Unemployment Analysis in India (2020)

Project Summary

This project aims to explore and analyze unemployment trends across Indian states using publicly available data. Using tools like Pandas, Matplotlib, Seaborn, and Plotly, we performed cleaning and visualization of monthly unemployment rates, labor participation, and employment levels.

Key objectives:
- Understand how unemployment evolved during 2020
- Explore state-wise and region-wise employment behavior
- Visualize the impact of COVID-19 lockdowns on unemployment
- Provide useful insights for policy-makers and analysts

The analysis uncovered significant patterns including spikes during COVID-19 lockdowns, consistent trends in rural vs. urban areas, and regional variations in employment stability. An interactive animated map was also created using Plotly to track temporal and geographical changes.

Key Insights

1. Highest Unemployment Rate: States like Tripura, Haryana, and Delhi recorded the highest rates, especially during COVID-19.

2. COVID-19 Impact: Sharp rise in unemployment in April-May 2020 due to lockdown.

3. Low Unemployment Zones: Chhattisgarh, Odisha, and Gujarat showed stable and low unemployment.

4. Labour Participation: No strong correlation with unemployment rate; high participation didn't guarantee low unemployment.

5. Urban vs Rural: Urban areas showed more volatility; rural areas remained more stable.

6. Animated Map Insight: Geographic unemployment shift revealed using Plotly with time animation.

Unemployment Analysis in India (2020)

Conclusion

The Unemployment Analysis project provided a comprehensive view of India's employment trends during 2020. It helped visualize the regional disparities and the socio-economic shock caused by COVID-19. This project demonstrates the importance of data visualization and analytics in understanding macroeconomic patterns.

Future Scope

Future Scope:
With access to richer datasets that include factors such as GDP, education levels, industrial employment, and urbanization rates,
this analysis can be expanded to build machine learning models for forecasting unemployment rates.

Such models can help governments and policy-makers take proactive actions by identifying high-risk regions before unemployment spikes.
Techniques like Linear Regression, Random Forest, or even Time-Series models (ARIMA, Prophet) can be applied to predict trends and formulate preventive strategies.
Integration with socio-economic datasets can also reveal hidden patterns and causative factors driving employment behavior in various states.