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A DESCRIPTIVE STUDY OF URBAN ENVIRONMENT AND ITS IMPACT ON PAKISTANIS LIFE STYLE

Robia Shaheen
Lecturer
Department of Geography.
University of the Punjab, Lahore

Abstract
Climate change is a multidimensional phenomenon, which has various implications for the environment and socio-economic conditions of the people. Its effects are deeper in an agrarian economy which is susceptible to the vagaries of nature. Therefore, climate change directly impacts the society in different ways, and society must pay the cost. Focusing on this truth, the main objective of this research was to investigate the empirical changes and spatial heterogeneity in the climate of Pakistan in real terms using time series data. Climate change and variability in Pakistan, over time, were estimated from 1961 to 2014 using all the climate variables for the very first time. Several studies were available on climate change impacts, mitigation, and adaptation; however, it was difficult to observe exactly how much change occurred in which province.

Key words Climatic change, Changing health influence .etc

Introduction

Climate change—the mother of major externalities—has caused extreme weather events like temperature fluctuations, humidity changes, and heavy precipitation, leading to great economic losses (Changnon et al., 2000; Prudhomme et al., 2003; Xia et al., 2012). A recent report from the Intergovernmental Panel on Climate Change (IPCC) revealed that global average temperatures increased by 0.3–1.7 °C (IPCC, 2015). Short-run and long-run extreme events caused changes in climate (Larsen et al., 2011; Mitsch and Hernandez, 2013). Changes in environmental conditions, such as durability and service life of temperature and humidity, affect the structure.

Temperature is one of the most typical climatic factors (Liu et al., 2012; Zhulidov et al., 2011). Climate change effects vary in different geographical areas; extreme events show great regional differences in both ways (i.e., positive and negative). There have been significant positive trends observed in Europe (Rajczak and Preethi, 2012), in the UK (Chan et al., 2014; Dos et al., 2011), and in Japan (Kamiguchi and Tamai, 2011); transversely significant trends in the United States (Kunkel et al., 2013) and in Australia (Fiddes et al., 2015); and extreme precipitation and different parameters, including positive and negative amplitude trends, observed in India (Preethi et al., 2011; Revadekar and Preethi, 2012) and in China (Bernstein and Cashore, 2012; You et al., 2011). Existing research reveals that climate change has been influenced by a combination of global factors such as environmental problems (Ali et al., 2017; Fredriksson and Gaston, 2000; Neumayer, 2002; Stein, 2008).

However, to our knowledge, there is as yet no global econometric assessment of the domestic drivers of climate change. Some researchers have conceptualized the impact of climate change on crops (Ghazala and Arif, 2009; Haider et al., 2008), climate change mitigation (Afzaal et al., 2009; Chaudhary and Rasul 2004; Haroon and Afzal, 2012; IPCC, 2007a, IPCC, 2007b), and adaptation of climate change (Mahmood and Rasul, 2012; Maida and Rasul, 2011; Rasul et al., 2008), but no one has quantified the actual climatic changes systematically and statistically and mapped them for the climate of Pakistan.

In the recent past, some authors (e.g., Sheikh et al., 2015) considered extreme temperature indexes over South Asia. Choi et al., 2009a, Choi et al., 2009b also examined changes in temperature

extremes in some countries of Asia, and other authors (Revadekar et al., 2012; Milly et al., 2002; Min et al., 2011; Mladjic et al., 2011; You et al., 2011; Zhang et al., 2011; Wang et al., 2013) testified to the impact of altitude and latitude changes in temperature extremes over South Asia.
The comprehensive nature of the data allowed one to study variation dynamics econometrically and draw statistically rigorous conclusions. We have used the data to test some hypotheses, which are derived directly from the climate change debate, or explore findings from other areas that apply to climate change (e.g., on the importance of a strong executive).
Over the past few decades, some studies on maximum and minimum temperature trend lines have been documented in Pakistan (Afzaal et al., 2009; Chaudhary and Rasul 2004; Ghazala and Arif, 2009; Haider et al., 2008; Haroon and Afzal, 2012; Mahmood and Rasul, 2012). At the local level, a few studies have primarily focused on the major cities of the country; for instance, Sadiq and Qureshi (2010) investigated maximum and minimum temperatures from 1961 to 2007 for five major cities of Pakistan. Likewise, Sajjad et al. (2009) discussed trends for Karachi city; Cheema et al. (2006) discussed trends for Faisalabad city; and Sadiq and Ahmed (2010) observed variations in minimum and maximum temperatures for Chaklala, Pakistan.

The study in hand is a novel one, in the context of Pakistan, in that complete climatic variables are included, such as temperature, precipitation, and humidity, which were missing in previous studies. Likewise, several studies have been available on climate change impacts, mitigation, and adaptation; however, it has rarely been observed how much change occurred and in which areas. Furthermore, empirical time series evidence was not available previously. This study has tried to spotlight empirical evidence countrywide using 54 years of time series data. For the very first time, the trends of climate change in Pakistan have been mapped based on empirical information and discussed in detail. Data keeping/collection is a challenge in Pakistan because most districts lack meteorological departments and have a weak data inventory system. Another new aspect of this research study is that it utilizes an econometric model (ARDL) and remote sensing techniques to map historical variability and changes.
The purpose behind using ARDL is its ability not only to arrange and describe the complicated interactions among various elements at different levels but also to deal with dynamic processes and feedback in a system. Additionally, it can predict complex system changes under different "what-if" scenarios and is good at implementing scenario analysis and providing decision support. Since the development of the ARDL model, the method has been applied to various fields, including ecological modeling, transportation planning, and regional environmental management. This paper tries to fill such knowledge gaps to provide better resources for policy makers. It could be useful for increasing awareness among all concerned stakeholders, especially the policy makers, for helping in decision making.
Therefore, the main aim of this research was to investigate the empirical changes and spatial heterogeneity in the climate of Pakistan and to map them historically from 1960 to 2014. Moreover, through this study, a hypothesis was tested narrated as H0 (there is no absolute change in climate) and H1 (there are absolute changes in the climate).
Pakistan is an autonomous country in South Asia, located between the latitudes 24°N–37°N and longitudes 60°E–75°E. It borders the Arabian Sea, between India in the east, Iran, and Afghanistan in the west, and China in the north. The climate of Pakistan shows an extensive continuum from region to region, ranging from arid to humid. It is blessed with the monsoon rainfall in summer

and rainfall from western systems in winter. The climate is generally arid to semiarid, characterized by hot summers

Results and discussion

Climate indicators and the variability of climate change in Pakistan have been analyzed through this research study analysis. For the first time, we analyzed temperature, precipitation, and humidity, and subsequently found them to be the key parameters for climate analysis. Of long-term data collected, which ranges from 1960 to 2014, climate variables are the major data required to calculate the change and variability in the climate of Pakistan. It was interesting to find that the signals of

Conclusions

The main aim of this research was to investigate the empirical changes and spatial heterogeneity in the climate of Pakistan and to map them historically. Several studies on climate change impacts, mitigation, adaptation, and related modeling have been conducted by numerous researchers; however, studies investigating real climate change in Pakistan in quantitative terms are rare to find. Furthermore, all information on climate change is digitally mapped to establish a baseline inventory .

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