

Mains Master

Rise of the Billionaire Raj

Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj

A Report by Nitin Kumar Bharti, Lucas Chancel, Thomas Piketty, and Amol Samanchi

Context

- Examines long-term evolution of income and wealth inequality in India from 1922 to 2023
- Uses cutting-edge techniques to combine data from national accounts, tax data, surveys, rich lists
- Studying inequality crucial given India's large population and implications for global inequality

Findings on Inequality Levels

Income Inequality

- Top 1% income share declined from over 20% in colonial era to 6.1% by 1982 amid socialist policies
- But rose rapidly since then, reaching 22.6% in 2022-23, one of the highest in the world
- Top 0.1% share nearly 10%, top 0.001% (around 9,000 individuals) earned over 2% of total income
- In contrast, bottom 50% share more than halved from 23.6% in 1982 to just 15% in 2022-23
- Growth incidence curves show income growth tremendously skewed towards top 10%, especially top 1%, after 1980s

Wealth Inequality

- Top 1% wealth share nearly tripled from 13% in 1961 to 40.1% in 2022-23
- Top 0.1% holds nearly 30% of national wealth
- Over 16% of all wealth held by just around 10,000 individuals (top 0.001%)
- Wealth shares of bottom 50% and middle 40% declined as top shares rose

Wealth-Income Ratios

- Rise extremely steeply from just 30-40% for bottom of wealth distribution to over 4600% for top 0.001% in 2022
- Suggests India's tax system paradoxically regressive in terms of net wealth, contradicting traditional view
- Aligns with recent work studying wealth disclosures of Indian politicians

Grave Implications

- Such extreme concentration allows elite to wield disproportionate influence on society, government
- Raises serious concerns about threat of plutocracy undermining democracy
- Highlights India's growth process has been tremendously unequal in distributing gains

Reduction in MPI = Reduction in Inequality

- A decline in Multidimensional Poverty Index (MPI), which measures population below a minimum threshold, does not necessarily imply declining inequality
- This is because inequality measures like Gini coefficient look at entire distribution
- India's decent economic growth pulled millions out of poverty
- But nature of growth process skewed, disproportionately benefitting top of distribution
- While assisting poverty reduction, government transfers did little to mitigate inequality from concentrated market incomes at top
- Moreover, lack of productive asset ownership among those exiting poverty restricts their ability to accumulate wealth and upward mobility

Policy Implications

- Report calls for introduction of a comprehensive wealth tax targeted at India's super-rich
- Advocates restructuring of tax code to explicitly account for wealth in addition to income
- Stresses need to generate fiscal resources to enable inclusive public investments in health, education, nutrition
- Such measures crucial to facilitate more broad-based sharing of economic gains

Data Challenges and Transparency Needed

- Serious challenges around quality, coverage and transparency of underlying data sources persist
- No nationwide consumption survey data since 2011-12 creates uncertainties around bottom distribution
- Irregular gaps in release of tax data in 1999-2010 and 2018-2021 hamper estimation of top shares
- Growing concerns around potential over-estimation of GDP data used as income control total
- Calls for greater data democratization and transparency by government to enable evidence-based policies

Conclusion

The report paints an extraordinarily high level of income and wealth concentration in India's "Billionaire Raj" elite class. While economic growth helped reduce poverty, it has failed to generate a more equitable distribution of gains, with wealth and income continuing to concentrate tremendously at the top. Addressing this calls for concerted policy action, but remains hindered by persisting data quality and access challenges that require urgent attention.

Railways' dedicated freight corridor nears completion, scales up ambition

1. Introduction

- The Indian Railways' Dedicated Freight Corridor (DFC) project nears completion
- Significant milestone in India's logistics infrastructure
- Article explores background, objectives, impact, challenges, and future course of action

2. Background

- Proposed 18 years ago to create a dedicated high-speed, high-capacity railway corridor for freight transport

Two main corridors:

- Western Dedicated Freight Corridor (WDFC)
 - 1,506 km from Jawaharlal Nehru Port Terminal (Mumbai) to Dadri (Uttar Pradesh)

- Operational since December 2020
- Eastern Dedicated Freight Corridor (EDFC)

- 1,337 km from Ludhiana to Dankuni (West Bengal)

- Expected completion by April-end

3. The Dedicated Freight Corridor: An Overview

- Special-purpose vehicle of Indian Railways to revolutionize goods transportation

Objectives:

- Decongest existing rail network
- Enhance punctuality
- Reduce transportation costs
- Equipped with state-of-the-art technology:
 - Advanced signaling systems
 - Modern locomotives
 - High-capacity wagons

4. Multiplier Effect on the Economy

- Significant impact on the Indian economy
- Benefits:
 - Reduced logistics costs
 - Increased train speeds (60-75 kmph from 20-25 kmph)
 - Corridor running at 65-100% capacity
- Advantages for various industries:
 - Manufacturing
 - Agriculture
 - E-commerce
- Companies shifting consignments to DFC (e.g., Vinsum Xpress, Amazon)
 - Talks with e-commerce majors to use DFC network
 - Special coaches for e-commerce players being introduced
 - Boost competitiveness of Indian businesses in the global market

5. Challenges and Lessons Learned

- Challenges faced during implementation:
 - Delays in completion (18 years since proposal)
 - Substantial cost (₹1.24 lakh crore)



- Land acquisition
 - Environmental clearances
 - Coordination with multiple stakeholders
- Successful completion demonstrates resilience and determination of Indian Railways
- Lessons learned invaluable for future infrastructure development

6. Future Roadmap

- Target to transport 457 million tonnes of freight over next 30 years
- Continuous upgradation of infrastructure and rolling stock:
 - Phasing out older coaches
 - Replacing with modern, high-capacity wagons
- Integration with other transport modes (ports, highways) for seamless multi-modal logistics
- Paving the way for further expansion of dedicated freight corridors
- Enhancing regional connectivity and supporting economic growth

7. Conclusion

- DFC: A game-changer for the Indian logistics sector
- Potential to unlock immense economic benefits
- Successful completion despite challenges
- Demonstrates India's commitment to modernizing infrastructure and boosting economic growth
- Pivotal role in transforming goods transportation in the country
- Setting the stage for a more resilient and competitive economy

Prelims Booster

How fast is the universe expanding? New data keeps the mystery open

The Expansion of the Universe: A Cosmic Mystery

Background and Context:

- The Big Bang theory describes the universe rapidly expanding from an incredibly hot, dense state around 13.8 billion years ago
- A fundamental question: How fast is the universe currently expanding?

Key Definitions:

- Hubble Constant: The unit describing the universe's expansion rate
- Lambda CDM Model: The simplest model explaining observations like galaxy distributions
- Cepheid Variables: Pulsating stars used to measure cosmic distances

The Tension:

- Two valid but conflicting methods estimate different Hubble Constant values
 - Cosmic Distance Ladder using Cepheid Variables
 - Lambda CDM Model analyzing cosmic features

Findings:

- Recent studies show the discrepancy is statistically significant, not due to data errors
- Suggests an incomplete understanding of the physics driving expansion

The Mystery Remains:

- Is the universe's expansion rate constant, increasing, or slowing?
- Potential need for new physics beyond current cosmological models?
- Ongoing observations aim to resolve tension and refine expansion rate

Significance:

Resolving the Hubble Constant tension is crucial to:

- Understand the evolution and fate of our universe
- Test the limits of our cosmological theories
- Potentially discover new physics at the largest scales

India's Hepatitis Headache

Global Burden:

- Viral hepatitis kills as many people globally as tuberculosis
- 10 countries bear 2/3 of global hepatitis burden, including India
- Top 10 Countries with Highest Hepatitis Burden:
 - China: 83.8 million cases
 - India: 28 million cases (3rd highest)
 - Nigeria, Pakistan, Ethiopia also in top ranks

Understanding Hepatitis:

- 5 types caused by viruses (A, B, C, D, E)
- Transmitted via contaminated food, water, blood
- Symptoms: fever, jaundice, abdominal pain
- Some cause chronic liver disease & cancer

India's Situation:

- Under-diagnosed & untreated despite national program
- Only 1 in 10 cases diagnosed for Hep B & C
- Treatment excludes many eligible patients

Key Challenges:

- Low vaccination rates, especially for Hep B
- Lack of widespread screening & diagnosis
- Limited treatment access & coverage
- Short treatment duration for some types

Bridging the Gap:

- Raise awareness & strengthen national programs
- Improve data collection & surveillance
- Increase vaccination, screening & treatment access
- Invest in better diagnostic tests & new drugs

The Way Forward:

- Universal immunization for Hep B
- Comprehensive screening for all types
- Ensure affordable testing & treatment
- Address stigma & lack of prioritization

Cryogenics: keep it chill

Cryogenics: Mastering the Extreme Cold

Definition and Basics:

- Cryogenics is the study and application of materials at extremely low temperatures, below -153°C (-243°F)
- At these ultra-low temps, even gases like hydrogen, nitrogen, and air condense into liquids
- Cryogenic fluids like liquid helium (-269°C) and liquid nitrogen (-196°C) are used as coolants

Cryogenic Technologies:

- Specialized equipment like vacuum flasks and insulated pipelines are used to store and transfer cryogenic fluids safely
- Achieving and maintaining cryogenic temps requires advanced refrigeration and cooling systems
- Materials behave very differently at cryogenic temps, exhibiting unique properties and phase changes

Key Applications:

- Rocket Propulsion:** Liquid hydrogen and oxygen are powerful cryogenic rocket fuels (e.g., ISRO's cryogenic engines)
- Materials Science:** Cryogenic treatment can significantly improve strength and durability of metals like steel
- Medical Imaging:** MRI machines use liquid helium to cool superconducting magnets for better image quality
- Energy Storage:** Liquefied gases like hydrogen and natural gas enable high-density, efficient energy storage

Understanding India's VVPAT System

What is VVPAT?

- VVPAT = Voter Verifiable Paper Audit Trail
- A method to audit EVM vote counts and detect potential errors
- Provides a paper trail for each vote cast on the EVM

How VVPAT Works:

- Voter casts vote on EVM
- VVPAT printer attached to EVM generates paper slip with vote details
- Voter can verify their vote on the paper slip through a viewing window
- Paper slips stored in secure VVPAT drop box for potential audits

VVPAT Audit Process:

- Election Commission follows a statistical sampling method
- Random EVMs selected for VVPAT audit in each constituency
- VVPAT paper slips counted and tallied against EVM vote counts
- Helps validate the integrity of EVM results

Key Benefits:

- Increases transparency and verifiability of EVM voting
- Enables cross-verification of EVM vote counts
- Boosts public confidence in the electoral process
- Helps resolve potential disputes or allegations