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The Impact of Post-Covid-19 Economic Recession on Public Perception of Climate Change and Environmental Behavior in Pakistan

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ABSTRACT

The interconnection between economic development, fervid crossovers in the frame of contagious diseases, and environmental problems, in particular, have, until now, seen less scrutiny from environmental economists. Empirical evidence suggests that great economic recessions have proven to affect the prioritization of environmental and climate protection. The current study surveys the perception of the residents of Lahore, Pakistan regarding their environmental perception and awareness of climate change issues at the time of post-COVID-19 economic recession. Furthermore, the present study investigates several economic factors including the impact of economic recession influencing the environmental behavior of mainstream society. A cross-sectional quantitative research design was utilized to gather data from 343 respondents belonging to a public university in Pakistan. To statistically analyze the date, chi square test and multinomial logistic regression was utilized to examine significant economic factors associated with environmental behaviors. The findings reveal that climate change is viewed as one of the main ecological problems in Lahore, Pakistan. Furthermore, significant association was found between individual's socioeconomic background and impact of economic recession with their prioritization of climate action. The present research has several implications as identifying rising challenges of economic and climate-related threats can aid in adopting a more dynamic approach to strategic and structural investments. The current paper suggests robust policy interventions against financial instability to ensure collective as well as individual effort against climate change for a stable and sustainable future.

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1. Introduction

Climate change is one of the formidable obstacles faced by humanity in present times. However, its direct consequences on wellbeing of humans are not generally coherent making it difficult for individuals to envisage the sources of climate change and its potential impact on their lives (Mochizuki & Bryan, 2015). However, it does not suggest that the reverberations of climate change do not bother human beings. (Carolyn, 2010). Numerous researches have endeavored to measure the public discernments and perspectives regarding the dilemma of climate change on both national and international level. Most of residents in developed nations appear to be sensitized with the outcomes of climate change. (Skoufias, 2011; Lorenzoni & Pidgeon, 2006), despite the fact that they do not clearly know the contrivance through which anthropocentricism has an impact on it (Pihkala, 2018).

The era of Covid-19 was followed by a period of economic turmoil. Empirical evidence suggests that during Covid-19, a decline of 26.4% in GDP of Pakistan was reported from march to June as compared to pre-Covid-19 setting. Industry took a loss of 6.7%, services took a loss of 17.6%, agriculture on the other hand remained relatively unhurt and only declined by 2.1% (Moeen et al., 2021). All households saw a decrease in income, yet high-income groups seemed to bear loss more as compared to low-income ones. It has been seen that the expansion in unemployment in Pakistan converted into three times increase in poverty. (Moeen et al., 2020). In an economic crisis scenario, individuals with low income tend to be more perturbed regarding climate change as they do not have the necessities to overcome the adverse effect of climate change or other ecological catastrophes. Contrary to that, high-income individuals are relatively less concerned about climate change, firstly because they have the resources to overcome the effects of climate and secondly they may perceive that they will have to pay higher taxes to fight climate change. (Lo, 2014)

Economic Recession is one of the main factors, which drives popular opinion on climate change. The Covid-19 pandemic lead to labor shortage, supply chain disruptions, and chaos in the energy market, which eventually lead to recession. During recession, the focus of general public may shift from the greater good to personal benefit. (Shum, 2012). This model portrays the European Union where a single among two residents perceive climate change to be a serious issue during 2013, positioning it as the third most serious issue (European Commission, 2008). This trend was altered compared with 2008 which was marked by economic crisis, where 62% of European citizens considered climate threat as the second most difficult issue faced by the planet (European Commission, 2013). A European country like Greece, which was hit by an economic crisis between 2009 and 2015, affected how citizens of Greece perceived the solemnity of climate change. In 2008, 90% of the Greek citizens contemplated climate change to be absolute global issue and recession to be 4^{th} most serious issue. A trend reversal was seen in 2013 when recession was segregated as 2^{nd} most serious issue and climate change was segregated as 3^{rd} most serious issue. (Papoulis et al., 2015).

Several evidences have indicated the impact of income background and Economic Recession on the Prioritization of climate change in general public. However, these studies were framed in western setups, which resulted in a scarcity of economic-disaggregated data related to environmental concerns from Asian countries especially from Pakistan. Moreover, the interconnection between economic development, fervid crossovers in the frame of contagious diseases, and environmental problems, in particular, have, until now, seen less scrutiny from environmental economists. In this context, the current study surveys the perception of the youth of Lahore, Pakistan regarding their environmental perception and attitude related to climate change issues during post-COVID-19 economic crises. Furthermore, the present study investigates several economic factors influencing the environmental

behaviour of mainstream society.

2. Research Hypothesis

The current study intends to explore the perception of university students regarding climate change. The study also seeks to decipher the association between variables including climate change perception, socio economic background, climate action prioritization and post-Covid-19 economic recession. The study aims to test the following hypothesis:

H1: Socioeconomic background would be significantly associated with subjective perception of climate change.

H2: Socioeconomic background would be significantly associated with the prioritization of climate action.

H3: Impact of post-Covid-19 economic recession would be significantly associated with prioritization of climate action.

3. Methodology

The purpose of the research was to investigate the perception of university youth about climate change during period of post-Covid-19 economic recession along with exploring the association between variables that affect environmental behaviour through a self-reflective quantitative survey.

3.1 Study Design, Population and Procedure

The research team initiated the recruitment of participants on 15th April 2022 through a cross sectional quantitative research design. The participants were contacted directly and data collection was done face to face via a pencil, paper-type test where survey questionnaire were dispersed among respondents and were collected back on spot. The study population comprised of 343 university students (both males and females) aged 17 to 30 years enrolled in undergraduate and postgraduate programs. Respondents were allocated in current study from University of the Punjab, Lahore, Pakistan using non-probability convenience sampling method. Study utilized non-probability convenience sampling because of on hand and easy access to large population (Lehdonvirta et al., 2021; Stratton, 2021). The participation in this study was voluntary. Simple and inclusive language was used in the survey questionnaire for easy understanding of participants. In the current study, SPSS (version 20) was employed with the statistical significance set as 0.05. Total 356 questionnaires were received after survey completion, of which 13 incomplete responses were excluded. Finally, 343 responses were eligible for analysis. Of the respondents 178 were male and 165 were female. The descriptive statistics of the participants are given in Table 1.

Table 1: Descriptive Statistics of Participants (n=343)

Demographic Information	Frequency	Percentage
Gender		
Male	178	52
Female	165	48
Education level		
Undergraduate Students	187	54.5
Postgraduate Students	156	45.5
Marital Status		
Single	271	79
Married	71	21

3.2 Measures

The survey questionnaire used for collecting data in this study was segmented into 4 categories: respondent's socio-demographic, socio economic status, climate change perception, prioritization of climate change and economic recession.

The socio-demographic segment of the questionnaire included characteristic information including gender, age, education, income and marital status.

Revised New Ecological Paradigm Scale (NEP) developed by Dunlap et al., 2000 was employed to measure respondent's perception of climate change by measuring agreement with different statements regarding the relationship between the climate and human beings (sample item: If things continue on their present course, we will soon experience a major ecological catastrophe.) For present study, NEP scale was modified to focus on the main subject of the research i.e. climate change. Consisting of 15 items, responses were rated on a 5-point Likert type scale (1= strongly disagree to 5= strongly agree). The even items were scored reversed; the positive, high perception was indicated by the agreement with odd numbers while agreement with even number indicated low climate perception. The revised new ecological paradigm scale has repeatedly showed high internal consistency (Claudio et al,. 2022; Derdowski, 2020; Barradas & Ghilardi 2020). In current study, the reliability of NEP Scale was satisfactory (α=6.16)

The socio-economic background of the respondents was measured by averaging the responses about monthly income and education level. Respondent's prioritization of climate change was measured by the question: 'Here are some issues now being discussed in The Parliament. Do you think each of these issues should be a low, medium or high priority for the current government? (Mildenberger & Leiserowitz, 2017)' Respondents indicated their priority for the 'climate change' item using a three-point scale ranging from 'Low' to 'High'.

Finally, participant self-reports were utilized to establish measures of economic recession impact. The economic recession variable was measured by question: 'How much has the economic downturn in this country since Covid-19 personally hurt you and your family? (Mildenberger & Leiserowitz, 2017)'. Participants indicated the extent of being impacted by the economic recession using two options either 'Some' or 'Á lot'.

3.3 Ethical Considerations

APA 7th version ethical guidelines were adhered to in the design and execution of this research. Before the initiation of the study, formal approval and ethical clearance was taken from respondents to carry out the research. Moreover, participants' identities were promised to be kept confidential and anonymous. Furthermore, the study was formally approved by Internal Review Board of University of the Punjab, Lahore, Pakistan.

3.4 Data Analysis

The analysis of data was carried out employing descriptive and inferential statistics. The testing of proposed hypothesis was carried out utilizing inferential statistics. The comparison and association between variables was tested using Chi-square test. Multinomial logistic regression analyses was then utilized to examine economic factors influencing individual environmental prioritization and behaviors. The reference category for regression in current study was High prioritization of climate action. Findings from multinomial logistic regression analyses are given as odds ratios.

4. Findings and Discussion

The present study investigated the perception of respondents related to climate change during post Covid-19 economic recession along with surveying the association between several factors influencing the environmental behaviour including socio economic background, perception of climate change, prioritization of climate action and economic recession.

In current study the age of respondents ranged from 17 to 30 years. The current study constituted 178 (52%) male and 165 (48%) female respondents. There were 72 (21%) married participants and 271 (79%) single participants. A majority of respondents 187 (54.5%) were enrolled in an undergraduate program while 156 (45.5%) were enrolled in a post graduate program.

The association between different variable including climate change perception, socio economic background, climate change prioritization and post-Covid-19 economic perception were measured using Chi-square statistics.

Table 2: Frequencies and Chi-Square Results for Climate Change Perception and Socio-Economic Background (N=343)

	Low		Moderate		High			
Source	*n*	*%*	*n*	*%*	*n*	*%*	$X^2(1)$	*P*
Low	31	27	34	25.5	27	28.4		
Moderate	75	65.2	94	70.8	57	60	5.85	.210
High	9	7.8	5	3.7	11	11.6		

Table 2 reveals that chi-square test of independence showed no significant association between socioeconomic background and climate change perception with $X(1,N=343)=$ 5.85, p=.210, ϕ=.13. Hence hypothesis 1 was rejected.

The findings report no significant differences among different socioeconomic backgrounds, where the perception of all the socioeconomic backgrounds regarding climate change is high. This suggests that most of respondents were aware of climate change and its adverse effect on the living conditions of humanity and that respondent's level of information is good regarding climate change. (Akerlof et al., 2013). Moreover, people need to be better informed on the issue, in order to gain knowledge of every possible action they can undertake to mitigate the potential impact. (Moser, 2009)

Table 3: Frequencies and Chi-Square Results for Climate Action Prioritization and Socio-Economic Background (N=343)

	Low		Moderate		High			
Source	*n*	*%*	*n*	*%*	*n*	*%*	$X^2(1)$	*p*
Low	8	7	16	12	36	37.8		
Moderate	27	23.4	87	65.5	38	40	101.7	0.000
High	80	69.6	30	22.5	21	22.2		

Table 3 reveals that chi-square test of independence showed significant association between socioeconomic background and climate action prioritization with $X(1,N=343)= 101.7$, $p=.000$, $\phi=.54$. Hence hypothesis 2 was accepted. Results revealed climate action prioritization to be high in respondents with medium (40%) and low (37.8%) socio economic backgrounds.

Table 4: Frequencies and Chi-Square Results for Climate Action Prioritization and Post-Covid-19 Economic Recession (N=343)

	Some		A lot		$X^2(1)$	P
Source	*n*	*%*	*n*	*%*		
Low	3	1.25	57	55.3		.000
Moderate	115	47.9	37	35.9	156.3	
High	122	50.8	9	8.8		

Table 4 reveals that chi-square test of independence showed significant association between Post-Covid-19 Economic Recession and climate action prioritization with $X(1,N=343)= 156.3$, $p=.000$, $\phi=.67$. Hence, hypothesis 3 was accepted. Results revealed climate action prioritization to be low in respondents mostly affected by post-Covid-19 economic recession (55.3%) and high in respondents least affected by post-Covid-19 economic recession (50.8%).

Table 5

Factors	**Prioritization of Climate Action**			
	Low		**Medium**	
	Exp β	**95% CI**	**Exp β**	**95% CI**
Socio Economic Status				
Low	**.058*** **	.024-.144	**.187***	.094-.371
Moderate	**.311***	.138-.700	1.603	.816-3.149
High (RC)	0.00		0.00	
Impact of Economic Recession				
Some	**.123***	.062-.246	***.277**	.160-.482
A lot	0.00		0.00	

Results from a multinomial logistic regression analysis for Socio economic status and Impact of Economic Recession affecting prioritization of climate action (Low, Medium, High)
RC= Reference Category, ****p* value *=0.000, ***p* value *=0.001 , **p* value = <0.05

Table 5 shows the findings from multinomial regression analysis. The model explained 27% variation in the relationship between socio economic status of the individuals and their prioritization of climate action. The results suggest that low socioeconomic status was a significant determinant of low as well as medium climate action prioritization. The results also reveal that individuals with moderate socio-economic status have lower odds (69%) of having low prioritization of climate action than the individuals having high socio-economic status.

In this study there is a significant association between socioeconomic backgrounds and prioritization of climate change. Where most of the respondents with low and moderate socioeconomic backgrounds responded with high prioritization of climate action. The outcomes suggest that the reason behind high prioritization of climate change among low and moderate socioeconomic background is their lack of resources to tackle climate change, they believe that they will be most affected by rising temperatures, extreme weather events, floods, droughts and reduction of farmland. While on the other hand respondents with low climate change prioritization belong to high socioeconomic background and the outcome suggests that the reason behind their low prioritization of climate change is firstly excess of resources to handle the effects of climate change and secondly, they believe that in order to oppose climate change government would impose high taxes on respondents with high socioeconomic background.

Table 5 further shows the effect of the impact of economic recession on Climate action prioritization. The model explained 13% variation in the relationship between impact of economic recession on the individuals and their prioritization of climate action. The relevance of impact of economic recession on individuals is evident in it being a significant predictor of individual's prioritization of climate action. Compared to individuals greatly affected by economic recession, those who are relatively less impacted by economic recession are 88% less likely to have low prioritization of climate action and 73% less likely to have medium prioritization of climate action.

The findings of this study suggests that the respondents most affected by Post Covid-19 Economic Recession have low climate action prioritization. In the wake of rising Covid-19 cases government limited transportation and construction, weak domestic consumption lead to delay in commercial investments (Alam et al., 2021) and increase in unemployment was linked with plummeting household incomes and rising poverty during and after the lockdown (Moeen et al., 2021). The study suggests that respondents most affected by recession wanted the government institutes to focus on revival of economy instead of climate action. Respondents most affected by post covid-19 economic recession were struggling with their basic needs so ultimately their top priority was their basic needs and revival of economy instead of climate action prioritization. The findings of this study also suggests that respondent's least affected by post covid-19 economic recession had high climate action prioritization. The outcome suggests that these individuals belonged to the sectors which were least affected by post Covid-19 recession which means that they had enough resources to fulfill their basic needs and these individuals wanted government institutes to focus more on climate action.

A limitation of present study is that the population of current research were mainly university students who are not at the forefront of being severely impacted by economic recession comparatively to other working groups of mainstream society. The future study should seek to test the hypothesis of current research in other societal groups too, in order to decipher other dimensions of economic-environmental behavior. Furthermore, there has been no work done in similar domain, particularly in Asia or Pakistan before the Covid-19 economic recession, which delimits the present research to explore and compare trends regarding climate change perception and prioritization in phases of economic growth, and recession. In this context, present search constitutes the base for futures studies on economic situation-climate change nexus.

5. Conclusion

The findings show medium to high level of perception related to climate change during post-Covid-19 economic recession in the mainstream public. The study also reveals significant association between variables like socio economic background and prioritization of climate action,

also impact of post-Covid-19 economic recession and climate change prioritization. The present research has several implications as identifying rising challenges of economic and climate-related threats can aid in adopting a more dynamic approach to strategic and structural investments. The current paper suggests immediate action against the present extensive financial challenges to turn away the drawn-out impacts of climate change. Moreover, the study also suggests robust policy interventions against financial instability to ensure collective as well as individual action against climate change for a stable and sustainable future.

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