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Short Communication

Identifying and Estimating Structural Climate Change

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INTRODUCTION

Recent attention has focused on structural fractures, particularly in light of the financial crisis, Great Recession, COVID-19 pandemic, and conflict. While structural breaks provide enormous econometric issues, machine learning offers a sharp tool for detecting and measuring breaks. The current research proposes a consistent methodology for evaluating breaks and uses that framework to test for and quantify precipitation changes in Mauritania from 1919 to 1997. These tests show a one-third decrease in mean rainfall beginning around 1970. Because water is a precious resource in Mauritania, this loss, which has a negative.

Over the last two decades, structural breaks have received a lot of attention, especially in light of the financial crisis, the Great Recession, the COVID-19 epidemic, supply-chain bottlenecks, and the war in Ukraine. From an econometric standpoint, the empirical presence of structural breaks provides considerable modelling issues, both in terms of empirical model selection and statistical inference. Nonetheless, recent advances in machine learning provide sharp tools for recognizing and measuring structural breakdowns. Empirically, the degree and character of climate change-related structural fractures are of great interest and debate.

DESCRIPTION

The current paper has two goals. First, it proposes a unified framework for structural break econometric analysis, based on the research on indicator saturation techniques and automatic model selection with machine learning. Second, it uses those techniques to discover and quantify breaches in the precipitation pattern inside Mauritania, checking for statistically and empirically significant alterations and quantifying those changes.

Various econometric methodologies have aided in the analysis of Mauritanian rainfall data. Our key conclusion is that, about 1970, Mauritania's mean precipitation decreased by nearly one-third compared to the mean for 1921-1969. An examination of the Palmer Drought Severity Index supports this conclusion. Rainfall probability density curves show an increase in months with little or no rainfall. This decrease in rainfall is significant since water is a limited resource in Mauritania.

The ability to grow food is critical, and this is dependent on the availability of water. As previously stated, North Africa has experienced a rise in aridity since the late 1960s, with the aridity being more persistent in western regions such as Mauritania. The driest period occurred in the 1980s, with some enhanced rainfall in the 1990s, particularly in the easternmost parts of North Africa, where rainfall was near or just above the long-term mean in some years.

This evidence points to a general decrease in rainfall across the sample. Statistical comparisons of density are possible in addition to these graphical comparisons. Such comparisons, however, are not calculated here since the number of observations in each subsample is rather small for such nonparametric comparisons, and because the choice of decadal periods in [1-4].

CONCLUSION

It examines the Palmer Drought Severity Index for Mauritania as a prelude to and motivation for considering rainfall data and then describes the underlying rainfall data for Mauritania as well as the aggregated measure of rainfall to be investigated. The distributional repercussions are especially critical for the poorest countries, the majority of which are in Africa. In contrast to other continents' overall increases in mean precipitation due to climate change, some portions of Africa.

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DECLARATION OF CONFLICTING INTERESTS

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