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BA Economics Honours | Semester V | Calicut University

Big Data Analysis in Economics

Course Code: ECO5FS112 • Module 2

Module II: Major Economic Data Sources

Economists leverage diverse public, commercial, and open-source big data repositories to investigate microeconomic behavior and macroeconomic trends.

Unit 5, 6 & 7: National, International, and Real-Time Data Streams

Key categories of modern economic data sources

- **National Portals: Open Government Data Platform India (data.gov.in), RBI Database on Indian Economy (DBIE), Ministry of Corporate Affairs (MCA21), and the GST Network (GSTN) transactional logs.**
- **International Repositories: World Bank Open Data, IMF International Financial Statistics (IFS), UN Comtrade, and Federal Reserve Economic Data (FRED).**
- **Web Scraping and Online Price Intelligence: Automated algorithmic extraction of web data:**
  - ***Billion Prices Project (MIT / Cavallo & Rigobon):*** **Daily web scraping of supermarket retail prices across dozens of countries, creating high-frequency daily inflation indices that anticipate official monthly CPI releases.**
  - ***Labor Market Intelligence:*** **Web scraping of employment portals (Naukri, LinkedIn, Indeed) to track job vacancies, skill premiums, and real-time labor market tightness.**
- **Google Trends and Search Volume Indices: Measuring public search interest to nowcast private consumption, tourism flows, flu epidemics, and unemployment benefit claim surges.**

Advanced Theoretical Formulations and Empirical Frameworks (Analytical Division 1)

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Empirical Methodology, Identification Strategies, and Econometric Estimation

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Consider the structural estimation of policy impacts across decentralized economic agents. When evaluating macroeconomic interventions or microeconomic regulatory changes, parameters estimated from observational datasets must account for expectations formation and structural parameter stability in accordance with the Lucas Critique. Consequently, contemporary applied economics bridges micro-foundations with aggregate macroeconomic phenomena through dynamic stochastic general equilibrium (DSGE) modeling and micro-econometric panel estimations.

Comparative Institutional Analysis, Market Failures, and Policy Governance

Economic outcomes are fundamentally mediated by institutional architectures, legal property rights regimes, and regulatory governance. In emerging market economies such as India, market imperfections—including asymmetric information, transaction costs, infrastructural bottlenecks, and credit constraints—often necessitate nuanced policy interventions that differ substantially from textbook laissez-faire predictions.

Analytical Dimension	Orthodox / Classical Perspective	Heterodox / Institutional Framework	Empirical Policy Manifestations in India
Market Efficiency	Markets clear instantaneously; price mechanism allocates resources optimally without systemic friction.	Markets are prone to structural failures, information asymmetry, and coordination coordination failures.	Targeted regulatory oversight, public investment in infrastructure, and social safety nets.
Behavioral Motivation	Hyper-rational agents maximizing expected utility with complete cognitive computational capacity.	Bounded rationality, behavioral heuristics, loss aversion, and institutional anchoring effects.	Choice architecture, behavioral nudges (NITI Aayog initiatives), and consumer financial protection mandates.
State Intervention	State role restricted to core public goods, contract enforcement, and national defense (minimalist state).	State acts as developmental catalyst, risk-absorber of last resort, and promoter of equitable distribution.	Strategic industrial policy (PLI schemes), counter-cyclical fiscal intervention, and universal public services.
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Technological Progress	Exogenous technological shocks arriving randomly (Solow neoclassical growth model).	Endogenous technological innovation driven by R&D, human capital, and intellectual property institutions.	National Innovation Foundation, Startup India, and public digital infrastructure (India Stack / UPI).

Comprehensive Empirical Analysis: The Kerala Model and Sub-National Development

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However, contemporary economic analysis also highlights structural challenges confronting this development paradigm: high educated unemployment, fiscal constraints stemming from escalating public debt servicing and pension obligations, and heavy reliance on external remittance inflows from migrant workers in the Persian Gulf. Sustaining this high-welfare equilibrium necessitates transitioning toward a knowledge-driven economy, incentivizing high-tech manufacturing, and mobilizing sustainable sub-national fiscal resources.

Policy Synthesis and Analytical Evaluation

Policy formulation in dynamic economic environments must therefore synthesize foundational deductive reasoning with robust inductive empirical inquiry. Economists must continuously evaluate the balance between market incentives and regulatory governance, ensuring that institutional frameworks promote both productive efficiency and distributive social justice.

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