Causal Analysis of MSP and Wheat Prices in India

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1. Data-Driven Decision Scenario

The demand for a legal guarantee of Minimum Support Price (MSP) by Indian farmers has been a contentious issue in public policy. Farmers argue that MSP increases have not kept pace with inflation and market fluctuations, making their livelihoods precarious. This project aims to analyze the effectiveness of MSP by comparing the average market price of wheat over the past ten years with the MSP set by the government. Using temporal and spatial econometric models, this study will investigate whether MSP serves as a real safety net for farmers and assess its relevance in the current economic landscape.

2. Business/Policy Problem

The central research question of this project is: "Does the Minimum Support Price (MSP) for wheat effectively protect farmers from market volatility, and is a legally guaranteed MSP necessary?"

The objectives of this study are:
- To determine whether MSP has kept up with inflation-adjusted market prices over time.
- To analyze the regional variations in MSP effectiveness.
- To evaluate the causal impact of MSP on wheat price stability using econometric techniques.

This analysis will help policymakers decide whether a legal guarantee for MSP is a necessary and effective policy intervention.

3. Data Needs and Tentative Sources

The study requires the following datasets:
- Wheat Market Prices (Last 10 Years): Collected from government sources (e.g., Agmarknet, Ministry of Agriculture & Farmers' Welfare) and private market reports.
- MSP Data for Wheat: Published by the Commission for Agricultural Costs and Prices (CACP) and Ministry of Agriculture.
- Inflation Data: Consumer Price Index (CPI) or Wholesale Price Index (WPI) data from the Reserve Bank of India (RBI) and National Statistical Office (NSO).
- Regional Wheat Procurement Data: State-wise data on MSP procurement from Food Corporation of India (FCI) reports.

4. Tentative Econometric/Statistical Analysis

To analyze the relationship between MSP and wheat prices, we propose the following methods:

Temporal Analysis (Time-Series Models)
- Trend Analysis: Visualizing the evolution of MSP vs. market prices vs. inflation-adjusted prices.
- ARIMA (Auto-Regressive Integrated Moving Average): Predicting future price trends and deviations from MSP.
- Granger Causality Test: Identifying whether MSP influences market price or vice versa.

Spatial Analysis (Regional Variations)
- Geospatial Mapping: Creating heatmaps of MSP effectiveness across states using GIS tools.
- Spatial Autocorrelation (Moran's I): Checking for regional clustering in MSP deviations.

Causal Inference Techniques
- Difference-in-Differences (DiD): Comparing states with high vs. low MSP procurement to measure its impact.
- Synthetic Control Method: Constructing a hypothetical counterfactual region without MSP for comparison.
- Regression Discontinuity Design (RDD): Analyzing price movement before and after significant MSP changes.

5. Proposed Timeline for Execution

Week	Task
1	Data Collection and Cleaning
2	Descriptive Analysis and Exploratory Data Visualization
3	Implementing Time-Series and Spatial Models
7	Conducting Causal Inference Analysis
8	Robustness Checks and Model Validation
9	Interpretation of Findings and Report Writing
10	Finalizing Report and Presentation

This study will provide empirical evidence on whether a legally guaranteed MSP is necessary by analyzing the temporal and spatial dynamics of wheat prices in India. The results will offer valuable insights for policymakers, economists, and agricultural stakeholders.