often found between these two i.e. between financial and non-financial performance. Financial performance is usually expressed in terms of sales growth and turnover/ stock prices whereas, non-financial performance is outlined in terms of goodwill, expenditures innovative sales ratio (Hagedoorn and Cloodt, 2003; Shaikh, et al., 2021; Afshan, et al., 2021). In present paper

liquidity, leverage, activity, profitability and growth are chosen as explanatory variables while variable return on investment, ROI is used as performance indicator because most of the empirical studies on performance as it relates to cement firms used return on investment as the measure of performance (Farah et al., 2016; Daryanto, 2018; Sahar et al., 2019; Kamran et al., 2014; Tunio, et al., 2014; Preeti & Hosmani, 2018; Qasim et al., 2012; XiMei, et al., 2016 Amalendu et al., 2011; Nishanthini & Nimalathasan, 2013; Ajmal, 2015; Tunio, et al., 2017).

Return on investment, ROI as measure of performance indicates the overall profit produced by firm on its total wealth (investment) and expressed as percentage of the amount invested. The ratio is thought out as the most appropriate measure of performance of a firm and if there's occur some increase in ratio it depicts positive performance of the relative concern (Venkatacham & Kasthuri, 2016; Tunio, 2020).

Firm Specific Determinants and Performance

Liquidity and Performance

An important variable used in determining firms' performance is the liquidity. Liquidity measures company's power and ability to pay as and when some obligations are due. Ali and Eneizan (2018) high liquidity occurs when a firm has an enough working capital to meet such obligations. It enables the company to handle with unexpected risk factors and meet the requirements of paying off its obligations when earnings are low. The empirical findings as it relates to liquidity and performance of cement companies have been mixed. Ali & Eneizan (2018), Muthusamy & Karthika (2019), Hajihassani (2015), and Aqeel et al. (2016) found a significant positive association between liquidity and cement firms' performance. Farah et al. (2016) and Mistry (2012) found a significant and negative interrelationship between liquidity and performance of firms. Ajmal (2015), Prajapati (2019), Sumathi & Jothi (2016), and Batchimeg (2017) found an insignificant association between liquidity and performance.

Leverage and Performance

Leverage refers to degree at which the borrowed capital is being utilized by the company. A possibility of bankruptcy occurs when a highly leveraged firm finds it difficult to pay off all of its debts (Mayowa et al., 2018). A high use of leverage in a firm reduces conflict between shareholders and company's management (William, 1987). The empirical results as it relates to leverage

and firms' performance have been mixed. Batchimeg (2017), Muthusamy et al. (2019), Farah et al. (2016), Ahsan & Shahzadi (2017), Muhammad et al. (2017), and Nawaz et al. (2015) found a significant negative association between leverage and performance. Khurram et al. (2016) found a negative and positive interrelationship between leverage and performance in both the models. Mahboob et al. (2015) found a negative association between leverage and profitability in manufacturing sector while, on the other vein, no association was noted between leverage and profitability in service sector.

Activity and Performance

Activity, as a tool, compares the two competing businesses with the same industry. It helps the investor to measure different facets of company's fiscal strength. Hajihassani (2015) used the activity to determine the period of service and the composition of business current assets. The empirical results as it relates to activity and firms performance have been mixed. Lina and Al-Omari (2015) found a significant effect of activity ratios on Jordanian company's performance. Santosuosso (2014) found a positive association between activity ratios and Italian firms performance. Abbas (2019) used several turnover ratios as proxies of activity. The findings reveal that account receivable turnover and total assets turnover have a significant impact on Mining companies' performance. Besides, the variables of inventory turnover and working capital turnover were considered insignificant determinants of performance.

Profitability and Performance

Another key factor used in determining companies' performance is the profitability. Profitability refers to capability of a given investment to produce some return from its use (Nimalathasan, 2009). It measures present and past profitability and projecting of future profitability is significant. The empirical findings as it relates to profitability and performance of cement companies have been mixed. Prajapati (2019), Farah et al. (2016), and Sumathi (2016) found a good positive association between profitability and firms' performance. Hajihassani (2015) found a significant impact of profitability on performance of cement sector firms. Batchimeg (2016) used several ratios as proxies of profitability. Amongst, return on costs and earning per share were the most crucial determinants that have a significant positive impact on performance of Mongolian companies.

Growth and Performance

Another key factor used to determine the position of the company in

industry is the growth. Generally, higher growth rate does not imply a high rate of future oriented growth, as industrial and economic conditions are continuous evolving and frequently cyclical. Mansoor (2019) defines the growth as rise in the value of the contract overtime. The empirical findings as it relate to growth and firms' performance has been mixed. Lazar (2016) found significant positive effect of growth on firms' performance. Batchimeg (2016) used several determinants like growth in sales, growth in profit and growth in assets as proxies of growth. Amongst all these only growth in sales was considered as the most crucial determinant that has a significant positive impact on Mongolian companies' performance. Besides, growth in profit and growth in assets were considered insignificant determinants of performance.

Empirical Review

Previous studies conducted on the relationship between firm specific determinants and performance of cement firms' in the extant literatures conclude with mix findings.

Hajihassani (2015) did a valuable work to evaluate the performance of 28 cement companies in Iran for the period 2000-2009 using Copeland method. One predicted variable (performance) and five predictor variables (liquidity, profitability, activity, growth and leverage) were chosen for the study. The result indicates that Ardabil and Azar Shahr lime cement firms' got the first rank. More, all the predictor variables are considered significant in effecting performance of cement sector firms. In one more study, Nousheen and Hassan (2013) find out the impact of firm specific and macroeconomic factors on profitability of firms in food sector Pakistan using panel data and a sample that consists of total 12 firms from period 2004-2006. The findings indicate that size of firm has a significant negative effect on profitability. The tangibility of assets, growth and food inflation have an insignificant positive effect on profitability. On the same way, an insignificant and negative effect was also noticed between the debt to equity and the profitability of firms in food sector, Pakistan.

Farah, Ijaz, and Naqvi (2016) in their paper *Financial performance of firms of cement industry in Pakistan* examines the relationship between five ratio parameters like liquidity, profitability, leverage, assets utilization, cash conversion cycle and financial performance of cement firms in Pakistan. The study concluded that liquidity, profitability, assets utilization and cash conversion cycle all had significant relationship with financial performance while leverage had insignificant relationship with performance. Krishna et al.

(2013) in their study evaluates the performance efficiency of Indian cement companies for 15 years period from 1992 to 2006. Eight inputs including the debt equity ratio, current ratio, profit before tax, profit after tax, Dividend, return over capital employed, return over net worth, average profit per unit and one output (financial performance) was chosen. The output concludes that all the inputs chosen for study have showed the significant impact on financial performance of companies except the debt equity ratio. More, future outlook of companies is very bright. One more recent study by Banupriya and Thyagarajan (2018) analyzed the financial performance of cement companies in Tamilnadu over a period of five years. The cement industry of India is the 2nd top most industry in India after china that showed the net profit growth rate of 85% and contributed almost 8% to the economic development of India. Performance in the study was chosen as predicted variable and liquidity, leverage, activity and profitability ratios were selected as predictor variables. The results of data analysis disclosed that all the chosen variables are considered significant. Overall, they help in improving performance of companies.

Dhivya et al. (2017) carried out a study on financial performance of ACC Cement Company in Tamilnadu on various fronts of profitability, liquidity, and solvency and concludes that overall liquidity position of ACC Company is good; hence, it can meet its short term obligations. The solvency ratio highlights that company is in a good condition and there is no problem to fulfill its long term debts. However, company's profitability position is not good, hence there is need to improve profitability by cost reduction as well the modernization of companies. Another study by Venkatacham and Kasthuri (2016) assessed the financial performance of Indian cement industry using analysis of variance that consists of 10 years period i.e. from 2007 to 2016. Current ratio, liquidity ratio, net profit ratio, debt equity ratio and interest coverage ratio were chosen as explanatory variables of the study. The results represent that current ratio and liquidity ratio had not any significant association with financial performance. Similarly, the net profit ratio, debt to equity ratio and interest coverage ratio had a significant positive association with financial performance.

Sumathi and Jothi (2016) carried out a study to analyze the financial performance of two cement companies in India using panel data and consist of 10 years period from 2006 to 2015. Liquidity, profitability, leverage and assets utilization were taken as firm specific factors in the study. The analysis reveals that 'chosen companies' profitability ratio is satisfactory while

'chosen companies' liquidity position is not satisfactory because the level of current ratio and quick ratio is too low than one. More, both the companies must maintain their inventory level, investment and debtors. Manjula and Sabarinathan (2015) did a perishable work to analyze the performance of cement companies in India using multiple regression analysis technique with a sample consisting of total 5 cement companies over the period 2005 to 2014. The output reveals that liquidity and long term efficiency ratio both are found statistically significant. However, financial position of Indian cement companies is also found strong.

In one more study Khurram et al. (2016) developed two models to find out the interrelationship between systematic risks and profitability of 16 cement companies in Pakistan from 2009-2015. Using Return on Assets (ROA) and Return on Equity (ROE) as measures for profitability and Degree of Operating Leverages and Degree of Financial Leverage as representatives of systematic risks. The output of model 1 shows that there's found a negative relationship between both the degree of operating leverage, degree of financial leverage and return on assets of companies. Similarly, the result of model 2 indicates that there's existed a positive relationship between the degree of financial leverage and return on equity while, on the same vein, a negative relationship was noted between the degree of operating leverage and return on equity of companies.

From the previous studies reviewed above across different boundaries, the significance of the relationship between the firm specific determinants and performance become unambiguous for Pakistan's cement industry in present study.

Research Objectives

1. To examine if the associations between cement firms' performance and variables are negative or positive.

2. To find out the influence of selected variables on performance of cements firms' in Pakistan.

Research Hypotheses

Present paper mainly focused on five hypotheses formulated in their null form. They are:

H01: Liquidity is positively associated with cement firms' performance.

H02: Leverage is negatively associated with cement firms' performance.

H03: Activity is positively associated with cement firms' performance.
H04: Profitability is positively associated with cement firms' performance.
H05: Growth is positively associated with cement firms' performance.

Conceptual Framework

Fig. 1: Conceptual Framework
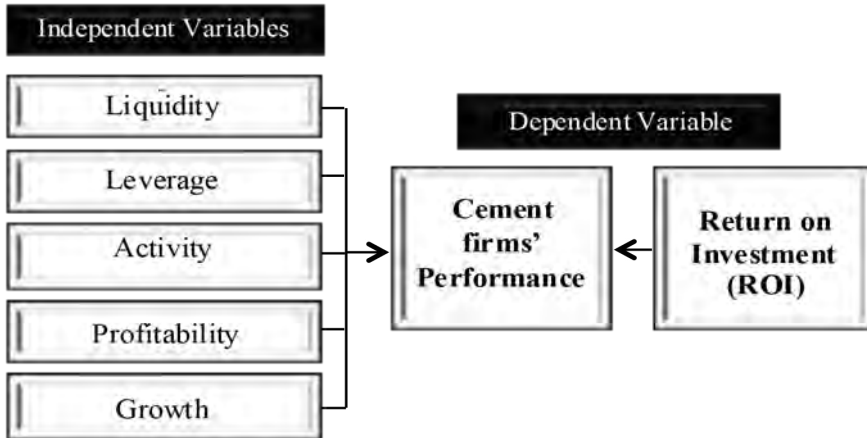
METHODOLOGY

The author aimed at exploring the impact of firm specific determinants on the performance of cement firms' in Pakistan. In this paper, author focused on secondary data, all data is taken form "financial statement analysis" of a panel of 16 cement companies listed at Karachi stock exchange from period 2010-2019. Data analysis was done using descriptive statistics, correlation coefficient and panel least square method using EViews 10.

Data and Variables

The study employed two types of variables, viz. the dependent and independent variables. Return on investment, ROI as a measure of performance is taken as dependent variable while liquidity, leverage, activity, profitability and growth as determinants of performance are expressed as independent variables, shown in table 1. Most of the variables employed in present study are organized based on the variables used in previous research as work done by Batchimeg (2016) on the "Financial performance determinants of organizations".

Table 1: Independent Variables

Sr. #	Variables	Measurements
1	Liquidity	Current Assets/ Current Liabilities
2	Leverage	Total Liabilities/ Total Assets
3	Activity	Sales/ Average Total Assets
4	Profitability	Net Profit After Taxes/ Net Sales × 100
5	Growth	(St- St-1/ St-1)

Variables Description

- Return on Investment: Indicates the overall profit produced by firm on its total wealth (investment) and expressed as proportion of the amount invested.
- Liquidity: It refers to company's power and ability to pay as and when some obligations are due. A company's liquidity can be measured by calculating current ratio i.e. a proportion of current assets to current liabilities.
- Leverage: It reveals the significant amount of debt a firm uses to finance assets. A ratio applied to measure a company's financial leverage is the debt ratio.
- Activity: Used as a tool to measure the performance of a firm in utilizing and managing its resources to generate highest possible revenue. A firm's activity could be measured by computing the ratio between sales to average total assets.
- Profitability: It is the capability of the company to utilize its resources in a way that it can produce maximum profit from its operations. Ratio that measure company's profitability is generally called as net profit margin ratio.
- Growth: Means increase in the value of the deal overt time. It indicates whether a firms or company position in the industry is good or not. Growth could be measured by enumerating the sales growth ratio.

Research Model

To explore the impact of above independent variables on performance, author considered the following ordinary least square (OLS) regression model.

$$ROI_{i,t} = \beta_0 + \beta_1 \, LQ_{i,t} + \beta_2 \, LV_{i,t} + \beta_3 \, AV_{i,t} + \beta_4 \, PR_{i,t} + \beta_5 \, GR_{i,t} + \varepsilon$$

Where;

ROI = Return on Investment
LQ = Liquidity

LV = Leverage

AV = Activity

PR = Profitability

GR = Growth

$\beta 0 - \beta 5$ = Model Coefficients

ε = Error term.

i,t = for firm i in period t

DATA ANALYSIS AND INTERPRETATION

The data values for the dependent variable return on investment (ROI) and the independent variables; liquidity, leverage, activity, profitability and growth in relation to each sampled cement firms were analyzed using the extracted data, from "financial statement analysis" of each sampled cement firm listed on Karachi stock exchange.

Table 2: Descriptive Statistics

	ROI	LQ	LV	AV	PR	GR
Mean	8.9532	1.3523	0.5109	0.6153	0.0448	21.7299
Maximum	34.9206	8.0671	1.8199	1.3762	0.3919	798.0103
Minimum	-19.7974	0.1462	-0.4387	0.0147	-3.1915	-87.8967
Std. Dev.	11.5505	1.1599	0.2948	0.2909	0.4248	85.7198
Observations	160	160	160	160	160	160

Source: E-view 10.0 Output, 2019

Table 2 discloses the descriptive statistics of all the study variables, the mean of return on investment is 8.9532 while the maximum and minimum is 34.9206 and -19.7971 respectively. The standard deviation is 11.5505 representing a considerable dispersion from the mean. The average value of liquidity is 1.3523 with an 8.0671 maximum and 0.1462 minimum values. The standard deviation is 1.1599 represents a considerable clustering around the mean. The leverage had an average of 0.5109 with a maximum of 1.8199 and minimum of -0.4387 values. The standard deviation was 0.2948 representing considerable clustering around the mean. Activity had a central tendency of 0.6153 with a maximum and minimum values range from 1.3762 to 0.0147 respectively. The standard deviation was 0.2909 representing considerable clustering around the mean. The average profitability had 0.0448 with a maximum of 0.3919 and minimum of -3.1915 values. The standard deviation was 0.4248 which represent a considerable clustering around the mean. The average growth of cement firms was 21.7299 with a maximum and minimum of 798.0103 and -87.8967 values respectively. The standard deviation large value 85.7198 represents a high variation from the mean.

Table 3: Correlation Coefficient

	ROI	LQ	LV	AV	PR	GR
ROI	1.00000					
LQ	0.51439	1.00000				
LV	-0.67743	-0.55849	1.00000			
AV	0.56336	0.41979	-0.34108	1.00000		
PR	0.57176	0.26380	-0.49618	0.37517	1.00000	
GR	-0.11330	-0.11959	0.18934	-0.09348	0.05194	1.00000

Source: E-view 10.0 Output, 2019

Table 3 represents the correlation coefficient that exists between the dependent variable return on investment and the independent variables; liquidity, leverage, activity, profitability and growth. The correlation coefficient highlights that return on investment (ROI) is significant with liquidity (LQ), leverage (LV), activity (AV), profitability (PR) and growth (GR). Besides, the results disclosed a positive association between return on investment and three variables; liquidity, activity and profitability while, on the other hand, a strong negative association was noted between return on investment and the other two variables. Results reveal that there's found a strong negative association between liquidity and leverage, liquidity and growth, leverage and growth, activity and growth, profitability and growth whereas, a significant positive association between leverage and activity, leverage and profitability, activity and profitability. The correlation coefficient results shown between variables are persistent with the study hypotheses. It reveals that correlation coefficients between variables are very low (no one is above 0.8) representing that there's not a multicolinearity problem.

Table 4: Panel Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.12537	2.26865	3.58159	0.0005
LQ	1.03805	0.62198	1.66895	0.0972
LV	-15.67491	2.64433	-5.92774	0.0000
AV	11.65971	2.26800	5.14097	0.0000
PR	6.42079	1.63093	3.93688	0.0001
GR	-0.00134	0.00688	-0.19405	0.8464
R-squared=0.626167, F-statistic=51.58964 (0.000000)				
Durbin-Watson stat=0.586739				

Source: E-view 10.0 Output, 2019

Table 4 displays the outcome of panel regression analysis' return on investment (ROI) is the dependent variable. The results of the study model analyzed are as follow.

ROI = 8.12537 + 1.03805 (LQ) - 15.67491 (LV) + 11.65971 (AV) + 6.42079 (PR) - 0.00134 (GR)

The results of data analysis disclose that amongst all the variables only the variable of liquidity, activity and profitability are positively associated with cement firms' performance measure, ROI while the others such as leverage and growth are negatively associated with it. Furthermore, the regression results highlight that all the variables except the growth are significant and have significant influence on cement firms' performance, the coefficient of liquidity is 1.03805 displays that ROI will increase by 1.03805 as a result of 1% increase in liquidity. The coefficient of leverage has -15.67491 represent that when there is increase in leverage by 1%, ROI decrease by15.67491. The coefficient of activity as 11.65971 reveals that ROI will increase by11.65971as a result of 1% increase in variable of activity. Profitability has coefficient of 6.42097 indicates that when there is increase in profitability by 1%, ROI increase by 6.42079. The coefficient of growth is -0.00134 shows that when there is decrease in growth by 1%, ROI decrease by 0.00134. More, the value of coefficient of determination in table 3 stood at 0.626167 which explains that 63% cross sectional variation in dependent; ROI is accounted for by independent variables of the study while the remaining 37% of variation in dependent variable; ROI could be explained by other variables which are not consider as part of present study model. The F-statistic 51.58964 and its related sig-value (0.00000) indicate about the validity of the model and provide evidence of existing significant association between dependent and independent variables of the study. The Durbin-Watson stat value of 0.586739 reveals that the presence of autocorrelation is unlikely.

CONCLUSION

Each corporate firm in today's competitive market is concerned with its performance and good performance does not just build its market value yet help in the growth of the industry over time, consequently prompting general prosperity of the economy (Ahmed et al., 2011; Tunio, et al., 2021). The present paper attempts to evaluate the position of the overall efficiency of the cement industry and its role in the economic development of country. The paper's objective is to have the overview of the variables influencing performance of firms' of cement sector in Pakistan.

The earnings reported on financial statement of any company are the principal interests of the stakeholders as it represents company's financial performance. Performance is the outcome obtained by an executive or group of executives in an organization relevant to its authority and responsibility to accomplish

the purpose lawfully 'not against the law' and in compliance with morals and ethics (Amal et al., 2012; Memon, et al., 2021). There are two distinct kinds of performance such as the financial and the non-financial performance. A distinction is often found between these two i.e. between financial and non-financial performance. Financial performance is usually calculated in terms of sales growth, growth in profitability and turnover/ stock prices while, on the other hand, non-financial performance measure provides information on firm's performance in non-monetary terms such as goodwill and patents etc. (Ali & Eneizan, 2018; Katper, et al., 2020).

The study reviews the related literature and develops a conceptual frame work regarding the firms' performance, ROI and its variables including liquidity, leverage, activity, profitability and growth. The type of data is secondary in nature and has been taken from "financial statement analysis" of a panel of 16 cement companies quoted at Karachi stock exchange from period 2010-2019. The paper 5 hypotheses are as follows:

H01: Liquidity is positively associated with cement firms' performance.

H02: Leverage is negatively associated with cement firms' performance.

H03: Actively is positively associated with cement firms' performance.

H04: Profitability is positively associated with cement firms' performance.

H05: Growth is positively associated with cement firms' performance.

The results of data analysis disclose that amongst all the variables only the variable of liquidity (H01), activity (H03) and profitability (H04) are positively associated with cement firms' performance measure, ROI while the others such as leverage (H02) and growth (H05) are negatively associated with it. Furthermore, the regression results highlight that all the variables except the growth are significant and have significant influence on cement firms' performance, the coefficient of liquidity is 1.03805 displays that ROI will increase by 1.03805 as a result of 1% increase in liquidity. The coefficient of leverage has -15.67491 represent that when there is increase in leverage by 1%, ROI decrease by15.67491. The coefficient of activity as 11.65971 reveals that ROI will increase by11.65971as a result of 1% increase in variable of activity. Profitability has coefficient of 6.42097 indicates that when there is increase in profitability by 1%, ROI increase by 6.42079. The coefficient of growth is -0.00134 shows that when there is decrease in growth by 1%, ROI decrease by 0.00134.

As hypothesis first is concerned it is supported and indicating the positive impact of liquidity on performance thus study results are aligned with Mansoor (2019). The second hypothesis is regarding the association between leverage and performance found to be supported as the outcomes reveal negative association thus supporting the study outcomes of Khurram et al. (2016). The third hypothesis of study is related to the association between activity and performance also found to be supported as the outcomes highlight the positive association thus supporting the outcomes of Sahar et al. (2019). The fourth hypothesis is regarding the association between profitability and performance found to be supported as association existing between variables is found to be positive hence supports the study result of Ali and Eneizan (2018). As well the fifth or the last hypothesis of the study is concerned it is not supported as the association between growth and performance is found to be negative in our analysis whereas Hajihassani (2015) examined the association of growth with performance and found a positive association between growth and performance.

RECOMMENDATION

This paper focused on performance of cement firms' in Pakistan and found that the variables of liquidity, leverage, activity and profitability have a significant impact on cement firms' performance. Thus in the context of Pakistan being a developing country, the management are recommended to manage significant ratios at a specific level to accomplish competitiveness both at the domestic and the global level. In addition, literature provides evidence that there is difference in firms' performance in different countries of the world, highlighting the role played by the government in the development of the sector. This highlights that developing economies such as Pakistan should provide support to cement manufacturers so that they enhance their production capacity to meet the internal and external demands of cement and be able to compete at the local and the international level.

REFERENCES

Abbas, D.S. (2019). *Activity ratio influence on profitability (At the Mining Company listed at Indonesia Stock Exchange period 2010-2013).* 49-69.

Afshan, G., Shahid, S. and Tunio, M.N. (2021), "Learning experiences of women entrepreneurs amidst COVID-19", *International Journal of Gender and Entrepreneurship, 13*(2), pp. 162-186. https://doi.org/10.1108/IJGE-09-2020-0153

Ahmed, N., Ahmed, Z., & Usman, A. (2011). Determinants of performance: A case of life insurance sector of Pakistan. *International Research Journal of Finance and Economics, 6 (1),* 123-128.

Ahsan, A., & Shahzadi, K. (2017). Impact of capital structure on firms' profitability. Evidence from cement sector of Pakistan. *Research Journal of Finance and Accounting, 8 (7),* 29-34.

Ajmal, M. (2015). Evaluation of financial performance of Cement Corporation of India (CCI) limited. *Kuwait Chapter of Arabian Journal of Business and Management Review, 4 (7),* 20-34.

Ali, M., & Eneizan, B.M. (2018). Determinants of financial performance in the industrial firms: Evidence from Jordan. *Asian Journal of Agricultural Extension, Economics and Sociology, 22 (1),* 01-10.

Amal, Y.A., Alamro, S.A., & Al-Soub, Y.Z. (2012). Factors affecting the financial performance of Jordanian insurance companies listed at Amman Stock Exchange. *Journal of Management Research, 4 (2),* 266-289.

Amalendu, B., Mukhuti, S.S., & Roy, S.G. (2011). Financial performance analysis-A case study. *Current Research Journal of Social Sciences, 3 (3),* 269-275.

Aqeel, R.J., Munir, U., & Shahzad, K. (2016). Influence of liquidity on profitability of cement sector: Indication from firms listed in

Pakistan Stock Exchange. *Business Management Dynamics, 6 (5),* 1-12.

Banupriya, M., & Thyagaraja, M. (2018). A study on financial performance of selected cement companies in Tamilnadu. *Asia Pacific Journal of Research, 1 (87),* 218-223.

Batchimeg, B. (2017). Financial performance determinants of organizations: The case of Mongolian companies. *Journal of Competitiveness, 9 (3),* 22-33.

Dhivya, J., Shobanapriya, P., Devika, P., Karthika, P., & Bakiyaraj, K. (2017). A study on financial performance of cement industry with special reference to Acc limited. *International Journal of Creative Research Thoughts, 5 (4),* 1627-1635.

Daryanto, W.M. (2018). Measuring financial performance of cement industry during infrastructure development in Indonesia. *South East Asia Journal of Contemporary Business, Economics and Law, 16 (1),* 44-56.

Farah, N., Ijaz, F., & Naqvi, F. (2016). Financial performance of firms: Evidence from Pakistan cements industry. *Journal of Teaching and Education, 5 (1),* 81-93.

Hagedoorn, J., & Cloodt, M. (2003). Measuring innovative performance: Is there an advantage in using multiple indicators? *Research Policy, 32 (8),* 1365-1379.

Hajihassani, V. (2015). Investigate factors affecting on the performance of cement industry based on Copeland Method. *Indian Journal of Science and Technologies, 8 (59),* 45-48.

Kamal, H., & Moudud-Ul-Huq, S. (2014). Analysis of credit-strength of cement industry in Bangladesh. *Management Studies and Economic System, 1 (2),* 97-114.

Kamran, R., Ramiyani, S.S., Shirkouhi, S.N., & Badizadeh, A. (2014).

Evaluating performance of Iranian cement firms using an integrated fuzzy AHP-VIKOR method. *Applied Mathematical Modeling, 34,* 5033-5046.

Katper, N. K., Tunio, M. N., Hussain, N., Junejo, A., & Gilal, F. G. COVID-19 Crises: Global Economic Shocks vs Pakistan Economic Shocks (2020). *Advances in Science, Technology and Engineering Systems Journal, 5*(4), 645-654.

Khurram, S., Anwar, Z., & Hussain, T. (2016). Leverages effect on profitability: A case of cement sector of Pakistan. *Elixir International Journal, 96,* 41817-41820.

Krishna, K., John, F., & Senith, S. (2013). A study on factors affecting performance of Indian cement industry. *European Journal of Business and Management, 5 (29),* 191-199.

Lazar, S. (2016). Determinants of firm performance: Evidence from Romanian listed companies. *Review of Economic and Business Studies, 9 (1),* 54-69.

Lina, W., & Al-Omari, R. (2015). The impact of activity ratios among industrial sectors' performance: Jordanian case. *Research Journal of Finance and Accounting, 6 (6),* 173-178.

Mahboob, R., Subhan, I., & Hussain, S. (2015). Impact of financial leverage on Pakistani firms. *Journal of Poverty, Investment and Development, 15,* 15-21.

Manjula, B.D., & Sabarinathan, K. (2015). A study on financial performance of cement industries in Tamilnadu with reference to select cement companies. *International Journal of Research in Management and Technology, 5 (1),* 224-229.

Mansoor, H.H. (2019). Determinants of profitability: A comparative study of Textile and Cement sector of Pakistan. *Information Management and Business Review, 11 (4),* 13-26.

Mayowa, G.A., & Ogieriakhi, E. (2018). Firm specific factors and performance of Insurance firms in Nigeria. *Amity Journal of Finance, 3 (1),* 14-28.

Memon, A.B., Meyer, K. and Tunio, M.N. (2021), "Toward collaborative networking among innovation laboratories: a conceptual framework", *International Journal of Innovation Science,* ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJIS-04-2021-0069

Mistry, D.S. (2012). Determinants of profitability in Indian Automobile Industry. *Tecnea Journal of Management Studies, 7*(1), 20-23.

Muthusamy, A., & Karthika, S. (2019). Financial performance of selected cement companies in India. *International Journal of Research in Commerce and Management, 10*(9), 01-22.

Muhammad, A., Ameen, A., & Shahzadi, K. (2017). The impact of capital structure on firms' profitability: A case of cement industry of Pakistan. *International Journal of Business and Social Science, 8*(4), 140-147.

Naser, K., & Mokhtar, M.Z. (2004). Determinants of corporate performance of Malaysian companies. In *Fourth Asia Pacific Interdisciplinary Research in Accounting Conference. PP 16-25*.

Nousheen, T.B., & Hasan, A. (2013). Impact of firms specific factors on profitability of firms in food sector. *Open Journal of Accounting, 2,* 19-25.

Nawaz, A., Salman, A., & Shamsi, A.F. (2015). Impact of financial leverage on firms' profitability: An investigation from cement sector of Pakistan. *Research Journal of Finance and Accounting, 6*(7), 75-80.

Nimalathasan, B. (2009). Profitability of listed pharmaceutical companies in Bangladesh. An Inter and Intra Comparison of AMBEE and IBNSINA Companies Ltd. *Economic and Administrative Series, 3,* 139-148.

Nishanthini, A., & Nimalathasan, B. (2013). Determinants of profitability: A case study of listed manufacturing companies in Sri Lanka. *Merit Research Journals, 1*(1)*,* 001-006.

Ostroff, C., & Schmitt, N. (1993). Configuration of organizational effectiveness and efficiency. *Academy of Management Journal, 36*(6)*,* 1345-1361.

Prajapati, J.K. (2019). Financial performance analysis of select cement companies in India. *IJESC, 9*(11)*,* 24109-24111.

Preeti, P., & Hosmani, A.P. (2018). Profitability analysis of select cement companies in India. *EPRA International Journal of Economic and Business Review, 6*(5)*,* 59-63.

Qasim, S., Rahman, R.U., Sultana, N., & Naseem, M.A. (2012). "Leverage"-An analysis and its impact on profitability with reference to select oil and gas companies of Pakistan. *International Journal of Management Sciences and Business Research, 1*(12)*,* 770-80.

Sahar, O., Jafari, M., & Mansori, A. (2019). Analysis of performance of cement industry manufacturing companies in Tehran Stock Exchange using the FAHP technique and the TOPSIS method. *Independent Journal of Management and Production, 10*(2)*,* 512-536.

Shaikh, E., Tunio, M. N., & Qureshi, F. (2021). Finance and women's entrepreneurship in DETEs: A literature review. *Entrepreneurial Finance, Innovation and Development,* 191-209.

Santosuosso, P. (2014). Do efficiency ratios help investors to explore firm performance? Evidence from Italian listed firms. International Business Research. Vol.7 No.12 PP 111-119.

Sumathi, N., & Jothi, K. (2016). A study on financial performance of cement companies in India with reference to Ultratech Cement Limited and OCL India Limited-A comparative analyses. *International Journal of Research in Applied Science and Engineering Technology (IJRASET), 4*(3)*,* 147-150.

Tunio, M. N. (2020)1. Academic entrepreneurship in developing countries: contextualizing recent debate. Research Handbook on Entrepreneurship in Emerging Economies.

Tunio, M. N. (2020)2. Role of ICT in promoting entrepreneurial ecosystems in Pakistan. *Journal of Business Ecosystems (JBE), 1*(2), 1-21.

Tunio, M. N., Chaudhry, I. S., Shaikh, S., Jariko, M. A., & Brahmi, M. (2021)[1]. Determinants of the Sustainable Entrepreneurial Engagement of Youth in Developing Country–An Empirical Evidence from Pakistan. *Sustainability, 13*(14), 7764.

Tunio, M. N., Jariko, M. A., Børsen, T., Shaikh, S., Mushtaque, T., & Brahmi, M. (2021)[2]. How Entrepreneurship Sustains Barriers in the Entrepreneurial Process–A Lesson from a Developing Nation. *Sustainability, 13*(20), 11419.

Tunio, M. N., Rashdi, P. I. S., & Abro, Q. M. M. (2014). Evaluation of ICT education in private secondary schools: A case study of Hyderabad, Sindh. *Mehran University Research Journal of Engineering & Technology, 33*(1), 43-48.

Tunio, M. N., Shaikh, E., & Lighari, S. (2021)[3]. Multifaceted perils of the Covid-19 and implications: A Review. *Studies of Applied Economics, 39*(2).

Tunio, M. N., Soomro, A. A., & Bogenhold, D. (2017). The study of self-employment at SMEs level with reference to poverty in developing countries. *Business and Management Research, 6*(2), 33-39.

Tunio, M. N., Yusrini, L., & Shoukat, G. (2021)[5]. Corporate Social Responsibility (CSR) in Hotels in Austria, Pakistan, and Indonesia: Small and Medium Enterprise Spillover of COVID-19. *In Handbook of Research on Entrepreneurship, Innovation, Sustainability, and ICTs in the Post-COVID-19 Era* (pp. 263-280). IGI Global.

Tunio, M. N., Yusrini, L., Shah, Z. A., Katper, N., & Jariko, M. A. (2021)[4]. How Hotel Industry Cope up with the COVID-19: An SME

Perspective. *Etikonomi, 20*(2), 213-224.

Venkatacham, R., & Kasthuri, V. (2016). A study on financial performance of cement industry in India. *International Journal of Applied Research, 2*(9)*,* 778-780.

William, J. (1987). Perquisites, risk and capital structure. *Journal of Finance, 1*(42)*,* 29-49.

XiMei, L. I. U., ChangFeng, W. A. N. G., Rasheed, S., & Tunio, M. N. (2016). Shadow Price of the Oil Industry. *International Journal of u-and e-Service, Science and Technology, 9*(12), 281-290.

FACTORS AFFECTING CONSUMER SWITCHING BEHAVIOUR FROM INTERNAL COMBUSTION ENGINE, VEHICLES (ICEVS) TO ELECTRIC VEHICLES (EVS) IN PAKISTAN: A CASE STUDY ON THE AUDI E - TRON

Asfand Faheem Akhter, Emadul Karim, and Saeed Siyal

ABSTRACT

The purpose of this research paper was to test the factors affecting consumer switching behaviour from Internal Combustion Engine Vehicles to Electric Vehicles in Pakistan. Consumer switching behaviour is one of the most thoughtful aspect for every organization. One of the many variables that influence consumer switching behaviour, is innovation. The components related to electric cars taken into consideration for this study included the fuel costs, technology, infrastructure, government regulations and green transportation. Primary as well as secondary sources were utilized to collect data. The primary data was collected through close-ended questionnaire, from a sample of 210 consumers of automobile sector. Secondary data was gathered from previous research available on to the topic of this study. The data analysis revealed that electric cars had a major influence on consumer switching behaviour from internal combustion engine vehicles. All five components of electric vehicles had a significant impact on consumer switching behaviour. Recommendations were also made for manufacturers to take advantage of electric vehicles to produce automobile models that were updated and electric.

INTRODUCTION

Background of the Study

The current research explicitly discusses upon the impact of independent variables related to electric vehicles on the car manufacturers of Pakistan. There

could be many factors that could impact the buying behavior of consumers shifting from internal combustion engine vehicles to electric vehicles, but the following variables have been selected for my current study: Fuel Cost, Green Transportation, Technology, Infrastructure, and Government Regulations.

All-electric luxury crossovers that straddle the line between the current and the future are the 2021 Audi E-tron and E-tron Sportback. Although their all-wheel-drive battery-powered powertrains offer up to 222 miles of approximate EPA driving range and foreshadow the demise of internal-combustion engines, their refined driving styles and serene interior spaces are close to those currently occupying showrooms in non-electric Audi models. These familiar features and their conventional exterior designs make the E-trons look less innovative than the Jaguar I-Pace and Tesla Model X luxury EV rivals. Although the E-tron and E-tron Sportback 2021 have shorter driving ranges than the Jaguar or Tesla, Audi claims that this more pragmatic approach would make it easier for consumers to move from conventional gas-fed models to all-electric vehicles.

SCOPE OF THE STUDY

In today's automobile market of Pakistan, there is a high competition; so launching a completely upgraded version of a vehicle for Audi here will be a great challenge. This study is being carried out to figure out the factors affecting consumer switching behaviour from Internal Combustion Engine, Vehicles (ICEVs) to Electric Vehicles (EVs) in Pakistan: focusing on the Audi E- Tron in specific.

OBJECTIVES

1. To determine the impact of Electric Vehicles on Internal Combustion Engine Vehicles (ICEVs).

2. To analyse the impact of Fuel Costs on Internal Combustion Engine Vehicles (ICEVs).

3. To examine the impact of Technology on Internal Combustion Engine Vehicles (ICEVs).

4. To determine the impact of Infrastructure on Internal Combustion Engine Vehicles (ICEVs).

5. To examine the impact of Government Regulations on Internal Combustion Engine Vehicles (ICEVs).

6. To investigate the impact of Green Transportation on Internal Combustion Engine Vehicles (ICEVs).

RESEARCH QUESTIONS

1. What is the impact of Electric Vehicles on Internal Combustion Engine Vehicles (ICEVs)?

2. What is the impact of Fuel Costs on Internal Combustion Engine Vehicles (ICEVs)?

3. What is the impact of Technology on Internal Combustion Engine Vehicles (ICEVs)?

4. What is the impact of Infrastructure on Internal Combustion Engine Vehicles (ICEVs)?

5. What is the impact of Government Regulations on Internal Combustion Engine Vehicles (ICEVs)?

6. What is the impact of Green Transportation on Internal Combustion Engine Vehicles (ICEVs)?

HYPOTHESES OF THE STUDY

The research hypotheses for the study are:

H1: Electric Vehicles have a significant impact on Internal Combustion Engine Vehicles (ICEVs).

H2: Fuel Costs have a significant impact on Internal Combustion Engine Vehicles (ICEVs).

H3: Technology has a significant impact on Internal Combustion Engine Vehicles (ICEVs).

H4: Infrastructure has a significant impact on Internal Combustion Engine Vehicles (ICEVs).

H5: Government Regulations have a significant impact on Internal Combustion Engine Vehicles (ICEVs).

H6: Green Transportation has a significant impact on Internal Combustion Engine Vehicles (ICEVs).

REVIEW OF THE LITERATURE

Consumer Switching Behaviour

If you look at porter's analysis of five forces, industries such as the automotive industry seem particularly resistant to the challenge of fresh entry and upstart. While industry innovation does not always need new entrants (incumbents can and will always innovate whenever they can), new entrants often view and accept industries in a completely different way. Yet it is more difficult to reach those sectors that has the potential to impact performance in

a sector. If there are high barriers to entry, then you don't see new entrants, and you don't see creativity. It's actually that what drives creativity is a fresh entrant (Stringham, Miller, & Clark, 2015; Gilal, et al., 2020).

Electric Vehicles

Electric vehicles are lacking behind a resupplying system and a supply and facility system as opposed to gas-powered vehicles. An introduction of an electric automobile relates to in front of linkage ways related to electric vehicles, like the requirement for fresh re-charging pumps related to the refilling pumps that gasoline driven automobiles previously have and great obstacles to admission to fix issues using the language of possible maritime failure, like the great permanent prices of implementing innovative technologies and structure manufacturing capacities which are by this time open to incumbents (Stringham, Miller, & Clark, 2015; Memon, et al., 2021).

Vehicle is significant in this part. Price affordability and driver comfort play a vital role in electric vehicle introduction. Tricycle producers have previously discovered methods of handling batteries created locally. The implementation of EVs can be considered by cities that face the biggest test of making environment clean and admission to transport. It is clear that a large portion of the electric vehicle situation has to be developed nation-wide, but states could also perform a significant part in the evolution to electric vehicles. While the demand for electric vehicles is yet in the developing phases of growth, businesses and communities across the globe are ready to rethink. Electric vehicles possess the ability to minimize or at minimum adequate the rise in energy prices, resulting in higher overall electricity demand (Pandey, Manocha, & Saini, 2020).

Fuel Costs

It is simpler and less costly in the long run to buy and operate electric vehicles. EV comprises few elements than a traditional petrol car that makes electric vehicles significantly cheaper for maintenance than petrol. As electric vehicle does not comes with an engine and have fewer parts, like traditional vehicles, they do not generate noise. As a result, it helps to decrease emissions from sound. Additional benefit of EVs is that, compared to fossil fuel cars, they deliver a much smoother ride with greater acceleration (Pandey, Manocha, & Saini, 2020; XiMei, et al., 2016).

Although electric cars do not inherently decrease overall fossil fuel consumption or emissions, they have the potential to do so, especially if lower

emission sources such as nuclear power become more widespread. The well-to-wheel electricity emission equivalents differ depending on how electricity is produced and when one draws from a grid, and the storage of electric car batteries also has the ability to draw from the grid at non-peak hours or to use intermittent energy sources such as wind or solar more effectively (Stringham, Miller, & Clark, 2015).

Technology

It is known that engine power does not have a huge impact when dealing with solely electric vehicles; the implementation of modern car technology relies on improved driving range and availability of charging stations as well as successful policy incentives (Bahamonde-Birke & Hanappi, 2015).

Each technology is delivered with its pros and cons. Let's take a look at the other side of electric cars, then. It take between 30 minutes (with a fast charge) and 24 hours to charge the Electric vehicles, depending on the battery capacity and the motors. It would take about six hours if the car has to be fully charged. A problem that further affects the efficiency of electric cars is the shorter battery life. The inadequate supply of raw materials, which raises battery costs, is another important issue (Pandey, Manocha, & Saini, 2020).

Infrastructure

Private investors are less likely to make huge investments until there is a considerable rise in demand for these vehicles. Consumers, on the other hand, are often hesitant to purchase an Electric Vehicle Plug (PEV) unless they feel they will find a suitable charging station (Pandey, Manocha, & Saini, 2020).

Government Regulations

Several governments, including Japan and members of the European Union, have adopted policies encouraging electro mobility along this path, ranging from the construction of charging networks to free or reduced price access to express lanes and parking facilities (Bahamonde-Birke & Hanappi, 2015).

Green Transportation

As well as government guidance, both the coming shortage and the negative environmental effects of fossil fuel resources are pushing the automotive industry to concentrate on alternative, more powerful and safer driving force technologies. Moreover, a growing number of stringent regulations on CO2 emissions, followed by rising fuel prices, have contributed to a major shift in the perception of some characteristics of vehicles. Consumers are calling

for lower emissions, more fuel efficient and smaller vehicles, and the general public. This change in attitude has not only led to major shifts in market share, but has also favored more productive technologies. The introduction of electric vehicles, however, is not only motivated by economic benefits, but also by people's environmental concerns. Although some scholars have questioned the efficacy of electro mobility in reducing CO2 emissions, some studies indicate that a positive attitude to the environment appears to increase the willingness to pay for electro mobility. (Bahamonde-Birke & Hanappi, 2015).

METHODOLOGY

The closed-ended questionnaire prepared on Google Forms was distributed among the customers of the automobile sector in Karachi, Pakistan to see the factors that have an influence on their switching behaviour from internal combustion engine vehicle to electric vehicle. The study a quantitative analysis used a deductive approach and, since it described the principle in depth, it was considered explanatory. The population size of the study was 210 and the sample comprises of customers of different automobile brands available in Sindh, Pakistan. The demographic of this research focused on adult customers who could purchase an automobile or already possessed it. Both, males, and females were respondents of this research. The sampling technique used was convenience sampling because the data was gathered upon the convenience of the researcher.

CONCEPTUAL FRAMEWORK

Figure 1: Conceptual Framework
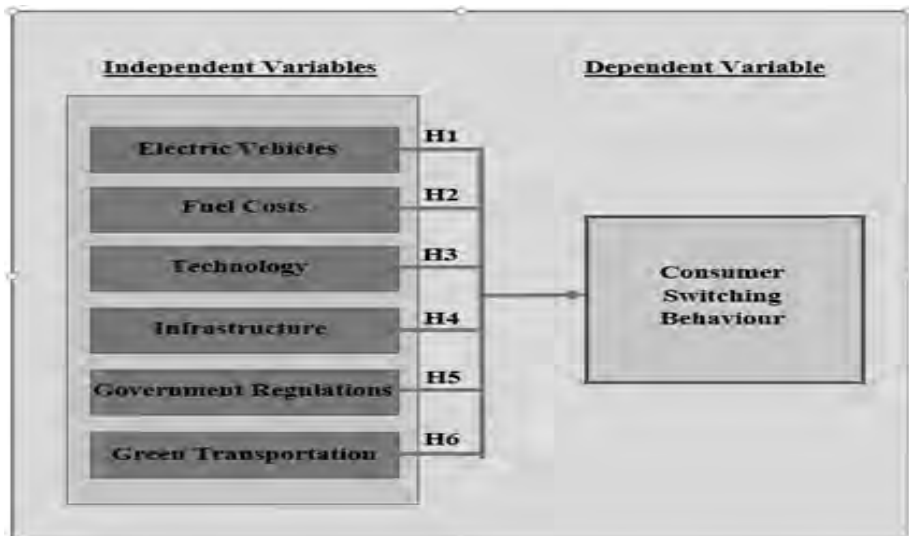
ANALYSIS AND RESULTS

The results of the analytical tests performed on the gathered data were presented here. These tests began with the demographic distribution of the collected sample, followed by the reliability analysis of the data collection instrument. In addition, to determine the influence of the independent variables on the dependent variable, correlation and regression analysis were carried out. The sample size of this data is 210 customers from Sindh, Pakistan who purchase the automobiles. The results then generalize to the entire population of Pakistan who are buyers of automobiles.

Demographic Analysis

The sample is classified according to categories such as gender, age, educational background, occupation, and family monthly income. Table 1 below indicates the distribution of the sample according to the respondents' gender.

Table 1: Gender of the Respondents

<div align="center">Gender</div>

		Frequency	Percent	Valid Percent	Cumulative Percent
	Female	46	21.9	21.9	21.9
Valid	Male	164	78.1	78.1	100.0
	Total	210	100.0	100.0	

Figure 2: Gender of the Respondents
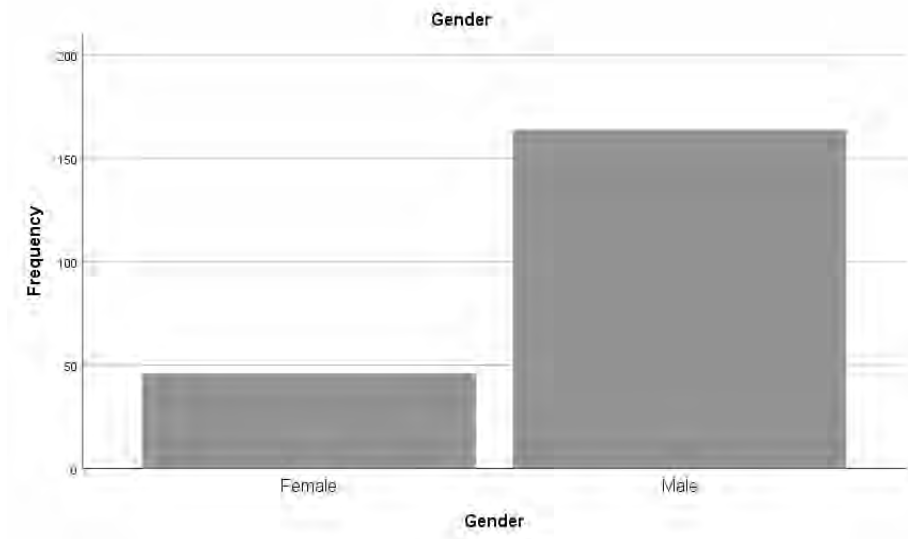
The above table shows that out of a total of 210 respondents selected for the study, 164 of them were males, comprising of 78.1 percent, and 46 of them were females, comprising of 41.9 percent. The results of the survey shows opinions from both the genders. Further, the data is graphically represented in Figure 2 above.

Table 2 shows the distribution according to the respondents' age bracket.

Table 2: Age of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
			Age		
Valid	25-30	182	86.7	86.7	86.7
	31-35	16	7.6	7.6	94.3
	36-40	5	2.4	2.4	96.7
	41-45	4	1.9	1.9	98.6
	46-50	3	1.4	1.4	100.0
	Total	210	100.0	100.0	

Figure 3: Age of the Respondents
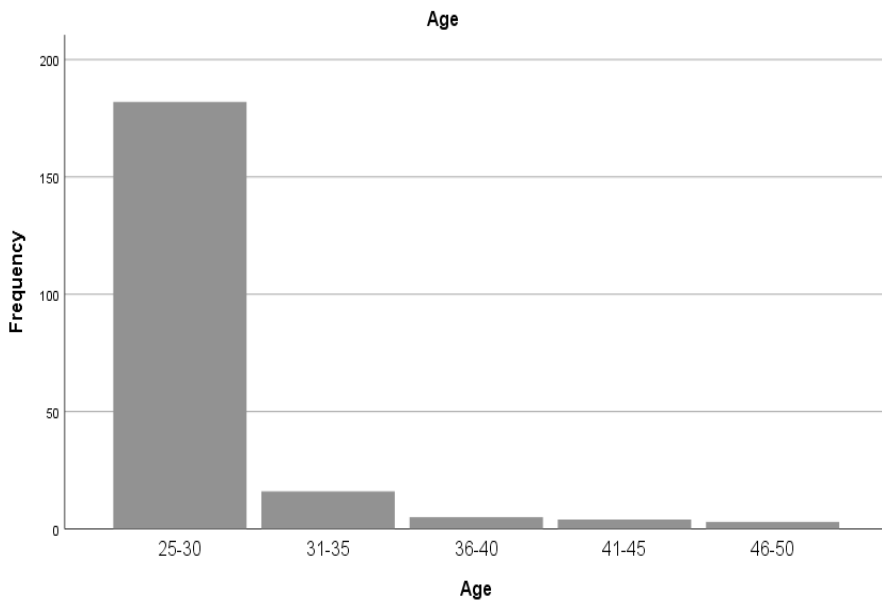
The results show that respondents aged between 25 and 30 years comprised of 86.7 percent, being the majority, whereas those between the ages 31 and 35 years comprised of 7.6 percent; those aged between 36 and 40 years were 2.4 percent, whereas those between ages 41 and 45 years comprised of 1.9 percent and seniors aged over 46 years comprised of only 1.4 percent of the total sample. Further, the data is graphically represented in Figure 3 above.

Table 3 indicates the distribution of the sample based on the respondents' educational backgrounds.

Table 3: Education of the Respondents

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Graduate	130	61.9	61.9	61.9
	Higher secondary	1	.5	.5	62.4
	Post Graduate	42	20.0	20.0	82.4
	Undergraduate	37	17.6	17.6	100.0
	Total	210	100.0	100.0	

Figure 4: Education of the Respondents
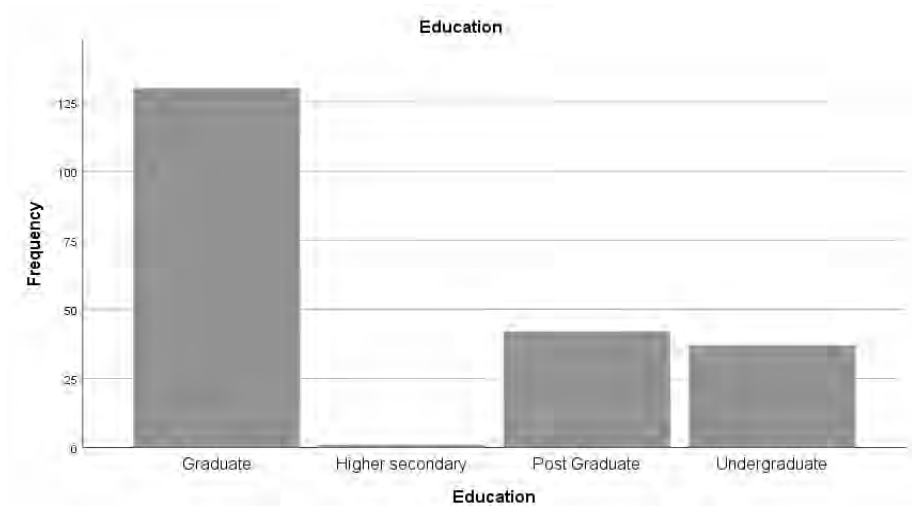
Table 3 represents that 17.6 percent of the respondents were undergraduates, whereas graduates comprised of a majority of 61.9 percent, and 20 percent of them were post graduates. Whereas, 0.5 percent of the total respondents were from high school. The data is graphically represented in Figure 4 above.

Table 4 represents the distribution of the respondents' based on their occupation.

Table 4: Occupation of the Respondents

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Business	103	49.0	49.0	49.0
	House wife	1	.5	.5	49.5
	Job	39	18.6	18.6	68.1
	Student	67	31.9	31.9	100.0
	Total	210	100.0	100.0	

Figure 5: Occupation of the Respondents
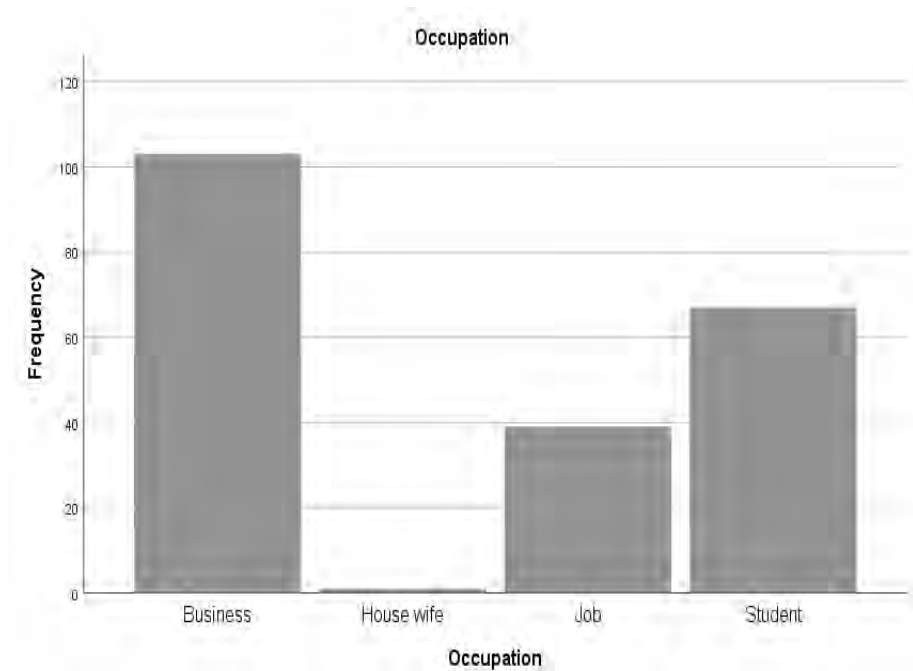
Table 4 represents that 31.9 percent of the respondents were full time students, while 49 percent were business owners, 318.6 percent were full time employees, and 0.5 percent had other occupations. Further, the data is graphically represented in Figure 5 above.

Table 5 provides information on the distribution of the sample according to the respondents' family monthly income.

Table 5: Family Monthly Income of the Respondents

Family Monthly Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PKR 100,000 above	71	33.8	33.8	33.8
	PKR 210,000 - 300,000	54	25.7	25.7	59.5
	PKR 310,000 - 400,000	19	9.0	9.0	68.6
	PKR 410,000 - 500,000	11	5.2	5.2	73.8
	PKR 510,000 above	55	26.2	26.2	100.0
	Total	210	100.0	100.0	

Figure 6: Family Monthly Income of the Respondents
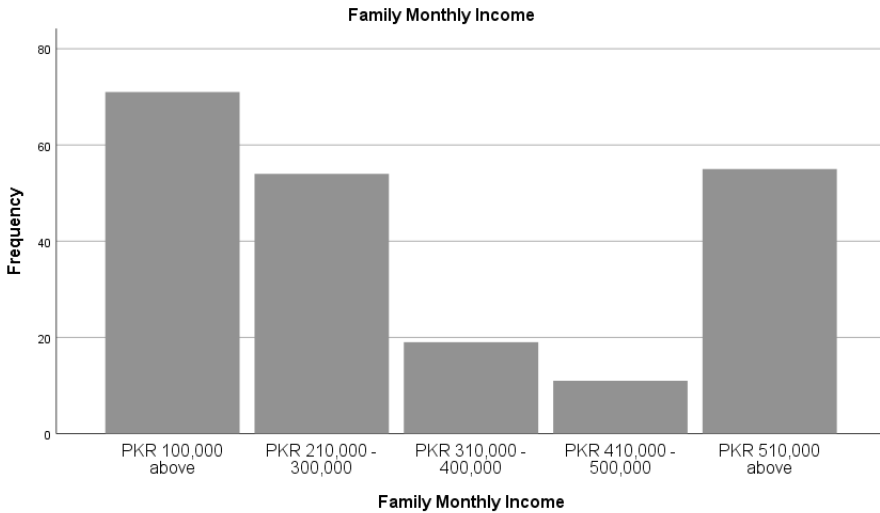
The results show that a majority of the respondents, 33.8 percent had a family monthly income above Rs. 100,000. Those with a family income between Rs. 210,000 and Rs. 300,000 comprised of 25.7 percent of the sample. Those with a family income between Rs. 310,000 and Rs. 400,000 comprised of 9 percent of the sample. Those with a household income between Rs. 410,000 and Rs. 500,000 comprised of 5.2 percent of the sample. Lastly, those with a household income greater than Rs. 500,000 comprised of 26.2 percent of the sample.

AWARENESS OF ELECTRIC VEHICLES

With the help of the questionnaire, consumers were asked about their knowledge about Electric Vehicles. A few questions regarding awareness about Electric Vehicles were inquired about in this section, the results of those are presented below.

Table 6: Awareness of Electric Vehicles

Are you aware of Electric Vehicles?

		Frequency	Percent	Valid Percent	Cumulative Percent
	No	14	6.7	6.7	6.7
Valid	Yes	196	93.3	93.3	100.0
	Total	210	100.0	100.0	

Figure 7: Awareness of Electric Vehicles
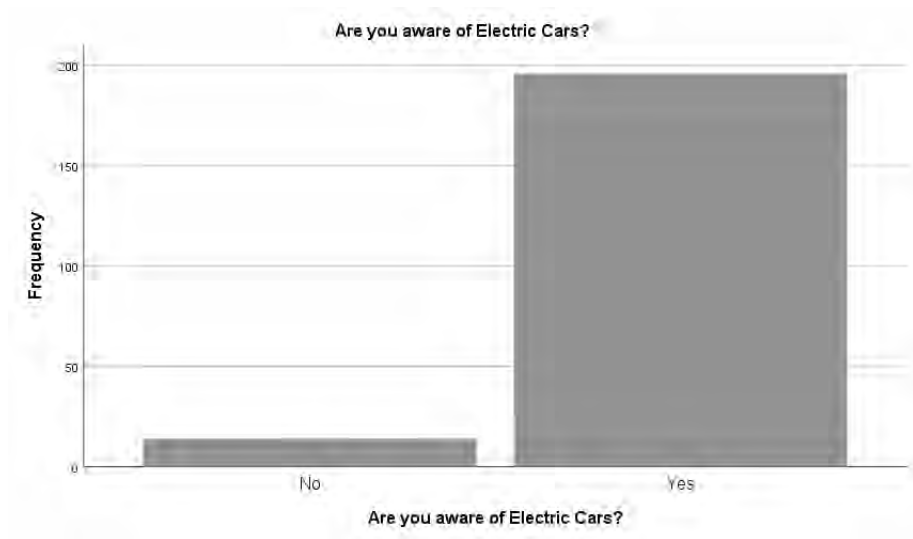
Table 7: Level of Awareness of Electric Vehicles

If yes, indicate your level of awareness about Electric Vehicles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High level of awareness	82	39.0	39.0	39.0
	Low level of awareness	45	21.4	21.4	60.5
	Medium level of awareness	83	39.5	39.5	100.0
	Total	210	100.0	100.0	

Figure 8: Level of Awareness of Electric Vehicles
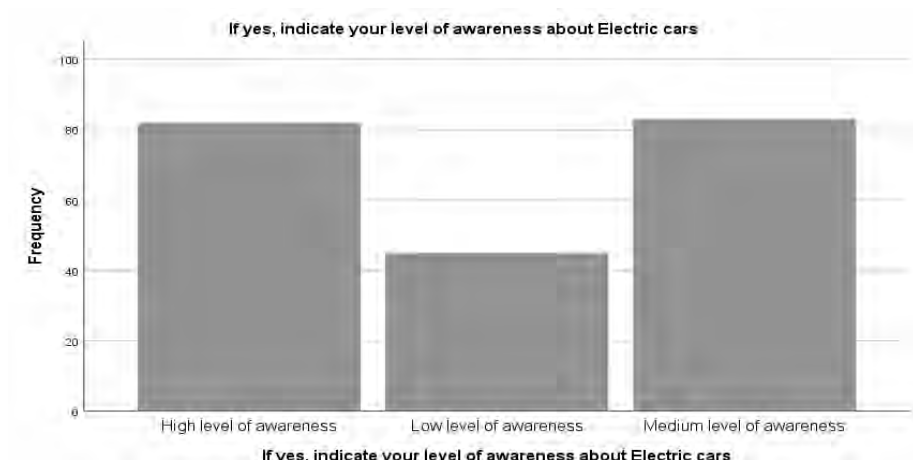
Table 8: Preference of buying Electric Vehicles

Would you prefer buying an electric car instead of an internal combustion engine vehicle?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	5	2.4	2.4	2.4
	No	69	32.9	32.9	35.2
	Yes	136	64.8	64.8	100.0
	Total	210	100.0	100.0	

Figure 9: Preference of buying Electric Vehicles
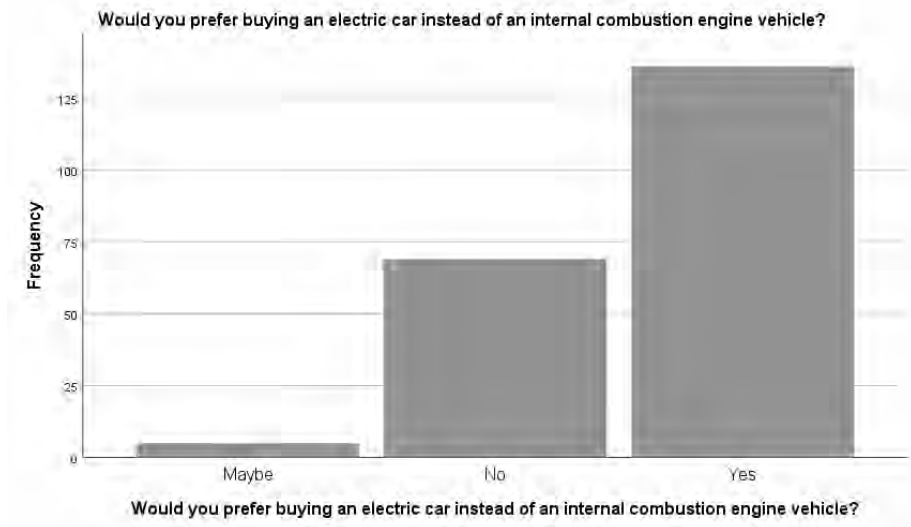
Table 9: Learning about Electric Vehicles

I have learned about Electric Vehicles through

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Blogs	6	2.9	2.9	2.9
	Cousins	1	.5	.5	3.3
	Customer reviews	10	4.8	4.8	8.1
	E-magazines	6	2.9	2.9	11.0
	I'm an Electrical Engineer	1	.5	.5	11.4
	I'm an Electrical Engineer and I have learned about electric vehicle in my undergraduation	3	1.4	1.4	12.9
	Magazines/news	4	1.9	1.9	14.8
	Online websites	27	12.9	12.9	27.6
	Social media	110	52.4	52.4	80.0
	Word of mouth	42	20.0	20.0	100.0
	Total	210	100.0	100.0	

Figure 10: Learning about Electric Vehicles
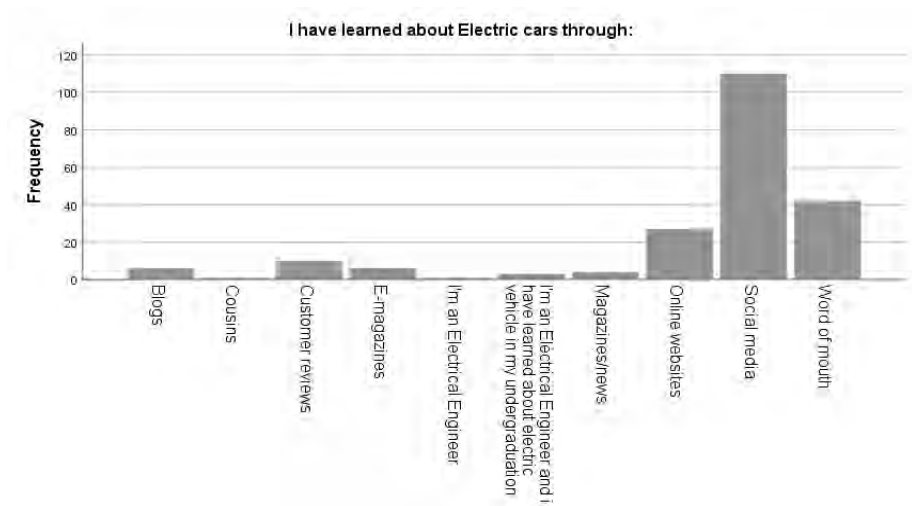
Based on the above tables and graphs, the level of awareness, consumer preferences and knowledge about the Electric vehicles could be analysed which will help in analysing the results of the tests conducted on SPSS.

RELIABILITY ANALYSIS

For this analysis, this section describes the reliability of the instrument used to collect data. The reliability is assessed before the key data is collected, through the internal accuracy of the data collected as a pilot analysis.

For this purpose, a pilot study sample of 31 respondents was collected and the reliability was measured using the Cronbach's Alpha test done using SPSS software. The results are shown below in Table 10.

Table 10: Reliability Analysis

Variables	Items	Cronbach's Alpha
Electric Vehicles	8	0.697
Fuel Costs	2	0.694
Technology	6	0.740
Infrastructure	3	0.705
Government Regulations	2	0.764
Green Transportation	3	0.884
Consumer Switching Behaviour	5	0.639
ALL VARIABLES	29	0.888

The above table represents the reliability factor loading of each variable of this study along with the cumulative reliability of all variables. Based on the results, the Cronbach's Alpha for "Electric Vehicles" came out to be 0.697 across 8 questions. The Cronbach's

Alpha for "Fuel Costs" was 0.694 across 2 questions. The Cronbach's Alpha for "Technology" was 0.740 across 6 questions. The Cronbach's Alpha for "Infrastructure" was 0.705 across 3 questions. The Cronbach's Alpha for "Government Regulations" was 0.764 across 2 questions. The Cronbach's Alpha for "Green Transportation" was 0.884 across 3 questions. The Cronbach's Alpha for "Consumer Switching Behaviour" was 0.639 across 5 questions. The total number of questions was 29 for which the cumulative Cronbach's Alpha came out to be 0.888. Since all these Cronbach's Alpha values were greater than the threshold of 0.6. It is concluded that the entire questionnaire has internal consistency and is accurate. The research will now proceed into studies of correlation and regression.

CORRELATION ANALYSIS

Correlation analysis is used to measure and determine the strength of a relationship between continuous variables. There are several methods of quantifying correlation values; the investigator will use the Pearson's Correlation model for the current study. This is a numerical measure given by Karl Pearson of the relation between two variables. The correlation coefficient is expressed by the word 'r' and varies between -1 and +1. The association is then verified using the p-value associated with it for meaning. The p-value should be less than 0.05 (5 percent) at a confidence interval of 95 percent, in order to be able to dismiss the null hypothesis associated with the variable. The relationship between all the variables selected for this study is represented by the Pearson correlation matrix below.

Table 11: Correlation Analysis

Correlations

		Electric Vehicles	Fuel Costs	Technology	Infrastructure	Government Regulations	Green Transportation	Consumer Switching Behaviour
Electric Vehicles	Pearson Correlation	1	.494**	.489**	.043	.260**	.283**	.494**
	Sig. (2-tailed)		.000	.000	.539	.000	.000	.000
	N	210	210	210	210	210	210	210
Fuel Costs	Pearson Correlation	.494**	1	.680**	.448**	.622**	.648**	.581**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	210	210	210	210	210	210	210

Technology	Pearson Correlation	.489**	.680**	1	.357**	.660**	.767**	.751**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	210	210	210	210	210	210	210
Infrastructure	Pearson Correlation	.043	.448**	.357**	1	.633**	.586**	.441**
	Sig. (2-tailed)	.539	.000	.000		.000	.000	.000
	N	210	210	210	210	210	210	210
Government Regulations	Pearson Correlation	.260**	.622**	.660**	.633**	1	.796**	.601**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	210	210	210	210	210	210	210
Green Transportation	Pearson Correlation	.283**	.648**	.767**	.586**	.796**	1	.658**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	210	210	210	210	210	210	210
Consumer Switching Behaviour	Pearson Correlation	.494**	.581**	.751**	.441**	.601**	.658**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	210	210	210	210	210	210	210

**Correlation is significant at the 0.01 level (2-tailed).*

The above table shows the results of the Pearson's correlation analysis performed using SPSS software. According to the results, the correlation coefficient of "Electric Vehicles" on "Consumer Switching Behaviour" is 0.494 with a p-value of 0.000, indicating that there is a significant positive association between the two variables of 49.4%. The correlation coefficient of "Fuel Costs" on "Consumer Switching Behaviour" is 0.581 with a p-value of 0.000, indicating that there is a significant positive association between the two variables of 58.1%. The correlation coefficient of "Technology" on "Consumer Switching Behaviour" is 0.751 with a p-value of 0.000, indicating that there is a significant positive association between the two variables of 75.1%. The correlation coefficient of "Infrastructure" on "Consumer Switching Behaviour" is 0.441 with a p-value of 0.000, indicating that there is a significant positive association between the two variables of 44.1%. The correlation coefficient of "Government Regulations" on "Consumer Switching Behaviour" is 0.601 with a p-value of 0.000, indicating that there is a significant positive association between the two variables of 60.1%. The correlation coefficient of "Green Transportation" on "Consumer Switching Behaviour" is 0.658 with a p-value of 0.000, indicating that there is a significant positive association between the two variables of 65.8%. Based on these results all alternate hypotheses (H_1-H_6) are accepted.

REGRESSION ANALYSIS

In order to evaluate the causal relation between the independent variables and the dependent variable, regression analysis is used. Regression analysis

is used in particular to figure out how much change happens in the dependent variable due to a difference in one predictor, while other independent variables are kept stable.

The analysis is divided into three parts: the first part is the model summary, followed by the ANOVA and the coefficients of regression. Details of these are given below.

Model Summary

Table 12: Regression Analysis: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.796[a]	.634	.623	2.13462

a. Predictors: (Constant), Green Transportation, Electric Vehicles, Infrastructure, Fuel Costs, Government Regulations, Technology

The model description decides the model's fitness. This illustrates how accurately the regression line in the scatter diagram reflects the actual results. The R-square value indicates the potential of the regression line in the dependent variable to account for the total variance.

Based on the results in the above table, the R-square value of 0.634 tells us that 63.4% variance in Consumer Switching Behaviour can be explained by the predicting variables affecting it. The R value of 0.796 shows that there is a high correlation between the observed and predicted values of the dependent variable.

ANOVA

Table 13: Regression Analysis: ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1601.006	6	266.834	58.560	.000[b]
	Residual	924.990	203	4.557		
	Total	2525.997	209			

a. Dependent Variable: Consumer Switching Behaviour
b. Predictors: (Constant), Green Trasnportation, Electric Vehicles, Infrastructure, Fuel Costs, Government Regulations, Technology

ANOVA stands for variance analysis. In the dependent variable, the total variance (sum of squares) is bifurcated into the regression sum of squares

representing the variance caused by the independent variables, and into the residual sum of squares representing the variance not caused by the independent variables. In the table above, it can be found that the variance induced by this study's independent variables is a large part of the overall variance. This demonstrates that strong variables are the independent variables selected for this analysis. The df shows the degrees of liberty associated with the variance's source. The total variance has N-1 degrees of freedom; hence it is 209 (N=210). Including the y-intercept, there are seven coefficients in the regression equation. Therefore, the degrees of freedom associated with the regression are 7-1=6. The regression means square value of 266.834 is calculated by dividing the regression sum of squares by the degrees of freedom. Similarly, this is how you measure the residual mean square. The F-statistic is the mean square of regression, divided by the residual mean square. According to the results provided above, the F-value of 58.560 is considerably higher with associated p-value of 0.00, which is less than 0.05. This indicates that the knowledge is statistically important. An F-value that is greater than 4 is usually considered to be statistically important.

Coefficients

Table 14: Regression Analysis: Coefficients

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.425	1.224		5.981	.000
Electric Vehicles	.190	.045	.222	4.219	.000
Fuel Costs	.109	.162	.044	6.674	.004
1 Technology	.446	.068	.509	6.542	.000
Infrastructure	.375	.115	.191	3.258	.001
Government Regulations	.124	.200	.048	5.622	.003
Green Transportation	.140	.146	.083	6.957	.002

a. Dependent Variable: Consumer Switching Behaviour

The table of coefficients reflects each independent variable's individual effect on the dependent variable. A ß (beta) denotes the regression coefficient, indicating the strength of the independent variable's effect on the dependent variable. According to the results, "Electric Vehicles" has a regression coefficient of 0.190 with "Consumer Switching Behaviour". This means that an increase of 1 unit in "Electric Vehicles" will bring about an increase of 0.190 units in "Consumer Switching Behaviour". The t-value associated

with this relationship is 4.219, which is greater than 2, with a p-value of 0.00, which is less than 0.05. This indicates that "Electric Vehicles" has a significant impact on "Consumer Switching Behaviour".

"Fuel Costs" has a regression coefficient of 0.109 with "Consumer Switching Behaviour". This means that an increase of 1 unit in "Fuel Costs" will bring about an increase of 0.109 units in "Consumer Switching Behaviour". The t-value associated with this relationship is 6.674, which is greater than 2, with a p-value of 0.04, which is less than 0.05. This indicates that "Fuel Costs" has a significant impact on "Consumer Switching Behaviour".

"Technology" has a regression coefficient of 0.446 with "Consumer Switching Behaviour". This means that an increase of 1 unit in "Technology" will bring about an increase of 0.446 units in "Consumer Switching Behaviour". The t-value associated with this relationship is 6.542, which is greater than 2, with a p-value of 0.00, which is less than 0.05. This indicates that "Technology" has a significant impact on "Consumer Switching Behaviour".

"Infrastructure" has a regression coefficient of 0.375 with "Consumer Switching Behaviour". This means that an increase of 1 unit in "Infrastructure" will bring about an increase of 0.375 units in "Consumer Switching Behaviour". The t-value associated with this relationship is 3.245, which is greater than 2, with a p-value of 0.01, which is less than 0.05. This indicates that "Infrastructure" has a significant impact on "Consumer Switching Behaviour".

"Government Regulations" has a regression coefficient of 0.124 with "Consumer Switching Behaviour". This means that an increase of 1 unit in "Government Regulations" will bring about an increase of 0.124 units in "Consumer Switching Behaviour". The t-value associated with this relationship is 5.622, which is greater than 2, with a p-value of 0.03, which is less than 0.05. This indicates that "Government Regulations" has a significant impact on "Consumer Switching Behaviour".

"Green Transportation" has a regression coefficient of 0.140 with "Consumer Switching Behaviour". This means that an increase of 1 unit in "Green Transportation" will bring about an increase of 0.140 units in "Consumer Switching Behaviour". The t-value associated with this relationship is 5.622, which is greater than 2, with a p-value of 0.02, which is less than 0.05. This indicates that "Green Transportation" has a significant impact on "Consumer Switching Behaviour".

Hypothesis Testing

Table 15: Hypothesis Testing

Hypothesis	Path	Co-efficient	t-value	p-value	Accept/Reject
H1	Electric Vehicles – Consumer Switching Behaviour	0.190	4.219	0.000	Accepted
H2	Fuel Costs – Consumer Switching Behaviour	0.109	6.674	0.000	Accepted
H_3	Technology – Consumer Switching Behaviour	0.446	6.542	0.004	Accepted
H_4	Infrastructure – Consumer Switching Behaviour	0.375	3.258	0.000	Accepted
H_5	Government Regulations – Consumer Switching Behaviour	0.124	5.622	0.001	Accepted
H_6	Green Transportation – Consumer Switching Behaviour	0.140	6.957	0.003	Accepted

Table 15 summarizes the results of the statistical tests performed using SPSS software to test the hypotheses. The results indicate that all 6 hypotheses ($H_1 - H_6$) have been accepted based on their t-values being greater than 2 and the associated p-values being less than 0.05.

DISCUSSION

Consumer switching behaviour is seen as a complex concept and marketing researchers consider it as a challenge that needs to be deciphered. Consumer switching behaviour comprises of information regarding what customers want, why do they want it and why they behave the way they do. Marketers are required to pay significant attention to consumer switching behaviour in order to develop strategies and plan to affect consumer behaviour accordingly. Consumers are considered as the most important factor that influences the success of an organization therefore, more satisfied consumers will lead to a more successful business and lesser switching behaviour.

A major development and growth has been noticed on the manufacturing and selling of electric vehicles. Consumer switching behaviour is highly influenced through new technology and innovation, especially in the automobile sector as customer desperately seek which vehicles are more updated and reliable than others.

CONCLUSION

This study offered a deeper look into electric vehicles and consumer switching behaviour from internal combustion engine vehicles. It considered the facets of electric vehicles to test its impact on consumer switching

behaviour pertaining to the automobile industry. The dependent variable was consumer switching behaviour, whereas the independent variables pertaining to electric vehicles taken into consideration were fuel costs, technology, infrastructure, government regulations and green transportation. The individual impact of every independent variable was tested on the dependent variable. All the hypotheses suggested at the beginning of this research were accepted, revealing that all electric vehicle components have a significant influence over the consumer switching behaviour.

FINDINGS

The growth in the sales of electric vehicles had seen a significant increase over the years mainly due to the technological development and reliance upon technological sources. The variables considered in this research were all considered with reference to electric vehicles.

According to the results, the correlation coefficient of Electric Vehicles on Consumer Switching Behaviour is 0.494 with a p-value of 0.000, indicating that there was a significantly positive association between the two variables of 49.4%. The correlation coefficient of Fuel Costs on Consumer Switching Behaviour was 0.581 with a p-value of 0.000, indicating that there was a significant positive association between the two variables of 58.1%. The correlation coefficient of Technology on Consumer Switching Behaviour was 0.751 with a p-value of 0.000, indicating that there was a significant positive association between the two variables of 75.1%. The correlation coefficient of Infrastructure on Consumer Switching Behaviour" was 0.441 with a p-value of 0.000, indicating that there was a significant positive association between the two variables of 44.1%. The correlation coefficient of Government Regulations on Consumer Switching Behaviour was 0.601 with a p-value of 0.000, indicating that there was a significant positive association between the two variables of 60.1%. The correlation coefficient of "Green Transportation" on "Consumer Switching Behaviour" was 0.658 with a p-value of 0.000, indicating that there was a significant positive association between the two variables of 65.8%. Based on these results all alternate hypotheses (H_1-H_6) were accepted.

RECOMMENDATIONS

Recommendations have been listed and suggested below that are based and focused on the findings of this study. The recommendations elaborate on the improvements that can be brought about in order to influence consumer switching behaviour more positively.

- Marketers should consider technological changes – Since there are technological advances being made globally, the automobile sector has become a part of it too. The successful are those brands which have started manufacturing electric vehicles under their brand names.

- Focus on infrastructure – Due to the increase in purchases of electric vehicles, there should be battery stations installed too in the country, since this will be a requirement within a few years.

- Consider healthy and green environment – Due to an increase in global warming, the environmentalists have been trying to spread awareness on minimum damage to protect the Earth. It will be beneficial for the manufacturers to adopt the eco-friendly model in the manufacturing of vehicles.

IMPLICATIONS OF THE STUDY

This study is presumed to offer a lot of benefits and opportunities for researches and studies that may be carried out in the future, especially considering the increasing importance of both consumer switching behaviour and electric vehicles for the manufacturers as well as the consumers.

REFERENCES

Bahamonde-Birke, F. J., & Hanappi, T. (2015). The Potential of Electromobility in Austria: An Analysis Based on Hybrid Choice Models. DIW Berlin, 30-41.

Britannica. (2020). Retrieved from https://www.britannica.com/technology/internal-combustion-engine

Business Standard. (2021). Retrieved from https://www.business-standard.com/about/what-is-electric-vehicle

Chron. (2020). Retrieved from https://smallbusiness.chron.com/concept-consumerswitching-behavior-65092.html

Dictionary.com. (2021). Retrieved from https://www.dictionary.com/browse/technology

Gilal, F. G., Gilal, N. G., Channa, N. A., Gilal, R. G., Gilal, R. G., & Tunio, M. N. (2020). Towards an integrated model for the transference of environmental responsibility. *Business Strategy and the Environment, 29*(6), 2614-2623.

Hodas, D. R. (2016). Integrating Vehicles and the Electricity Grid to Store and Use Renewable Energy. Widener University Delaware Law School Legal Studies Research Paper Series.

IGI Global Publisher of Timely Knowledge. (2021). Retrieved from https://www.igi-global.com/dictionary/green-retailing/52775

Investopedia. (2020). Retrieved from https://www.investopedia.com/terms/i/infrastructure.asp

Kass, M. J. (2018). The End of the Road for Gas-Powered Automobiles? NR&E.

Larson, W., & Zhao, W. (2017). Self-Driving Cars and the City: Long-Run Effects on Land Use, Welfare, and the Environment.

Law Insider. (2021). Retrieved from https://www.lawinsider.com/dictionary/fuel-costs

Memon, A.B., Meyer, K. and Tunio, M.N. (2021), "Toward collaborative networking among innovation laboratories: a conceptual framework", *International Journal of Innovation Science*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJIS-04-2021-0069

Moons, I., & Pelsmacker, P. d. (2015). Self-Brand Personality Differences and Attitudes towards Electric Cars. *Sustainability*, 12322-12339.

Pandey, D., Manocha, D., & Saini, D. (2020). A STUDY ON AN AUTOMOBILE REVOLUTION AND FUTURE OF ELECTRIC CARS IN INDIA. *International Journal of Management,* 107-113.

Rivers, N., & Wigle, R. (2018). REDUCING GREENHOUSE GAS EMISSIONS IN TRANSPORT: ALL IN ONE BASKET? *The School of Public Policy Publications*.

Stein, A. L., & Fershee, J. (2018). Decarbonizing Light-Duty Vehicles. *University of Florida Levin College of Law Legal Studies Research Paper*.

Stringham, E. P., Miller, J. K., & Clark, J. R. (2015). Overcoming Barriers to Entry in an Established Industry: Tesla Motors. *California Management Review*, 85-103.

The Free Dictionary by Farlex. (2021). Retrieved from https://www. thefreedictionary.com/Government+Regulations

Tripathy, A., Shanker, B., & P, K. (2018). Future of Indian Auto Industry: Choices and Challenges. *Working Paper*.

Wolff, S., & Madlener, R. (2018). Driven by Change: Commercial Drivers' Acceptance and Perceived Efficiency of Using Light-Duty Electric Vehicles in Germany. *FCN Working Paper*.

XiMei, L. I. U., ChangFeng, W. A. N. G., Rasheed, S., & Tunio, M. N. (2016). Shadow Price of the Oil Industry. *International Journal of u-and e-Service, Science and Technology, 9*(12), 281-290.

CPEC AND ITS CORRELATION WITH SOCIAL AND ECONOMIC DEVELOPMENT OF PAKISTAN

Dr. Santosh Kumar, Sabeen Azam, and Zain-ul-Abdin Arijo

ABSTRACT

The visualization of mutual success and economic development is linked to provincial connectivity and growth. The establishment of the China-Pakistan Economic Corridor is based on this concept (CPEC). One of the primary projects of CPEC is the development of new transportation infrastructure, including the Gwadar Port Project and other energy generation projects. The Everlasting friendship of Pakistan and China has been proven. The China is promoting the regional economy of Pakistan. The key plan that led to the creation of CPEC is China's pilot project of the "Belt and Road Initiative." CPEC is projected to minimize China's transportation costs by offering a shorter route for Chinese trade to the Persian Gulf, as well as provide a solution to Pakistan's energy shortages. Furthermore, despite the CPEC's predicted economic growth chances, Pakistan faces some economic, security, and political risks. This paper aims to illustrate the China Pakistan Economic Corridor's significant geostrategic importance, opportunities, and challenges, as well as to broaden the base. As a result, this paper provides a comprehensive view of previous research on the planned subject and does not involve any data analysis, as previous researches had done for reviewing an assessment of challenges and prospects.

INTRODUCTION

The China-Pakistan Economic Corridor (CPEC) is an important project of the Belt and Road Initiative proposed by Chinese President Xi Jinping. CPEC is a framework and platform for comprehensive and effective cooperation between China and Pakistan. The CPEC is an important milestone agreed upon by the leaders of the two countries, with special emphasis on advancing the journey of construction and development through this mega project.

CPEC has the full support of the political parties and the people of both the countries (Abid and Ashfaq, 2015; Tunio, et al., 2021).

In May 2013, Chinese Prime Minister Li Keqiang proposed CPEC during his visit to Pakistan, which was immediately met with a positive response and importance from the Pakistani government. During Prime Minister Nawaz Sharif's visit to China in July 2013, a memorandum of understanding was signed to start work on the CPEC. So far, the implementation of big and important projects has been going on in an efficient and consistent manner. Moreover, it is on a journey of constructive development. The CPEC is being implemented with complete planning over time. It is playing a key role in promoting bilateral cooperation between China and Pakistan (Ahmed, et.al. 2017; Tunio, et al., 2021).

CPEC is central to the journey of strengthening the everlasting strategic partnership between Cochin and Pakistan and achieving common building and development. CPEC is fueling Pak-China relations with a new dimension and a new vision. The CPEC will benefit the whole of Pakistan as a whole and will bring many benefits to the people of Pakistan. The CPEC will effectively promote Pakistan's economic and social development. The construction of CPEC will enhance the development strategy of China and Pakistan as well as increase integration in which the interest of the people of both the countries is hidden. Similarly, under CPEC, the two countries are committed to building and developing with a standard and comprehensive strategy and completing a number of major projects that are yielding positive results, and to the people of other countries in the region besides China and Pakistan It is also benefiting (Abid & Ashfaq, 2015; Tunio, et al., 2021).

THE PRINCIPLES OF CPEC CONSTRUCTION

As a large and well-organized project, CPEC's construction journey spans 2030-2017. Successful co-operation of CPEC requires joint and tireless efforts of the governments, companies and all social sectors of China and Pakistan. In the process of its construction, the two sides agreed on the principles of scientific planning, consistent implementation, consensus through consultation, mutual benefits and win-win results, as well as ensuring quality and safety. The two sides agreed to compile a list of priority or early harvest projects as well as long-term plans for CPEC. Priority or Early Harvest projects are projects that will be completed before 2018 or 2020 (hydropower projects). CPEC is a long-term plan that will be fully completed by 2030. In the planning and construction process of CPEC, the two sides

agreed that the governments of the two countries should play their role in providing guidance and companies should invest in accordance with the rules of the market. The two governments and companies are working together in a clear division of labor as well as in cooperation to promote the development of CPEC in a sustainable manner (Ahmed, et.al., 2017; Katper, et al., 2020).

AREAS COVER BY CPEC

Pakistan and China have agreed to promote special economic cooperation as a blueprint for "1 + 4" in which the central role of CPEC as well as Gwadar port, energy, transport infrastructure and Four key areas, including industrial cooperation, have been identified to promote win-win results and joint development. In the medium to long-term planning, the two sides will look for opportunities to promote cooperation in areas such as financial services, science and technology, tourism, education, poverty alleviation and city planning, and expand over time so that China - The scope of Pakistan All Round Co-operation can be further expanded (Alam, Li & Baig, 2019; Tunio, et al., 2021).

THE CPEC COLLABORATION MECHANISM

China and Pakistan have formed the Joint Cooperation Committee (JCC) to take the CPEC project journey forward smoothly and efficiently. The Joint Cooperation Committee has five joint working groups, including long-term planning, energy, transport infrastructure, industrial cooperation, and Gwadar port. The Secretariat of the JCC is present in the National Development and Reform Commission of China and the Ministry of Planning, Development and Reform of Pakistan respectively. The two Secretariats are responsible for dialogue and coordination with the Ministries to advance the journey of construction and development through the implementation of CPEC. The Joint Coordination Committee promotes CPEC's overall planning and bilateral cooperation. The Joint Working Groups are responsible for the effective planning and implementation of projects. Nine meetings of the Joint Coordination Committee have been convened by January 2020 and it has been agreed to jointly move forward on several issues related to CPEC while this committee is playing a key role in promoting the construction of CPEC (Ahmed et.al. 2017; Chaudhry, et al., 2021).

PROGRESS IN GWADAR PORT UNDER CPEC

The port of Gwadar, located at the southern tip of the CPEC, is one of the major projects of the mega project. China Overseas Ports Holding Company Limited (COPHC) has undertaken the work of improving and expanding

the facilities at the port and now the port has restored its designed capacity. Cargo liners have been arriving at the port every month since mid-2016. On November 13, 2016, the first commercial convoy of the CPEC pilot project was held at Gwadar Port. Meanwhile, a convoy of China-Pakistan joint trucks carrying goods from both the countries reached Gwadar port. This was the first time that a trade convoy successfully reached the western region of Pakistan from north to south. Today, Gwadar port is exporting many containers to foreign countries. Conway paved the way for Gwadar port from Pakistan and introduced a new dimension to the system of providing facilities in this port (Alam, Li, & Baig, 2019; Memon, et al., 2021).

China and Pakistan are working together to bring the East Bay Expressway project and the New Gwadar International Airport project to fruition. The two sides are working together to make the Gwadar Smart Port City Master Plan a reality. Under CPEC, efforts have been made to improve the living standards of the local people, especially through educational and medical projects. In Faqir Colony, projects like Pak-China Friendship Primary School, Gwadar, Gwadar Hospital, Gwadar Vocational College, and Water Desalination Plant have been completed on priority basis (Ali et al., 2018).

PROGRESS IN THE ENERGY SECTOR UNDER CPEC

It is an indisputable fact that the energy sector is a source of strength for economic growth and the sustainable development of Pakistan's economy also depends on the energy sector. The launch of the China-Pakistan Economic Corridor in Pakistan has accelerated the construction of energy projects and today the fruits of this mega project have helped in achieving sustainable development in Pakistan by overcoming the energy crisis. Under the two sides, 16 projects have been made part of the top priorities while 5 are under construction. The total power generation of all of them will be 17045 MW (Alam, Li, & Baig, 2019; XiMei, et al., 2016).

Out of the 16 priority projects under CPEC, 9 projects have been activated and added to the national grid while work on the rest is in progress. Energy projects completed by end of 2019 include Bahawalpur Punjab's 400 MW Quaid-e-Azam Solar Park, 50 MW Dawood Wind Farm, Sachal 50 MW Wind Farm, Port Qasim 2 × 660 MW Coal Fired Power Plant, Sahiwal 2 × 660 MW Coal Fired Power The plant includes 660 MW Hubco Coal Power Plant, 100 MW Jhampir UEP Wind Farm, China Three Gorges Second and Third Power Project and 2 × 330 MW Engro Thar Coal Power and Mine Project. Projects like 1320 MW Thar Block One, 330 Hubco Thar Coal Power Project, 330

Thal Nova Thar Coal Power Project Block Two, 720 MW Krut Hydro Power Project, 600 MW Quaid-e-Azam Solar Park and Lahore transmission line from Matiari (Port Qasim) are underway. Kohala Hydro Power Project, 300 MW Gwadar Coal Project, 1320 MW Thar Coal Project Block-Six, 50 MW Kachu Wind Power Project and 50 MW Western Energy Pvt. Ltd. Wind Power Project are also included in the plan (Ali et.al., 2018).

PROGRESS IN THE FIELD OF TRANSPORT INFRASTRUCTURE UNDER CPEC

Efficient and faster transportation networks are critical to economic growth. CPEC will definitely pave the way for North-South corridor in Pakistan. The Sukkur-Multan Motorway (M-M) is currently one of the six Early Harvest Projects worth 15 15,000 million in infrastructure, with the existing road network being utilized and scientific principles planned on a priority basis to ensure the restoration of disconnected links. The Thakot-Havelian section of Karakoram Highway is nearing completion. In addition, East Bay Expressway, Gwadar and New Gwadar International Airport are under construction and matters related to NDI Khan-Zhob Motorway and ML-1 Railway. The ninth meeting of the CC reiterated its commitment to deal. Similarly, the Public Sector Development Program includes 5 CPEC infrastructure projects costing 15 15,000 million, of which Lahore-Multan Motorway, Sohrab-Khushab and Gwadar-Turbat-Khushab have reached completion while Hukla-DI Khan Motorway and Zhob Work on the Kochalak Expressway is in progress (Ali et al., 2018).

PROGRESS IN THE FIELD OF INVESTMENT AND INDUSTRIAL COOPERATION UNDER CPEC

Industrial cooperation is one of the most important areas of CPEC. Industrial cooperation is of utmost importance for expanding and expanding economic cooperation between the two countries as well as paving new avenues of development. It is also an indisputable fact that huge opportunities for cooperation in this sector are being exploited. The future can be assured. In this regard, China has the distinction of experience, technology, financing and industrial capabilities while Pakistan can benefit from its resources, manpower and favorable market conditions. At the same time, the two countries can move forward to further promote industrial cooperation and achieve mutual benefits and win-win results (Alam, Li, & Baig, 2019; Tunio, et al., 2021).

Similarly, under the framework of CPEC, the two countries launched two

industrial cooperation projects, including the Haier-Roba Economic Zone (2006) Phase II and the Gwadar Free Zone. The groundbreaking ceremony of Gwadar Free Zone was held on September 1, 2016, which drew the attention of the business community to CPEC. Under the CPEC framework, China Overseas Ports Holding Company Limited (COPHC) has ensured the construction of Gwadar Free Zone. China is keen to provide high quality industrial capabilities to its longtime friend and ally Pakistan and to encourage well-known Chinese companies to invest in Pakistan. Pakistan, meanwhile, is expected to determine the locations of the special economic zones in a polite and thoughtful manner and to formulate preferential policies in the special economic zones of mutual consent as well as to provide favorable environment and facilities. Similarly, the two countries have been negotiating with each other to further strengthen industrial cooperation and it is hoped that the two countries will reap economic and social benefits through the Phase War Win-Win projects (Ali et al., 2018; Shaikh, et al., 2021).

The Chinese government has provided interest-free loans for laying optical fiber cable from Rawalpindi to Khanjarab, and construction began in April 2016. In addition, the Chinese company has finalized a feasibility study on the use of digital terrestrial multimedia broadcasts in Pakistan. The two countries are working on a long-term plan for the CPEC, which has been finalized (Butt & Butt, 2015).

THE PLANS OF CPEC IN WESTERN PAKISTAN

CPEC has immense opportunities for construction and development for Pakistan as a whole and will benefit not only the people of the Western region but the people of the country. Many CPEC projects are in progress in the western part of Pakistan. For example, the Karakoram Highway (Thakot to Havelian) Phase-II and Ski Kanari hydropower plants are in Khyber Pakhtunkhwa. Similarly, China-Pakistan Cross Border Fiber Optic Cable Project and ML1 Railway Upgradation (Framework Agreement under discussion till December 2016) also pass-through Khyber Pakhtunkhwa. Peshawar and Quetta have been added to the CPEC roads as central. Burhan-DI Khan and Quetta to Sohrab roads have been included as short-term projects in the CPEC Transport Monographic Study approved in the fifth meeting of the Joint Cooperation Committee. Gwadar Port, Gwadar Free Zone, Gwadar East Bay Expressway. Gwadar International Airport, Gwadar Coal Fired Power Plant and Hubco Coal Fired Power Plant are all projects in Balochistan Province (Butt & Butt, 2015).

THE BENEFITS TO ALL THE PAKISTANI REGIONS UNDER CPEC

The "One Corridor, Multiple Passages" agreement between China and Pakistan aims to promote the economic and social development of all of Pakistan's provinces while also offering effective connection to the port of Gwadar. The Western Route is an essential component of the CPEC. At the moment, significant efforts are being made to improve road connectivity in Pakistan's western regions, and China is working with Pakistan to help establish favorable circumstances for attracting investment in Pakistan's western and northern regions. CPEC is gradually playing an essential role in fostering economic growth and enhancing living conditions in different areas of Pakistan, thanks to the implementation of numerous projects. (Chen, Joseph, & Tariq, 2018; Tunio, 2020[1]).

CPEC: KNOWN ADVANTAGES AND DISADVANTAGES

There are costs and benefits to mamma projects. There are also aspects of the Pak-China Economic Corridor project that could have a negative impact on the benefits. It is important to identify these aspects in a timely manner and to address their negative effects. CPEC has the potential to be a game changer for Pakistan. This is such a big project that if it is completed in a timely and reliable manner, it will change the economic geography of the country. Earlier, the project that paved the way for massive economic and social change in Pakistan was the Indus Water Works project, which included the construction of the Mangla and Tarbela dams as well as thousands of kilometers of canals. As a result, there are now two crops a year where even the first straw did not grow and where there were deserts until the 1970s, there are now laughing towns (Butt & Butt, 2015).

One of the results of the Indus Water Works project was that the two eastern provinces (Punjab and Sindh) grew rapidly and expanded to include urban areas, while the western provinces (Khyber Pakhtunkhwa and Balochistan) were underdeveloped or backward. Are left and are still at the mercy of the overall national economy. Now CPEC 's western route heralds development prospects for Balochistan and Khyber Pakhtunkhwa (Chen, Joseph, & Tariq, 2018).

CPEC also has the potential to change the political geography of the entire region. Culturally and politically, Pakistan is located on the shores of South and West Asia. Sindh and Punjab are definitely part of South Asia. Balochistan and Khyber Pakhtunkhwa are located in West Asia more than the South. There is a Punjab in India and a Balochistan in Iran. In the Punjab

of India and Pakistan, the same type of Punjabi is spoken, while in Pakistani Balochistan and Iranian Sistan Balochistan, besides Balochi, Persian is also spoken and understood. Gilgit-Baltistan and the Khyber Valley have centuries-old cultural and economic ties with China, Xinjiang and Central Asia (Butt & Butt, 2015).

Economic ties with Xinjiang and Central Asia were severely affected in the early twentieth century due to geographical and geographical reasons and had not improved for some time. It was as if the world did not exist for Gilgit-Baltistan and the north and northwest of Afghanistan. CPEC wants to open many doors to the North and Northwest, including broader economic prospects. South Asia is home to the Pakistani ports of Gwadar and Iran's Chahbahar, which, although symbolic, have the potential to flourish as twins. Today, Pakistan is largely a player in the political and economic arena of South Asia. With the completion of the CPEC, it will emerge as a force in Central and West Asia that will be very difficult to ignore. Pak-Russia and Pak-China measures to ensure peace and stability in Afghanistan should be seen in this context (Chen, Joseph, & Tariq, 2018).

Speaking of the East, the way will be paved for easing Pak-India tensions at the hands of CPEC. Chinese trucks loaded with commercial goods will also cover a distance of 2,000 km from Kashgar to Gwadar or from Gwadar to Kashgar via Hassan Abdal, which is just 5 km from the Indian border. The 5 km route from Kashgar to Hassan and Amritsar can also be very attractive for China as India is also an emerging and attractive economic market. It should be kept in mind that the trade between Shanghai and Mumbai by 5,000 km of sea routes is worth more than 5 billion (Kanwal et al., 2019).

There is a strong possibility that the Chinese government will put pressure on Pakistan to allow trucks carrying Chinese goods on the Hassan Abdal-Wagah route to and from India. And similarly, Indian trucks can be forced to use the Amritsar, Hassan Abdal, Kashgar route to Pakistan. Thus, Indian trucks enter Pakistani territory and go to Kashgar via Hassan Abdal. And so, the issue of allowing Indian trucks to go to Kabul, 3 km away from Hassan Abdal, could also arise. At first glance, this may not seem possible, but in the future, the barriers to trade between Pakistan, India and Afghanistan will fall, just as the Berlin Wall fell (Chen, Joseph, & Tariq, 2018).

The CPEC equation between Pakistan and China seems to be largely focused on India. It should be borne in mind that India and China are not traditional and eternal enemies of each other, despite a long confrontation

over armed conflict, border disputes and superiority. At present, the trade between Pakistan and China is 12 billion to 3 billion annually, while the trade between China and India is more than □ 2 billion annually. There is no possibility of any kind of war between China and India and it would be ridiculous to think that China will ever fight a war with India for the sake of Pakistan. China is currently trying its best to persuade India to be a part of the Belt and Road project and the time is not far when India, albeit on a limited scale, will agree to be a formal part of this great project. And when that happens, Pakistan's strategy of using China as a shield against India will lose its impact and impression (Kanwal et al., 2019).

POSSIBLE RISKS

There is a cost to any big project and there are many potential effects as well as benefits. CPEC is no exception. When considering the potential benefits of this great project, one must also consider its social impact. At the same time, steps must be taken to eliminate these effects (Chen, Joseph, & Tariq, 2018).

NATIONAL ECONOMY

CPEC poses three major threats to the national economy based on the principles of the whole economy. These risks are related to the manufacturing sector, balance of payments stability and financial balance stability (Kanwal et al., 2019; Tunio, 2020).

POTENTIAL IMPACTS ON THE MANUFACTURING SECTOR

If effective precautionary measures are not taken, the manufacturing sector in Pakistan will face two major threats from CPEC. With regard to the Afghan transit trade through the port of Karachi, it is also said that a large number of goods are stopped within the borders of Pakistan, i.e., they do not reach their destination in Afghanistan. These cheap goods are sold across Pakistan, as a result of which the domestic units manufacturing these goods have been shut down. Gwadar-Kashghar traffic is another name for China's transit trade. And this transit trade is a thousand times more than the Afghan transit trade. If even one per cent of China's transit trade is diverted within Pakistan's borders, its severe negative impact on the manufacturing sector here can be well assessed (Makhdoom, Shah, & Sami, 2018; Tunio, et al., 2017).

Past experience clearly shows that tax exemptions for a few industries or regions have less positive and more negative effects. Doing so does little to benefit the economy and worsens the situation. The tax breaks that are being

given to Chinese companies in respect of CPEC will prove to be a poison for Pakistan's manufacturing sector and it will be extremely difficult or almost impossible for local industries to ensure their survival (Kanwal et al., 2019).

The argument that taxes exemptions are available to all entities (without nationality) in the relevant industrial areas is completely baseless. Experience has shown that whenever a tax exemption is announced for an industrial area, large industrial enterprises invest only a few units in that area to obtain a tax exemption on products manufactured by their other units across the country. Thus, they succeed in causing irreparable damage to the national treasury. The Gadoon Amazee Industrial Zone is a classic example of this. Foreign industrial and commercial enterprises will not shy away from taking full advantage of any such situation (Makhdoom, Shah, & Sami, 2018).

STABILITY OF BALANCE OF PAYMENTS

In spite of the occasional extraordinary crisis, Pakistan has somehow managed to keep its balance of payments stable. A decrease in exports of goods and services or an increase in imports makes the balance of payments unfavorable or negative. Since then, the share of income (to some extent services) in the balance of payments has been negative, which requires immediate attention (Kanwal et.al., 2019; Afshan, et al., 2021).

The revenue deficit is mainly due to the privatization of various institutions in the banking and telecom sector and the increase in foreign direct investment in the services sector (food, retail sectors, etc.). Foreign companies make profits in the form of rupees but send them through foreign exchange. Foreign institutions do nothing to pave the way for Pakistan to earn foreign exchange. Even if some of these companies produce some items locally, there is no question of exporting them. It is straightforward that foreign exchange is only going to and from Pakistan through foreign industrial or commercial enterprises (Makhdoom, Shah, & Sami, 2018; Tunio, et al., 2021[5]).

The full domestic or foreign-assisted investment in CPEC is either in the form of loans or in the form of direct investment. On foreign loans, a good deal of foreign exchange will go in the form of interest and then in the name of profit, a good deal of foreign exchange will be run from Pakistan. If significant attention is not paid to ensuring the inflow of foreign exchange into Pakistan, no one will be able to stop the extraordinary balance of payments crisis from escalating. As a result, Pakistan's political and economic sovereignty may be at stake (Butt & Butt, 2015).

FINANCIAL STABILITY

First, we need to look at security costs. CPEC requires Pakistan's commitment to provide comprehensive and flawless security to trade convoys on land and at sea. Special units are being set up for this purpose. If not funded independently, all these expenses will be paid from the national treasury or the federal budget. Funding can be provided from three or more sources to cover the cost.

* Pay directly to countries whose caravans are being provided security.

* Direct funding should be provided from the income generated from CPEC. For example, a portion of the revenue from the port of Gwadar should be earmarked for security measures.

* The third way is to make the cost of security measures for CPEC convoys part of the budget. In such a case, this burden will have to be borne by the entire nation. Those who will benefit from CPEC will also pay taxes and those who have nothing to do with the benefits of the scheme will also be required to pay taxes. If the amount spent on security measures is more than the revenue from Gwadar port, then there is nothing for Pakistan in this project (Makhdoom, Shah, & Sami, 2018).

FRESHWATER SUPPLY

Large-scale freshwater supply is a major problem in Gwadar, but it is usually suppressed under one pretext or another so as not to be debated. The immediate answer is that dams will be built for this purpose. It is ignored that dams store water, not produce it.

Much also depends on how a plan is prepared. The extent to which CPEC will be beneficial to Pakistan depends on how the various phases of the project are prepared and how they are implemented. There are a lot of claims being made about CPEC and a lot of comments. Although not all the CPEC 's good components seem to have been developed on the basis of experience, the relevant data and facts have not yet been made public (Butt & Butt, 2015).

Rain is the only source of fresh or clean drinking water on the entire coastline of Balochistan, including Gwadar. It does not rain regularly in Balochistan. Droughts can sometimes last up to three years (Nabi et al., 2018).

This problem can be solved to some extent by desalinating sea water. But it is not a cheap bargain to make sea water sweet or drinkable. And if

something is put in the budget for this purpose, it will put more burdens on the people. The budget deficit will increase which will result in more taxes on the people and as a result the graph of inflation will rise further. If Gwadar is to be developed as a major port and it seems so, then drinking water will have to be provided on a large scale and as a result the sea water will be desalinated and made drinkable. Will be an option greater than If there is no separate funding for this purpose and the burden on the national budget itself is increased, the benefits of CPEC will be at stake. If the expenditure on the supply of clean water to Gwadar exceeds the revenue received from the port of Gwadar in the form of CPEC, then nothing is left for us in this great project (Chen, Joseph, & Tariq, 2018).

So far, the possible negative aspects of CPEC that we have mentioned are not of a permanent nature, i.e., if all these issues are reviewed in a timely manner and significant steps are taken to rectify them, then CPEC can be made more productive. If these potential concerns are not addressed, the historian will write something about CPEC, and the term game over will come to mind instead of game changer (Chen, Joseph, & Tariq, 2018).

QUESTION OF CONNECTION WITH BALOCHISTAN

CPEC is Gwadar and Gwadar are Balochistan. If the economic benefits of CPEC to Balochistan are not significant, then CPEC is of no importance to Balochistan. It has already been suggested that if the various backward areas are not interconnected, urban areas are given more development and human resource development is not ensured, then nothing can be recovered from the cradle of CPEC for Balochistan (Khetran & Saeed, 2017).

In addition to the revenue from the port of Gwadar, a significant share of the revenue from the toll of Balochistan's highways must be ensured for Balochistan. This will be an effective way to make CPEC more relevant and fruitful for Balochistan. Balochistan's share of revenue can also be increased by recruiting Balochistan youth in units designed to ensure the security of the CPEC route. If this is not done, the security units deployed across Balochistan to protect the CPEC route will be seen as an occupying force (Malik, 2018).

With the completion of the CPEC, the population balance in Gwadar is likely to deteriorate completely. On the one hand, people from all over Pakistan will turn to Gwadar and on the other hand, a large number of foreign workers will also come. As a result, the Baloch population in Gwadar and adjoining areas will remain a minority. Relevant constitutional, legal, and

administrative measures are required to prevent the Baloch population of Gwadar and adjoining areas from becoming a minority (Nabi et al., 2018).

CONCLUSION

As a result, the research suggests that, considering the Sino-Pakistani Economic Corridor, both nations should approach it from an international perspective, rather than only for mutual benefit. Pakistan should take substantial steps in this respect to protect the safety and security of authorities participating in the project as well as project staff It is also hoped that these projects will help in promoting employment and tax collection, strengthening provincial connectivity at the provincial level, promoting economic growth as well as improving the living standards of the people. By connecting both nations through subsidiary links starting from China and Pakistan, CPEC has the potential to turn an unstable economic scenario into a stable and peaceful area, as well as stimulate global growth.

REFERENCES

Abid, M., & Ashfaq, A. (2015). CPEC: Challenges and opportunities for Pakistan. *Journal of Pakistan Vision*, *16*(2), 142-169.

Afshan, G., Shahid, S. and Tunio, M.N. (2021), "Learning experiences of women entrepreneurs amidst COVID-19", *International Journal of Gender and Entrepreneurship, 13*(2), pp. 162-186. https://doi.org/10.1108/IJGE-09-2020-0153

Ahmed, A., Arshad, M. A., Mahmood, A., & Akhtar, S. (2017). Neglecting human resource development in OBOR, a case of the China–Pakistan economic corridor (CPEC). *Journal of Chinese Economic and Foreign Trade Studies*.

Alam, K. M., Li, X., & Baig, S. (2019). Impact of transport cost and travel time on trade under China-Pakistan economic corridor (CPEC). *Journal of Advanced Transportation*, *2019*.

Ali, Y., Rasheed, Z., Muhammad, N., & Yousaf, S. (2018). Energy optimization in the wake of China Pakistan Economic Corridor (CPEC). *Journal of Control and Decision, 5(2),* 129-147.

Butt, K. M., & Butt, A. A. (2015). Impact of CPEC on regional and extra-regional actors. *The Journal of Political Science*, *33*, 23.

Chaudhry, I. S., Paquibut, R. Y., & Tunio, M. N. (2021). Do workforce diversity, inclusion practices, & organizational characteristics contribute to organizational innovation? Evidence from the UAE. *Cogent Business & Management, 8*(1), 1947549.

Chen, X., Joseph, S. K., & Tariq, H. (2018). Betting big on CPEC.

Kanwal, S., Pitafi, A. H., Pitafi, A., Nadeem, M. A., Younis, A., & Chong, R. (2019). China–Pakistan Economic Corridor (CPEC) development projects and entrepreneurial potential of locals. *Journal of Public Affairs*, *19*(4), e1954.

Katper, N. K., Tunio, M. N., Hussain, N., Junejo, A., & Gilal, F. G. COVID-19 Crises: Global Economic Shocks vs Pakistan Economic Shocks (2020). *Advances in Science, Technology and Engineering Systems Journal, 5*(4), 645-654.

Khetran, M. S. B., & Saeed, M. A. (2017). The CPEC and China-Pakistan relations: a case study on Balochistan. *China Quarterly of*

International Strategic Studies, *3*(03), 447-461.

Makhdoom, A. S., Shah, A. B., & Sami, K. (2018). Pakistan on the roadway to socio-economic development: A comprehensive study of China Pakistan Economic Corridor (CPEC). *The Government-Annual Research Journal of Political Science.*, *6*(6).

Malik, A. R. (2018). The China–Pakistan Economic Corridor (CPEC): a game changer for Pakistan's economy. In *China's Global Rebalancing and the New Silk Road* (pp. 69-83). Springer, Singapore.

Memon, A.B., Meyer, K. and Tunio, M.N. (2021), «Toward collaborative networking among innovation laboratories: a conceptual framework», International Journal of Innovation Science, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJIS-04-2021-0069

Nabi, G., Ullah, S., Khan, S., Ahmad, S., & Kumar, S. (2018). China-Pakistan Economic Corridor (CPEC): melting glaciers—a potential threat to ecosystem and biodiversity. *Environmental Science and Pollution Research*, *25*(4), 3209-3210.

Shaikh, E., Tunio, M. N., & Qureshi, F. (2021). Finance and women's entrepreneurship in DETEs: A literature review. *Entrepreneurial Finance, Innovation and Development*, 191-209.

Tunio, M. N. (2020)[1]. Academic entrepreneurship in developing countries: contextualizing recent debate. *Research Handbook on Entrepreneurship in Emerging Economies*.

Tunio, M. N. (2020)[2]. Role of ICT in promoting entrepreneurial ecosystems in Pakistan. *Journal of Business Ecosystems (JBE), 1*(2), 1-21.

Tunio, M. N., Chaudhry, I. S., Shaikh, S., Jariko, M. A., & Brahmi, M. (2021)[1]. Determinants of the Sustainable Entrepreneurial Engagement of Youth in Developing Country–An Empirical Evidence from Pakistan. *Sustainability, 13*(14), 7764.

Tunio, M. N., Jariko, M. A., Børsen, T., Shaikh, S., Mushtaque, T., & Brahmi, M. (2021)[2]. How Entrepreneurship Sustains Barriers in the Entrepreneurial Process–A Lesson from a Developing Nation. *Sustainability, 13*(20), 11419.

Tunio, M. N., Shaikh, E., & Lighari, S. (2021)[3]. Multifaceted perils of

the Covid-19 and implications: A Review. *Studies of Applied Economics, 39*(2).

Tunio, M. N., Soomro, A. A., & Bogenhold, D. (2017). The study of self-employment at SMEs level with reference to poverty in developing countries. *Business and Management Research, 6*(2), 33-39.

Tunio, M. N., Yusrini, L., & Shoukat, G. (2021)[5]. Corporate Social Responsibility (CSR) in Hotels in Austria, Pakistan, and Indonesia: Small and Medium Enterprise Spillover of COVID-19. *In Handbook of Research on Entrepreneurship, Innovation, Sustainability, and ICTs in the Post-COVID-19 Era* (pp. 263-280). IGI Global.

Tunio, M. N., Yusrini, L., Shah, Z. A., Katper, N., & Jariko, M. A. (2021)[4]. How Hotel Industry Cope up with the COVID-19: An SME Perspective. *Etikonomi, 20*(2), 213-224.

XiMei, L. I. U., ChangFeng, W. A. N. G., Rasheed, S., & Tunio, M. N. (2016). Shadow Price of the Oil Industry. *International Journal of u-and e-Service, Science and Technology, 9*(12), 281-290.

INFLUENCE OF DIGITIZATION ON SUPPLY CHAIN PERFORMANCE IN THE FMCG SECTOR OF MANUFACTURING INDUSTRY

Mahrooj Safdar and Dr. Sohaib Zaman

ABSTRACT

The proposed research follows deductive approach, interpretivist philosophy and Causal or Explanatory research strategy. The study is exploring the perception of supply chain professionals regarding digitalization in supply chain and also exploring the real digital practices followed by the FMCG industry. For this purpose the researchers had collected data through filling questionnaires from respondents having knowledge of supply chain strategies and digital implementations on supply chain processes in Karachi. Questionnaires were filled through google forms with the help of friends and family to get most of the authentic data with questionnaire containing close-ended questions based on research objectives and research questions. Also it was make sure that respondents were have better understanding of digitalisation in supply chain and knowledge based on personal experience, past research articles, websites and research journals. The finding of the study suggest that the concept of digitalization among the supply chain professionals is vague and they do not consider the implementation of digital technology in supply chain to be effective and essential. The study identifies a need of creating awareness among the supply chain professionals regarding the advantages they can gain by the implementation of technology in supply chain and also there is a need to train the operational staff to accept change which is beneficial for them.

INTRODUCTION

Background of the Study

It is an era of technological advancement; its progress has undoubtedly improved our lives in all area. When it comes to the field of business, digitalization is changing business world to as it contributes to its constant

change and development and allow companies to sustain a competitive advantage. According to Sellitto, Pereira, Borchardt, daSilva, and Viegas (2015) the development as well as advancement of digitalization has great impact on changing life and work of the people and it also emphasise on providing new challenges and opportunities for the companies in terms of operation modes and production in the market. Hence, in order to go through the development in the age of digitalization, many companies have started to take appropriate measures in rode to adopt digital technology in supply chain for improving the performance (Christopher, 2016). There will be a rapid and successful growth through adoption of digital supply chain network in the company. Digital technology has the power to drive the convergence of supply chain elements (Kache & Seuring, 2017; Memon, et al., 2021). While attempting this, it can help companies to develop a networked process that optimizes the entire enterprise rather than a separate function, bringing together designers, suppliers, manufacturers, distributors, logistics service providers, retailers and even customers. Vision, collaboration, and innovation to inspire new ways of thinking and working, saving companies a lot of money, and helping them gain a competitive advantage (Ivanov, Dolgui, & Sokolov, 2018; Gilal, et al., 2020).

The most important insights are not specific cases but the impact of digital technology (Schoenherr & Speier-Pero, 2015; Tunio, et al., 2017). In the various modes of supply chain transformation, one direction is to use digital technology to strengthen existing business processes, models or methods, and the other direction is to completely reshape your supply chain thinking and operations. For example, Cisco Systems, Inc. announced that supply chain and logistics are 'relevant in value, that is, from 2013 to 2022, in the company and industry (increased by digital innovation), revenue growth and cost reduction to approximately $3 trillion' (Pradabwong, Braziotis, Tannock, & Pawar, 2018). Due to the introduction of automation and digitalization, the whole supply chain management structure is impacted. The significant revolutionary development in the "field of Information Technology (IT)" and the "introduction of industry 4.0 in the manufacturing field" has many impacts to supply chain. In this paper, we are going to analyse the impacts of digital supply chain dimensions (AI and Big Data) on supply chain performance (Buyukozkan & Gocer, 2018; Tunio, 2020)

Digitalisation in the supply chain operations is an emerging concept around the globe which enable organizations especially those which relies upon their supply chain efficiency to gain a sustainable competitive advantage over the rivals and competitors (Haddud & Khare, 2018). It helps the manufacturing

firms to increase the visibility among the supply chain members and minimize the bullwhip effect from the supply chain. Digitalisation in supply chain also helps in identifying the loop-holes in the supply chain against which timely actions can be taken by the organizations to avoid adverse consequences (Iddris, 2018; Tunio, et al., 2021).

Consequently, Pakistan comes under the umbrella of developing countries where the primary focus of the manufacturing industry is on their supply chain efficiency (Zsidisin & Henke, 2019; Tunio, et al., 2021[2]). Due to the economies of scale, cost efficiency, effective labour and reduced cost of business manufacturing sector is transferred to the Asian developing countries from developed countries mainly Western countries, which the focus of the manufacturing sector towards the supply chain efficiency (Pundir, Devpriya, Chakraborty, & Ganpathy, 2019; Chaudhry, et al., 2021). Digital technologies nurtured a modern era of competitive-ness. Digital technologies allow for the integration of data and information from different sources and locations to start production and distribution of goods and services (Mussomeli et al., 2016; Tunio, et al., 2021). They are categorized under three broad areas, viz digital technology enablers, digital systems integrators and application technologies. The digital technology enablers provide the backbone that allows for the digital transformation of the industrial production (Gurria, 2017; Tunio, et al., 2021). These enablers include big data (Nguyen et al., 2017; Gunasekaran et al., 2017), Internet of Things (Atzori, et al., 2010; Moeuf, et al., 2017), and cloud computing (Aviles, 2015; Gantzia and Sklatinioti, 2014; XiMei, et al., 2016). Under the digital systems integrators are simulations, artificial intelligence and cyber-physical systems (Khaitan & McCalley 2015, Wang, et al, 2015, Monostori, et al, 2016). The application technologies are the applications through which the main productivity effects in industry are likely to unfold which include additive manufacturing/3D printing (Mellor, et al., 2014, Durach et al., 2017), autonomous machines and systems, and human-machine integration (Gurria, 2017). Giving these layers of the digital technologies we argue that companies should first establish the digital enablers followed by digital systems integrators and then finally the application technologies.

The use of innovative digital technologies allows companies to generate new forms of revenue and business value for organizations (Buyukozkan & Gocer, 2018). The quest for these novel technologies is not necessarily about the technology itself but their use to provide transformational effects on supply chain processes (Rai, et al., 2006; Xue, et al., 2013).

Building on this concept, we define Supply Chain Digitalization as the extent to which a focal plant implements novel digital technologies in their supply chain processes to conduct business with its suppliers and customers and the degree to which these technologies transform supply chain capabilities and operational performance of the plant.

In this paper, it is intended to develop a conceptual framework that describes the relationship amongst supply chain digitalization, supply chain capabilities and operational performance.

The proposed study aims to explore the influence of digitalisation on the supply chain performance. The significance of technology in the field of supply chain and how organizations can achieve operational efficiency through digitalisation. Conventional supply chain mainly focus on the cost efficiency overlooking the fact that incorporating technology with supply chain efficiency would increase the efficiency and reduce the lead time which would ultimately lead to cost effectiveness in long-term.

THEORETICAL BACKGROUND

The studies like Gurria (2017), Laaper (2017), and Dall'Omo (2016) have shown that digital technologies play a critical role in managing supply chain processes that cause performance gains for the respective firms. The foundation of digital transformation requires a complete understanding and holistic analysis of the internal and external capabilities (Uhl, et al., 2014; Tunio, et al., 2014). However, there were limited academic researches that investigate how and why digital technologies could create performance gains by improving and transforming supply chain capabilities.

The digital technologies improve capabilities by allowing companies to curtail operating cost, improve product quality while increasing sales revenue through expanding market shares, developing more attractive products that meet customer needs, and creating strategic advantage that improve all business operations (Gurria, 2017; Tunio, et al., 2021). Researchers have recognized capabilities as an important source of an organization's operational strengths and competitive performance (Flynn & Flynn, 2004; Peng et al., 2008). In this proposed framework, Supply Chain Digitalization (SCD) serves to transform supply chain capabilities to improve operational performance of the firm.

Supply chain capability is defined as the ability of a company to identify, utilize, and assimilate both internal and external resources and information

to facilitate the overall supply chain activities (Bharadwaj, 2000; Wu et al., 2006). Capability studies have been used in recent supply chain research (Ferdows & De Meyer, 1990; Noble, 1995; Boyer & Lewis, 2002; Flynn & Flynn, 2004; Singh, et al., 2015) to reframe the conversation into how and why capabilities create performance gains for the firm. Capabilities studies in general are informed by Resource-Based View (RBV) of competitive advantage that focuses on a firm's ability to consciously and systematically create distinctive capabilities which enable the firm to gain competitive advantage in the marketplace (Penrose, 1959; Wernerfelt, 1984; Hulsman et al., 2008; Yusuf et al., 2014). A company's resources provide the firm with unique capabilities that allow it to manage change and identify new opportunities (Barney, 1991; Shaikh, et al., 2021).

H1: There is a significant impact of perception of digitalization in supply chain on supply chain performance of FMCG sector of manufacturing industry.

Digital transformation has been in place for years and supply chains have not been exempted from it. Supply chains operate in an increasingly connected environment, based on the collaboration of people, processes and devices. The digitalization of processes, which leads to increasing the exchange of data and information along the supply chain, helped by a massive connectivity level, has led to the rise of "cyber supply chain, a supply chain enhanced by cyber-based technologies to establish an effective value chain" (Kim & Im, 2014; Afshan, et al., 2021).

H2: There is a significant impact of digitalization and supply chain on supply chain performance of FMCG sector of manufacturing industry.

Emerging technologies are set to transform logistics and transportation, which would change the existing flow of supply chain as we know it. This change is already prominent amongst various FMCG companies today. The process of digitalization is becoming a core driver into the world of supply chain. It is not possible for FMCG companies to succeed anymore without the help of digitalization. With the amount of trade and increasing demands of goods and supplies, manual labour is no longer an option. From the most basic to more advanced systems, technological assistance, evolved into various more complex devices. From systems that can automatically track moving goods to tools that can record warehouse goods, technological advancements led to the rise of a fully digitalized process. Supply chain management software are quickly emerging with on-demand warehousing

and logistics. Evolving customer channels contribute a great role when it comes to this new workflow. Thanks to a direct-to-consumer shift, there are greater opportunities and flexibility when it comes to supply chain operations, which means most FMCG companies require a tool that would support this dynamic environment. SCM software works as a customized solution to automate a business' supply chain operation. All requirements can be defined through a setup process to fit specific company needs, where organizations can spend less time for more productivity. SCM software became a major part in the way logistics operations are played. It creates a fully automated system for the FMCG industry; saving time, cost and ensuring the efficiency of their process. The examination of such system would be done through this whitepaper to accomplish its efficiency and benefits for the FMCG industry. By a thorough observation of an existing SCM system, ESKA SCM, and how it can work for FMCG companies, a clear view of how this software can help may be produced. A digitalized system may be truly beneficial to the FMCG sector and can be used to accelerate the supply chain industry. The goal is to understand how SCM software can help and how its deployment may function as the next standard for businesses today.

H3: There is a significant impact of influence of digitalization on logistics operations on supply chain performance of FMCG sector of manufacturing industry.

Digitization has changed our lives in many ways. Not only our private lives but our business environments have also largely grown and are still under the process of evolution. It has provided the organizations with new opportunities to grow beyond the boundaries of their home countries. Digitization of logistics has made it easy for the companies to operate globally. Logistics is the pillar of every supply chain. So, it is necessary for it to be strong enough to face the challenges to secure its organization. The purpose of incorporating automation in the logistics processes is to utilize the potential of technology to create value for customers by transporting their needed products at the right place and at the right time in the minimum cost (Lai, Wong & Cheng, 2010; Afshan, et al., 2021). Digitized logistics is a holistic approach which revolves around customers. Modern logistics require highly integrated end-to-end system which ensures flow of mandatory information and goods for the purpose of value creation along the supply chain. Logistics is now becoming a new approach of providing opportunities of distribution and new business (Bucherer & Uckelmann, 2011; Gilal, et al., 2021). Digitization of logistics is a potential process, which can result in enhancing the customer value that

supply chain offers to the customers (Junge, Verhoeven, Reipert, & Mansfeld, 2019). Especially with the incorporation of the data-driven logistics the strategic importance of logistics can increase thereby, increasing the worth of the systems or functions associated with the logistics of an organization. Over the past few decades, digitization of processes has really increased pace and its usage has become unavoidable. Companies are widely using it for increasing its corporate strength, efficiency, and getting competitive edge over the rivalries in the industry. Barreto, Amaral, and Pereira (2017) asserted that globalization is the phenomenon of eradicating boundaries and integrating national and regional economies, cultures, and societies through trade, communication, transportation. Digitization may have some adverse effects on the industries. Digital logistics will become very important and essential tool in the future not only for the magnates of the industries but also for the small-sized companies allowing them to compose globally with ease and compete.

Globalization is a crucial factor for development of logistics operations. Globalization comprises of high competition, incoming of foreign investment, increased volume of trade, and establishment of multinational companies. Ceniga and Šukalová (2014) suggest that with the incorporation of digitization in the functions of logistics, whole paradigm of supply chain has shifted improving the supply chain efficiency, reduced the costs and improves the service quality. Globalization vastly supports logistics of organizations making them competitive in the industry (Richnák & Porubanová, 2017; Katper, et al., 2020). According to the studies done in the past, it is suggested that integration of technology in organizational processes is mandatory to improve communication and coordination with partners, this leads to enhanced skills of decision making and higher performance of logistics (Lai, Wong, & Cheng, 2010). Digitization of logistics is basically the practice of incorporating technology into its functions in order to improve its functionality (Ngai, Lai, & Cheng, 2008; Tunio, 2020[1]). The objective of logistics management is to control the flow of products and information, transformation of material into finished goods, and distribution of those goods using proper channels. Technological assistance in the processes of logistics increases the coordination between all the partner firms establish string basis of electronic connections, and logistical coordination (Daly & X.cui, 2003). Performance of logistics cannot improve if the integration of technology is not properly infused in the functions (Wilson, Iravo, Tirimba, & Ombui 2015). These choices are made strategically by the management

of the organizations. These strategic choices include configuring business processes, structure of the organization, and application of information technology in order to be responsive to the changing business environment (Lai, Wong, & Cheng, 2008). With the time moving towards more of a technological world, business processes are becoming more and more complex and difficult to handle. Production, manufacturing, logistics and rest of the functions of the supply chain has become complex tasks. The essential role of technology has drastically changed the concept of logistics and improved its efficiency, and its importance in unquestionable (Nick & Pongrácz, 2016). Computers, automation and robots existed in previous decades, but the most sophisticated opportunities provided by the Internet revolutionize their use, and the opportunities they provide. The increasingly cheaper solutions allow the entrepreneurs to monitor the activities, operation and processes of machines, materials, workers and even products themselves, and to collect, analyze and utilize data in real-time decision making (Nagy, Oláh, Erdei, Máté, & Popp, 2018).

H4: There is a significant impact of role of technology in 3tier supplier integration on supply chain performance of FMCG sector of manufacturing industry.

Recently, the Manufacturing Industry in Developing Countries (MIDC) has been facing unusual competitive-ness pressure generated by the new business trends. To face with this pressure, the manufacturing industries have tried to upgrade their operations by using different manufacturing techniques such as Total Quality Management (TQM), Business Process Re-engineering (BPR) and Lean Technology (LT), and others. Despite these efforts, the MIDC has not yet made their share of markets. This drives industry to get additional efficiency from their production systems. Effective Supply Chain Management and Supply Chain (SC) integration are becoming increasingly critical factors for business success. The integration of SC members can significantly support the MIDC to face the constantly changing competitiveness scenarios. Companies versus companies have been replaced with supply chain versus supply chain competitiveness strategy. However, the number of companies that have truly integrated their supply chains to take advantages of this opportunity is still small. The effects of globalization and fiercer competition have forced firms to focus their attention on entire supply chain integration (End-to-End) rather than on effectiveness and efficiency of separate business functions within their own premises. Firms both in developed and developing countries are trying to integrate more in

their production activities such as sourcing, manufacturing, and delivery processes. The MIDC has been a part of the global supply chains for long time as a supplier of raw material and manufacturer of finished products. Nevertheless, some sectors like textile, garment, and leather industries even though such cooperation and integration is at infant stage; it does not create value as expected.

METHODOLOGY

This study is based on 'Deductive Approach' as it is quantitative in nature. Also it is based on 'Causal or Explanatory Research Design' reason being in this research faced by us is the relationship between different aspects of implementation of digitalization in supply chain of FMCG sector. The research method is 'Quantitative Research Method 'because data is collected through filling questionnaires and somehow secondary data is also used.

CONCEPTUAL FRAMEWORK

Fig. 1: Conceptual Framework
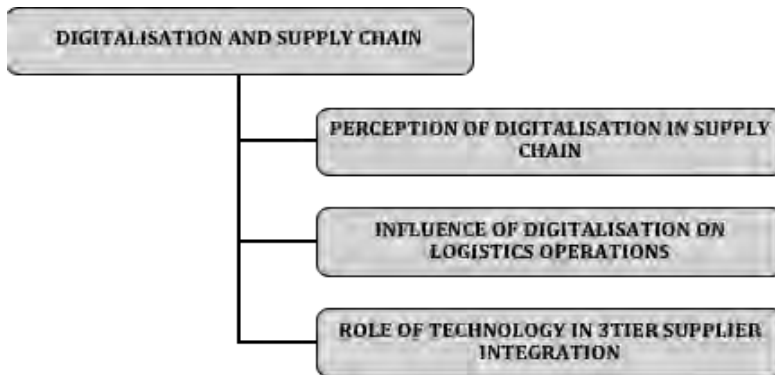
DATA ANALYSIS

Reliability Statistics

Table 1: Case Processing Summary

		N	%
	Valid	195	100.0
Cases	Excluded[a]	0	.0
	Total	195	100.0

a. List wise deletion based on all variables in the procedure.

Table 2: Reliability Statistics

Cronbach's Alpha	N of Items
.888	4

Cronbach's Alpha is used to prove the reliability of data. If the value

91

of Cronbach's Alpha is more than 7.0 then we consider the data is reliable enough to proceed for further analysis. The above table shows that the value of Cronbach's Alpha is .888 which means data is reliable and acceptable to proceed for further statistical analysis.

DESCRIPTIVE STATISTICS

Table 3: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PDSC	195	21.00	40.00	32.8000	4.38319
DSC	195	19.00	40.00	32.9231	4.93768
IDLO	195	13.00	35.00	28.4615	4.48391
RTSI	195	12.00	35.00	27.6462	4.47478
Valid N (listwise)	195				

This model or statistical test reflects that Digitalization in supply chain is leading with the highest mean i.e. 32.9231. The second highest mean is of Perception of digitalization in supply chain i.e. 32.8000. The third highest mean is of influence of digitalization on logistics operations i.e. 28.4615. Then we have fourth mean of role of technology in 3-tier supplier integration, which is 27.6462.

CORRELATION ANALYSIS

Table 4: Correlations

		PDSC	DSC	IDLO	RTSI
PDSC	Pearson Correlation	1	.747**	.617**	.462**
	Sig. (2-tailed)		.000	.000	.000
	N	195	195	195	195
DSC	Pearson Correlation	.747**	1	.783**	.653**
	Sig. (2-tailed)	.000		.000	.000
	N	195	195	195	195
IDLO	Pearson Correlation	.617**	.783**	1	.715**
	Sig. (2-tailed)	.000	.000		.000
	N	195	195	195	195
RTSI	Pearson Correlation	.462**	.653**	.715**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	195	195	195	195

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation model reveals that the highest correlation is between Perception of digitalization in supply chain and of influence of digitalization on logistics operations that is r=.783. The second highest correlation as seen in the table is between Perception of digitalization in supply chain and Digitalization in supply chain that is r=.747. The third highest correlation is between digitalization in supply chain and Design and role of technology

in 3-tier supplier integration that is r=.715. The fourth highest correlation is between Perception of digitalization in supply chain and influence of digitalization on logistics operations that is r= .617.

All the pairs range between .783 and .617.

TESTING OVERALL MODEL (REGRESSION ANALYSIS)

Table 5: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.429	1.484		-.289	.773
	PDSC	.474	.053	.421	8.977	.000
	IDLO	.441	.065	.400	6.739	.000
	RTSI	.190	.058	.172	3.268	.001

a. Dependent Variable: DSC

The t- value of all independent variables are more 2 and significant is .000 which means all significant hypothesis are accepted and null hypothesis are rejected.

Standard error plays a very key role through which value we can evaluate out how much data can be varied. If we will increase the sample size, the chances of this error can be reduced. Standard Error of Constant is -.289 which reflects that 28.9% of the data from the mean of the sample can be fluctuated or varied. The Standard Error of perception of digitalization in supply chain .053, influence of digitalization on logistics operations is .065 and role of technology in 3-tier supplier integration is .058.

ANOVA

Table 6: ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3502.963	3	1167.654	181.779	.000[b]
	Residual	1226.883	191	6.423		
	Total	4729.846	194			

a. Dependent Variable: DSC

b. Predictors: (Constant), RTSI, PDSC, IDLO

The statistical test ANOVA reflects the model fit. In this table, the sum of squares reveal the complete variability that is near to mean. The sum of residual is actually the sum of squared error in prediction, the sum of square. *Df* stands for the Degree of Freedom, which is attached or connected to the variance. It is the total number of respondents minus one. Moreover, F value shows the total model fit. It reveals that whether independent variable has forecast dependent variable well or not. The rule says if it is higher than 2 so this means that model

is good enough and independent variable has predicted dependent variable correctly. In this model, it is 181.779 that are without a doubt acceptable.

DISCUSSION

Based on the basis of hypotheses, the variables were tested, results of variables like Perception of digitalization in supply chain, influence of digitalization on logistics operations and Design and role of technology in 3tier supplier integration found consistent with earlier studies . the study is indicating that acceptance of all alternative hypothesis.

Table 7: Summary of Hypotheses

Hypothesis	Result
There is a significant impact of perception of digitalization in supply chain on supply chain performance of FMCG sector of manufacturing industry	ACCEPTED
There is a significant impact of influence of digitalization on logistics operations on supply chain performance of FMCG sector of manufacturing industry	ACCEPTED
There is a significant impact of role of technology in 3tier supplier integration on supply chain performance of FMCG sector of manufacturing industry	ACCEPTED

CONCLUSION

Perception of digitalization in supply chain on supply chain performance, influence of digitalization on logistics operations on supply chain performance and role of technology in 3-tier supplier integration are significant and relevant factors that more and less influence digitalization in supply chain on supply chain performance of FMCG sector of manufacturing industry.

RECOMMENDATIONS

After this research study, it has been observed that most of the companies are least interested in making their supply chain digital due to the multiple reasons discussed in the above study. Also employees are not aware from the advantages they can render by the making their supply chain digital therefore these are some of the recommendations which can help in promoting digitalisation in the field of supply chain in Pakistan:

1. Manufacturing companies needs to hire fresh talent which have idea and possess well develop concept of incorporating technology in the field of supply chain.

2. Legislative authorities should also impose legal obligations regarding vulnerable manufacturing processes and waste management of conventional supply chain.

3. Establishing strong supplier relationship helps the company to motivate

the suppliers to adopt technological modifications in their supply chain and integrate with the company for the best interest of both.

4. Establishing joint venture with technological firms can also help the companies in training the employees regarding technology and to better implement the digital technology suitable with the nature of the business.

REFERENCES

Afshan, G., Shahid, S. and Tunio, M.N. (2021), "Learning experiences of women entrepreneurs amidst COVID-19", *International Journal of Gender and Entrepreneurship, 13*(2), pp. 162-186. https://doi.org/10.1108/IJGE-09-2020-0153

Bakker, E., Zheng, J., Knight, L., & Harland, C. (2008). Putting E-Commerce Adoption in A Supply Chain Context. *International Journal of Operations & Production Management. 28*, 313-330.

Buyukozkan, G., & Gocer, F. (2018). Digital supply chain: literature review and a proposed framework for future research. *Computers in Industry*, 157-177.

Carter, C., & Liane, E. (2011). Sustainable supply chain management: evolution and future directions. *International Journal of Physical Distribution & Logistics Management, 41(1)*, 46-62.

Chaudhry, I. S., Paquibut, R. Y., & Tunio, M. N. (2021). Do workforce diversity, inclusion practices, & organizational characteristics contribute to organizational innovation? *Evidence from the UAE. Cogent Business & Management, 8*(1), 1947549.

Gilal, F. G., Gilal, N. G., Channa, N. A., Gilal, R. G., Gilal, R. G., & Tunio, M. N. (2020). Towards an integrated model for the transference of environmental responsibility. *Business Strategy and the Environment, 29*(6), 2614-2623.

Gilal, F. G., Gilal, N. G., Gilal, R. G., Gon, Z., Gilal, W. G., & Tunio, M. N. (2021)2. The Ties That Bind: Do Brand Attachment and Brand Passion Translate Into Consumer Purchase Intention?. *Central European Management Journal, 29*(1), 14-38.

Haddud, A., & Khare, A. (2018). The Impact of Digitizing Supply Chains on Lean Operations. *In Marktorientiertes Produkt-und Produktions Management in Digitalen Umwelten*, 27-46.

Hazen, B., Boone, C., Ezell, J., & Farmer, L. (2014). *International Journal Production Economics*, 72-80.

Hoberg, G., & Phillips, G. (2016). Text-based network industries and endogenous product differentiation. *Journal of Political Economy, 124(5)*, 1423-1465.

Iddris, F. (2018). Digital Supply Chain: Survey of the Literature. *International Journal of Business Research and Management, 9(1)*, 47-61.

Ivanov, D., Dolgui, A., & Sokolov, B. (2018). The impact of digital technology and Industry 4.0 on the ripple effect and supply chain risk analytics. *International Journal of Production Research*, 1-18.

Javed, A., & Hussain, A. (2018). Hotel Industry and Environmental Laws: A Case Study of Selected Restaurants in Islamabad. *Pakistan Institute of Development Economics*.

Kache, F., & Seuring, S. (2017). Challenges and opportunities of digital information at the intersection of Big Data Analytics and supply chain management. *International Journal of Operations & Production Management, 37*(1), 10-36.

Katper, N. K., Tunio, M. N., Hussain, N., Junejo, A., & Gilal, F. G. COVID-19 Crises: Global Economic Shocks vs Pakistan Economic Shocks (2020). *Advances in Science, Technology and Engineering Systems Journal, 5*(4), 645-654.

Memon, A.B., Meyer, K. and Tunio, M.N. (2021), "Toward collaborative networking among innovation laboratories: a conceptual framework", International Journal of Innovation Science, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJIS-04-2021-0069

Pundir, A., Devpriya, J., Chakraborty, M., & Ganpathy, L. (2019). Technology Integration for Improved Performance: A Case Study in Digitization of Supply Chain with Integration of Internet of Things and Blockchain Technology. *In 2019 IEEE 9th Annual Computing and Communication Workshop and Conference*, 170-176.

Qi, Y., Huo, B., Wang, Z., & Yeung, H. (2017). The impact of operations and supply chain strategies on integration and performance. *International Journal of Production Economics, 185*, 62-174.

Rogetzer, P., Nowak, T., Jammernegg, W., & Wakolbinger, T. (2019). Impact of Digitalization on Sustainable Supply Chains. *In Chancen und Grenzen der Nachhaltigkeitstransformation*, 131-144.

Shaikh, E., Tunio, M. N., & Qureshi, F. (2021). Finance and women's entrepreneurship in DETEs: A literature review. *Entrepreneurial Finance, Innovation and Development,* 191-209.

Tunio, M. N. (2020)[1]. Academic entrepreneurship in developing countries: contextualizing recent debate. *Research Handbook on Entrepreneurship in Emerging Economies.*

Tunio, M. N. (2020)[2]. Role of ICT in promoting entrepreneurial ecosystems

in Pakistan. *Journal of Business Ecosystems (JBE), 1*(2), 1-21.

Tunio, M. N., Chaudhry, I. S., Shaikh, S., Jariko, M. A., & Brahmi, M. (2021)[1]. Determinants of the Sustainable Entrepreneurial Engagement of Youth in Developing Country–An Empirical Evidence from Pakistan. *Sustainability, 13*(14), 7764.

Tunio, M. N., Jariko, M. A., Børsen, T., Shaikh, S., Mushtaque, T., & Brahmi, M. (2021)[2]. How Entrepreneurship Sustains Barriers in the Entrepreneurial Process–A Lesson from a Developing Nation. *Sustainability, 13*(20), 11419.

Tunio, M. N., Rashdi, P. I. S., & Abro, Q. M. M. (2014). Evaluation of ICT education in private secondary schools: A case study of Hyderabad, Sindh. *Mehran University Research Journal of Engineering & Technology, 33*(1), 43-48.

Tunio, M. N., Shaikh, E., & Lighari, S. (2021)[3]. Multifaceted perils of the Covid-19 and implications: A Review. *Studies of Applied Economics, 39*(2).

Tunio, M. N., Soomro, A. A., & Bogenhold, D. (2017). The study of self-employment at SMEs level with reference to poverty in developing countries. Business and Management Research, 6(2), 33-39.

Tunio, M. N., Yusrini, L., & Shoukat, G. (2021)[5]. Corporate Social Responsibility (CSR) in Hotels in Austria, Pakistan, and Indonesia: Small and Medium Enterprise Spillover of COVID-19. *In Handbook of Research on Entrepreneurship, Innovation, Sustainability, and ICTs in the Post-COVID-19 Era* (pp. 263-280). IGI Global.

Tunio, M. N., Yusrini, L., Shah, Z. A., Katper, N., & Jariko, M. A. (2021)[4]. How Hotel Industry Cope up with the COVID-19: An SME Perspective. *Etikonomi, 20*(2), 213-224.

Wang, G., Gunasekaran, A., Ngai, E., & Papadopoulos, T. (2012). Big data analytics in logisctics and supply chain management: certain investigations for research and applications. *International Journal of Production Economics, 176*, 98-110.

XiMei, L. I. U., ChangFeng, W. A. N. G., Rasheed, S., & Tunio, M. N. (2016). Shadow Price of the Oil Industry. International Journal of u-and e-Service, Science and Technology, 9(12), 281-290.

Zsidisin, G., & Henke, M. (2019). Research in Supply Chain Risk: Historical Roots and Future Perspectives. *In Revisiting Supply Chain Risk*, 1-12.

DISINCLINATION IN ADOPTING DIGITALIZED RIDE SHARING SERVICES OR E-HAILING SERVICES IN KARACHI

Ayesha Mushtaq and Dr. Sohaib Uz Zaman

ABSTRACT

This is the era of technology and urbanization. Things are modifying rapidly as trends exist only for short span of time then again it changes as fast as the culture of our growing population has been changing. The majority of product's consumers has gained the level of participation from Pakistan especially after inexperience of the e-hailing business in Karachi. As a result, with the assist of the technology acceptance model (TAM) this study has carefully analyze the elements influencing the levels of ride-hailing engagement. The effects are intended to provide factual and pragmatic insights into the reasons for the low utilization levels of ride-hailing services. The findings of this study are intended to assist governmental authorities and also e-hailing service officials in implementing effective and efficient user-friendly methods by addressing the components which are likely negatively impacting a person's participation decision. Beside this objective it concentrates on examining the cultural elements of Pakistan (Karachi) since it seems to be the primary audience for the acceptance of non-traditional modes of transportation like Uber, Careem & Bykea.

INTRODUCTION

As the trends are changing, lifestyles are also seeming unpredictable. We can expect but can't say it surely about what we will be up to in the next 5 years or 10 years. Considering this same unpredictable scenario few years back when our people travel by public transport or by their personal vehicles. It was the matter of disastrous issues in case of travelling by public transport. Our transportation industry was also facing serious problems of non-serious management, insufficient infrastructure & monetary funding were not sustainable and not enough as well. It is still at the same point especially in

underdeveloped countries like Pakistan. Due to this reason people preferred to have their own transport, for this reason number of vehicles are out of the box compared with previous year's data. Too much pollution & jam-packed roads, noise pollution, accidents and many other serious problems arouse. Increasing inflation also would not allow middle class and lower-class people to have their own vehicle.

In order to avoid such issues and to overcome the serious matters of poverty, inflation, traffic hazards, there was a way to put lower dependency over traditional transportation network. Increasing population in urban areas also enhanced the digitalization and motivate professionals to bring new developments in the society. Technological advancement has taken the ground of unexpected desires and untold needs of people. Trends moved towards the agencies & corporations for mutually understood policies and collective betterment of society. These agencies realized that assets possessions for long period with no justified usage is evitable. This unused asset possession can be utilized for sharing economy concept. Shared economy refers to overcome poverty issues. Sharing economy brings positive changes in current lifestyles. It motivates every sector to contribute themselves in this collective betterment approach. With the help of technology, those unutilized assets of common people bring reasonable solutions of transportation and we would be able to get most output from limited resources.

So apart from above discussion & current economy harming factors forced some agencies to start new ventures on the basis of technology with the help of internet-based applications. Now these new ventures came into existence under the names of UBER, CAREEM & BYKEA in the market and caused a real threat for conventional mode of transport. Uber as a part of sharing resources and economy made it successful that an asset or resource of one person can be availed or used by another individual in return of some economical amount (money) by means of digital application system in smart cell phones.

UBER first introduced & started its operations in March 2009 in San Francisco USA. Founders of such worth paying application and service are *"Garrett Camp" & "Trans Kalanick"*. Application of Uber officially launched in the year 2011 and around 2015 it has been operating in more than 65 cities in 45 countries (Cusumano, 2015).

We have known this fact that every society is the mixture of different cultures and they have their own specifications & limitations. People of one class differ from another class so is the case with different countries. On the basis of this fact these agencies were also working to analyze the ratio of adoption of this unique digitalized e-hailing services all over the world. Our observation is restricted to only with Karachi division of Pakistan where we live. Our main aim of this research is to find out the behaviors & intentions of people of this culture (Karachi-Pakistan) regarding the availing of this technological trend in the shape of UBER< CAREEM & BYKEA.

Problem Statement

People from different societies have different mindsets and we can't say that people of every culture & society have some school of thoughts regarding adoption of new technology. According to Hofstede (2011), there are 6 dimensions exist on which individual possess their mentality. Those are *'uncertainty avoidance, individualism, masculinity, long time VS short time period orientation, gratification, self-discipline or self-restraint'.* On the basis of those dimension people possess different perceptions and expectations regarding the benefits and cons of particular thing, trend or service. According to Davis (1989), any adoption of availing any new benefit can be decided by two key variables, *Perceived Usefulness* & *Perceived Ease of Use.*

Comprising above detailed discussion we are able to construct a problem statement that is:

'Which elements affect the adoption of non-traditional mode of transport/ e-hailing services in an underdeveloped country'.

LITERATURE REVIEW

Sharing economic system refers to a set of rules or mechanism that enables the sharing or rental of underused belongings or offerings among people or groups via internet (Bostman, 2010). The e-riding accommodation, food service are the examples of sharing economy offerings. Uber is the pre-dominant gamers and also the pioneers of e-riding, along with this they have substantial stake in this business, and it is booming the economy besides, they have predicted economic benefits. In the same line, TAM is the most normally implemented version in concerned studies with figuring out and influencing

variables associated with adoption of a sure technology, consisting of the use of sharing financial system offerings. According to TAM study on technology adoption, there is limited empirical evidence on TAM with ride-hailing services like Grab in Malaysia and Uber in Pakistan. There are three types of qualities on which the conceptual model of believe within the sharing economic system is based. The awareness of this study lies within the *multidimensional elements of believe*. Ability, integrity, and benevolence are some of the components (Hawlitschek, et al 2016). These three beliefs are thought to have an impact on one's behavioral aim and integrity changed into listed as one of the sturdy results on trusting intentions in digital teams (Gefen et al, 2004; Tunio, et al., 2021). In addition, consider in sharing financial system may be considered in 3 distinct angles. Namely, *accept as true with in peer*, *believe in product* and *believe within the foundation*, additionally widely referred to as the *3P's* (Hawlitschek et al, 2016; Gilal, et al., 2020; Tunio, et al., 2021).

Digital Transformation

The digital transformation provides technical solutions and new ideas for business owners and customers thus Internet has modified our regular lives. For this variation human beings internationally have come virtually without a doubt. Digital technology is typically utilized to increase contact with consumers. The 'light organizations' (virtual agencies) are now assuming the 'heavy organizations' roles (physical or tangible corporations). Companies are linked to their customers through technology in the digital transformation (Tapscott, 1996).

Empowerment of Shared Economy

Shared economic system is produced due to the dramatic adjustments inside the usage of modern-day technology. Priory, it has been mentioned that the sector has grown to be digitalized and corporations are engaged through barriers, this leads to the facilitation of online marketers specifically.

With time passing by many people understood the conceptual difference between sharing-financial and on-demand system. For instance, most people call uber now instead of taxi. **'**On demand economic system', humans to buy personal offerings. In the "secondhand economy," patrons to customers are granted the right to own transitory physical commodities, implying that consumers are exchanging second-hand items.

Fig. 1
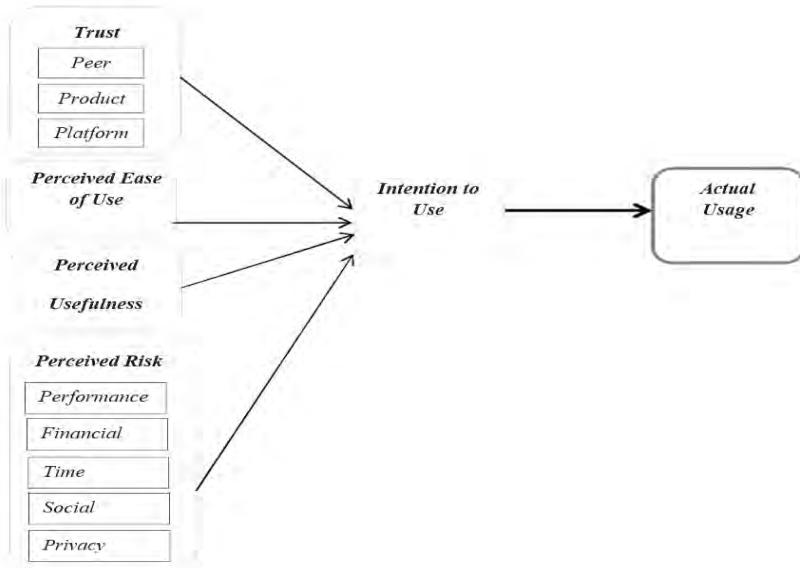
Technology Adoption Model

Along with the assist of advanced and powerful technology Companies attempt to compete within the diverging markets in this technology of globalization. For powerful implementation of digitalization in a marketplace, it's miles obligatory that the particular a blend of the local marketplace must not be overlooked at some point of strategy making plans and implementation.

TAM is usually regarded as the most accurate model for observing technology uptake in a variety of scenarios. There were loads of extensions in TAM however the very last model recommended with the aid of Davis (1989) has 3 additives which can be *perceived ease of use, perceived usefulness and behavioral goal.*

Fig. 2: Adopted Technology Adoption Model

The perception that this version of model increases the customer's notion regarding usefulness and technology ease of use leads towards the customer's behavioral intention. If users locate the technology beneficial and smooth to make use of, this will undoubtedly have an effect on the behavioral intention.

Culture

It defines as the way by which people solve their problems and reconciles their dilemmas (Hofstede, 2001) briefly, it defines as the traits or way of living which is shared by every other human being however, could differ from one group to another.

Hofstede's Cultural Dimensions
✓ Power distance
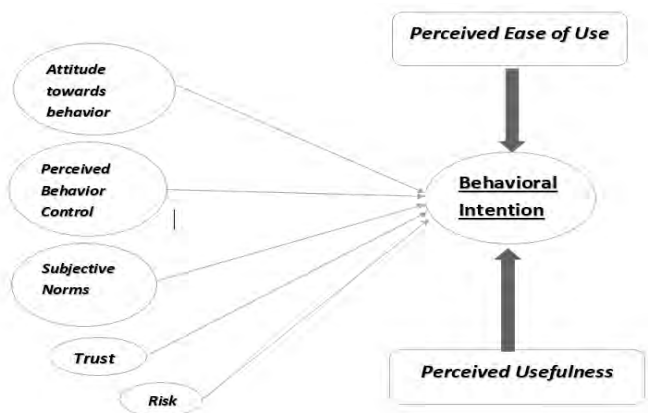✓ Uncertainty Avoidance
✓ Individualism
✓ Masculinity

Theory of Planned Behavior

Technology as long as is in used will get attention. By this it will become widely accessible and efficient. There are some points that are taken into consideration when it comes to usage of technology whether it will be used in the society or not it all depends on its merits.

Research Hypothesis and Models

We focused on 2 models Technology adoption model (TAB) and Theory of Planned Behavior (TPB). According to these models we have developed some hypothesis that would be able to deliver the actual idea of our research question.

Fig. 3

Development of Hypotheses

H1: Power distance & uncertainty avoidance adversely affect the relationship between attitude and behavior control.

H2: The relationship between societal norms and behavioral intention towards shared services impacted by individualistic or collectivist factors.

H3: Perceived behavioral control towards buying intention is affected in high uncertain avoidance societies.

H4: A consumer's trust positively affects the behavioral intention towards purchase and availing e-hailing services.

H5: Higher the risk associated with the service, lower will be the consumer's intention to purchase or avail services.

RESEARCH METHODOLOGY

On the idea of assumptions and hypothesis the whole study has been carried out. The hidden assumptions can be recognized only by conducting qualitative research. The research instead relies upon at the philosophical expectations of the researchers. It is proven inside the graph underneath:

Fig. 4: Underlying hilosophical Assumptions
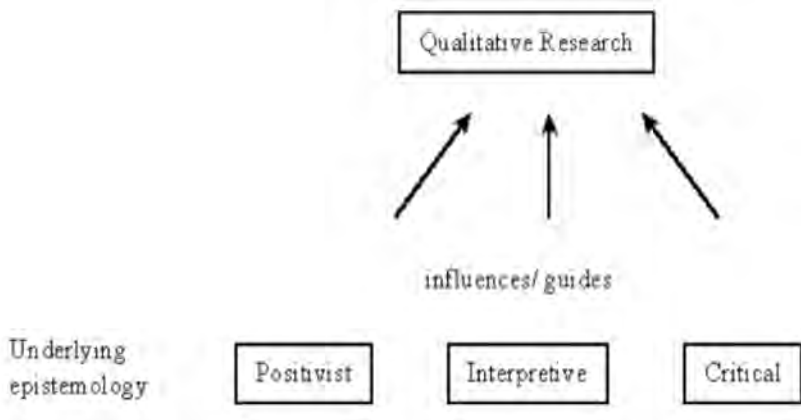
Research Design

The statements, test and surveys are included in this study design. The experience of clients regarding their use of service and product is being recognized by the researchers. Quantitative methods are constructed up or from the assessment or consequences of the consistently established statistics. The studies layout of this examine contains general customer queries of Uber in Karachi, Pakistan.

Questionnaire Design

In order to directly ask about the elements of the studies such questions are being prepared. To get the questions ready, we had to undergo numerous articles and observed the scale-measuring patterns.

Each of the questions has a metric attached to it on Likert scale from *1 to 5*.

Strongly Disagree │ Disagree │ Neutral │ Agree │ Strongly Agree

Data Collection

For acquiring the facts for the particular venture primary and secondary strategies are used. The study collected its survey from clients of ride hailing industry for primary one and as for the other types latest and most related studies on sharing journey, shared economy and digitalized has been observed.

RESULTS AND DATA ANALYSIS

Descriptive Statistics

We firstly go for descriptive statistics via SPSS. In descriptive statistics we got little to no v2ariations in our data set. Our means are realistic and showing minor deviations while calculating actually.

Table 1: Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Behavioral Intention	198	4.00	1.50	5.50	4.1364	.70645
Attitude Towards Behavior	198	3.40	1.60	5.00	3.4859	.65833
Perceived Usefulness	198	3.60	1.40	5.00	3.1586	.81689
Perceived Ease of Use	198	4.00	1.00	5.00	3.2542	.82606
Subjective Norms	198	3.60	1.40	5.00	3.3333	.71588
Perceived Behavioral Control	198	3.75	1.25	5.00	3.3346	.77769
Trust	198	4.00	1.00	5.00	3.1465	.77358
Risk	198	4.00	1.00	5.00	3.3030	.96859
Valid N (list wise)	198					

Table 2: Descriptive Statistics

	Variance
Behavioral Intention	.499
Attitude Towards Behavior	.433
Perceived Usefulness	.667
Perceived Ease of Use	.682
Subjective Norms	.512
Perceived Behavioral Control	.605
Trust	.598
Risk	.938
Valid N (list wise)	

Variances of our variables also showing very little variations in data set which suggests that our population shows keen interest in availing e-hailing services and these minor variations in variance can be ignorable at a point where we get rationality from our responses of sample population.

T-Test

Applying *T-Test* over our responses collected from sample population at One-Sample Test, we found out that our dependent and independent variables are much significant.

Table 3: One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Behavioral Intention	82.389	197	.000	4.13636	4.0374	4.2354
Attitude Towards Behavior	74.507	197	.000	3.48586	3.3936	3.5781
Perceived Usefulness	54.408	197	.000	3.15859	3.0441	3.2731
Perceived Ease of Use	55.433	197	.000	3.25421	3.1384	3.3700
Subjective Norms	65.519	197	.000	3.33333	3.2330	3.4337
Perceived Behavioral Control	60.335	197	.000	3.33460	3.2256	3.4436
Trust	57.233	197	.000	3.14646	3.0380	3.2549
RIsk	47.985	197	.000	3.30303	3.1673	3.4388

The mean of *behavioral intention* is 4.1 that is our dependent variable in this research. And if this value varies up & down it would not deviate more than 0.7%. Similarly, if we take our independent variable *Risk,* the population that is perceiving risk while availing e-hailing services their average is only 3.3. If we consider the other independent variable that is *Subjective Norms*.

Perceived Usefulness and *Perceived Ease of Use* are also showing significant results along with the other independent variables, we can conclude that there are positive relationship exists among all independent and dependent variables.

Regression

Table 4: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.200[a]	.040	.005	.70480	.040	1.132	7

Table 5: Model Summary[b]

Model	Change Statistics		Durbin-Watson
	df2	Sig. F Change	
1	190[a]	.344	1.693

a. Predictors: (Constant), Risk, Perceived Behavioral Control, Trust, Attitude Towards Behavior, Subjective Norms, Perceived Usefulness, Perceived Ease of Use

b. Dependent Variable: Behavioral Intention.

Durbin-Watson's model that is used for testing autocorrelation in a model of its residuals (CFI, 2021). The level of acceptance value in Durbin-

Watson lies between 0-4 and if it is equal to 2, this means that there is no autocorrelation exist in residuals from regression analysis. But in our model of digitalized ride sharing services, Durbin-Watson is less than **2 i.e 1.693** so the level of chance to accept the model has increased and showing that there is autocorrelation exist among our dependent and independent variables. Also, our Test statistic with respect to Durbin-Watson is acceptable because it represents a perfect positive correlation.

Level of usefulness is a topic of interest so if we observe that how much this acceptance level of autocorrelation varies and is there any chance of involving error in this test statistics?

Here we found out less variations and only 0.7% chances of error exist. That is also indicating the relevancy and rationality of our variables and its results.

Coefficients

There are very less variations according to our beta values. Indicating we are moving towards the right direction. 'Standard coefficients BETA' with respect to our *Radiator* (dependent variable-*Behavioral intention)* is positively correlated with the independent variable i.e *Attitude toward Behavior.* It means that attitude of our sample population towards their behavioral intention for availing this ride sharing service is positive. They have rational intentions in adopting this new technology-based ride sharing activity.

The relationship between our dependent variable-behavioral intention and subjective norms with respect to Beta Coefficient i.e 0.033 also shows significant and reliable intentions of sample population. Our culture *(subjective norms)* is adaptable to change – people are inclined towards the betterment of society. There are very less chances of risk factor with respect to our constant variable *Behavioral Intention* that is also showing positive i-e 0.004.

Our residual statistic table also indicating the *positive correlations* & very less chances of deviating from the mean values.

Chi Square

Chi-square is a test where we find to observe the *goodness of fit*.

<div align="center">"Behavioral Intention*Attitude towards behavior"</div>

Table 6: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	136.046[a]	128	.297
Likelihood Ratio	98.521	128	.975
Linear-by-Linear Association	6.221	1	.013
N of Valid Cases	198		

a. 142 cells (92.8%) have expected count less than 5. The minimum expected count is .01.

When we check the models by comparing *Attitude toward behavior* with the constant variable – *behavioral intention*, we found that our calculated Asymptotic significance value is greater than 0.05 (designated alpha level) so in this case we reject our *Alternative hypothesis* which indicates that these variables do not depend on each other and accept our *Null hypothesis.* Behavioral intentions and Attitude toward behavior are negatively correlated and dependent on each other.

<div align="center">"Behavioral Intention*Perceived Behavioral Control"</div>

Table 7: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	135.858[a]	112	.062
Likelihood Ratio	86.668	112	.964
Linear-by-Linear Association	.480	1	.489
N of Valid Cases	198		

a. 125 cells (92.6%) have expected count less than 5. The minimum expected count is .01.

After making relationship between *behavioral intention and behavioral control,* we found that there are positive relationships exist as our calculated chi-square value is higher than the crucial value of chi-square i.e 0.06 > 0.05. This indicates to understand that people can control their behaviors over their intentions. Controlling behaviors suggests that negative thoughts and bad image of some e-hailing companies/organizations can be ignorable. What people perceive they actually go that way so if they perceive good and beneficial to avail digitalized ride sharing services, they can definitely go and accept this new trend, so their behavioral intention is dependent on their perceived behavioral control.

<div align="center">"Behavioral Intention*Trust"</div>

Table 8: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	107.130[a]	144	.991
Likelihood Ratio	85.408	144	1.000
Linear-by-Linear Association	.036	1	.850
N of Valid Cases	198		

a. 160 cells (93.6%) have expected count less than 5. The minimum expected count is .01.

Trust has no correlation with *behavioral intention* in respect of chi-square test statistic. Computed number of P is higher than the critical value that is **0.9 > 0.05** actually showing that trust on drivers of e-hailing industry has no correlation with behavioral intention of customers in respect of availing this digitalized ride sharing service. People are also using this e-hailing trend irrespective of having trust on drivers or trust on application of this service industry.

"Behavioral Intention*Perceived Usefulness"

Table 9: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	326.322[a]	144	.000
Likelihood Ratio	138.680	144	.609
Linear-by-Linear Association	.043	1	.836
N of Valid Cases	198		

a. 164 cells (95.9%) have expected count less than 5. The minimum expected count is .01.

While comparing *Behavioral intention* with *Perceived usefulness* we got to know that our calculated p-value is less than critical value i.e $0.0 < 0.05$ that indicates we will accept our Alternative Hypothesis. This suggests that behaviors are dependent on the usefulness of digitalized ride sharing services.

"Behavioral Intention*Perceived Ease of Use"

Table 10: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	82.610[a]	96	.833
Likelihood Ratio	68.194	96	.986
Linear-by-Linear Association	.393	1	.531
N of Valid Cases	198		

a. 104 cells (88.9%) have expected count less than 5. The minimum expected count is .01.

Comparing *perceived ease of use* with *behavioral intention* suggests p-value 0.8 that is higher than 0.05. We must embrace our *Null hypothesis*, means that it doesn't matter if convenient and easy to use the ride sharing application in mobile phones, the more persons would be inclined towards it. Sometimes people find it easy but reluctant to avail this technological advancement just because of their behaviors that are not adaptable to change.

"Behavioral Intention*Subjective Norms"

Table 11: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	104.102[a]	136	.981
Likelihood Ratio	82.973	136	1.000
Linear-by-Linear Association	.384	1	.535
N of Valid Cases	198		

a. 152 cells (93.8%) have expected count less than 5. The minimum expected count is .01.

Comparing *Subjective Norms* with our constant, indicated that **0.9 > 0.05.** We have accepted *Null hypothesis* means that societal values, cultures and family norms are not correlated with the behavioral intention for using digitalized ride sharing services. There is not any relationship exist among subjective norms and behavioral intentions.

"Gender*Risk"

Table 12: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.074[a]	16	.088
Likelihood Ratio	21.728	16	.152
N of Valid Cases	198		

a. 11 cells (40.7%) have expected count less than 5. The minimum expected count is .02.

We got values of chi-square 0.08 > 0.05 which means these two variables are nor correlated. In Karachi, our population don't bother to avail services of Uber, Careem and Bykea irrespective of gender as they don't feel any fear while calling Uber, careem or Bykea and females feel comfortableness for having this new trend of transport network.

CONCLUSION

This study's recommended structure was shaped by a review of the literature, which is focused on finding solutions to the questions for investigation that have been established and is backed by strong theoretical models. The findings and concluded results of this research is mentioned in order to provide implications of certain strategies and to explore the aim of this research report. After analyzing the results of our data set, some of the hypotheses are not supportive. It shows that some relations among variables are not significant or they don't correlate with each other. Some hypotheses are accepted as well that shows positive relationships and supports our model as well.

This study also indicates that students of Karachi are more inclined to use this e-hailing services & when we observed through filling out the questionnaires, we analyzed that the ratio of females (of all ages except more than 40 years) is greater than the ratio of males in adopting this advancement in transportation network.

We are living in the era of technology that is changing very rapidly. People are seeking to have more convenient ways of living their lives, more useful technological developments, and better ways to provide their contribution in the fast-changing growing economy.

REFERENCES

Botsman, R. & Rogers, R. (2010). *What's Mine is Yours: The Rise of Collaborative Consumption.* New York: Harper Collins.

CFI. (2021). Durbin Watson Statistic: *A test statistic used in statistics to detect autocorrelation in the residuals from a regression analysis.* https://corporatefinanceinstitute.com/resources/knowledge/other/durbin-watson-statistic/

Cusumano, M.A. (2015). How Traditional Firms Must Compete in the Sharing Economy? *Communication of the ACM, 58*(1), 32-34.

Chaudhry, I. S., Paquibut, R. Y., & Tunio, M. N. (2021). Do workforce diversity, inclusion practices, & organizational characteristics contribute to organizational innovation? *Evidence from the UAE. Cogent Business & Management, 8*(1), 1947549.

Davis, F.D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly, 13*(3), 319-340.

Gefen, D., & Straub, D. W. (2004). Consumer trust in B2C e-Commerce and the importance of social presence: experiments in e-Products and e-Services. *Omega, 32(6),* 407-424.

Gilal, F. G., Gilal, N. G., Channa, N. A., Gilal, R. G., Gilal, R. G., & Tunio, M. N. (2020). Towards an integrated model for the transference of environmental responsibility. *Business Strategy and the Environment, 29*(6), 2614-2623.

Hawlitschek, F., Teubner, T., & Weinhardt, C. (2016). Trust in the sharing economy. *Die Unternehmung, 70*(1), 26-44.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations (2nd ed.).* Thousand Oaks, CA: Sage Publications.

Hofstede, G. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture, 2*(1). https://doi.org/10.9707/2307-0919.1014

Tapscott, D., (1996). *The digital economy: promise and peril in the age of networked intelligence.* New York, NY: McGraw-Hill.

Tunio, M. N. (2020)2. Role of ICT in promoting entrepreneurial ecosystems in Pakistan. *Journal of Business Ecosystems (JBE), 1*(2), 1-21.

Emadul Karim is HoD, Department of Business Administration Greenwich University, Pakistan Campus-Karachi. His email address is emad@greenwich.edu.pk

Dr. Sohaib-Uz-Zaman is Assistant Professor, Karachi University Business School (KUBS) University of Karachi. His email address is sohaibuzzaman@uok.edu.pk

Tarique Mahmood Arain is a PhD Scholar of Business Administration in the University of Sindh, Jamshoro. His email address is tariqphdschlor@gmail.com

Asfand Faheem Akhter is an MBA Student, Department of Business Administration, Greenwich University, Pakistan Campus-Karachi, email: asfandfaheemakhter@gmail.com

Dr. Abdul Sattar Shah is Director at Institute of Business Administration, University of Sindh Jamshoro.

Waqas Ahmed is student of MBA (Finance), Karachi University Business School (KUBS) University of Karachi. His email address is waqas82935@gmail.com

Mahrooj Safdar is an MBA (Supply Chain Management), Karachi University Business School, University of Karachi. Her email address is mahroojsafdar143@gmail.com

Sabeen Azam is an MPhil student in the Department of Humanities, Greenwich University Karachi. Her email address is sabeen.qureshi@greenwich.edu.pk

Ayesha Mushtaq is an MBA in Supply Chain Management, Karachi University Business School, University of Karachi. Her email address is ayshamushtaq96@gmail.com

Dr. Sobia Shafaq Shah is Associate Professor, IBA, University of Sindh Jamshoro.

Zain-ul-Abdin Arijo, Assistant Professor, Institute of Islamic Studies, Shah Abdul Latif University, Khairpur. His email address is zain.arijo@salu.edu.pk

Dr. Santosh Kumar, HoD, Department of Sociology, Shah Abdul Latif University, Khairpur. His email is santosh.salu@yahoo.com

Saeed Siyal, Lecturer, GRDC, Greenwich University, Karachi. His email is saeed.siyal@greenwich.edu.pk

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