The Digital Economy and Social Media

Amit Kapoor

India's Digital Leap

No. 1

1.2 b people enrolled in the world's **largest** unique identity digital programme

AADHAR

870 m Indians have digital banks accounts for online service delivery

No. 2

In 2018, India was **second** only to China in its mobile and internet usage

12.3 b
app downloads

1.17 b
wireless phone subscribers

560 m
internet subscribers

350 m
social media users

MOBILE

17 hrs
per week

spent by Indians on social media on an average; more than either Americans or the Chinese

Digital India and Public Digital Platforms

Acceleration Digital Adoption

AADHAR UID

12 digit unique identification number based on biometric and demographic data

26.7 b Aadhar-based authentications as of January 2019

UNITED PAYMENTS INTERFACE

Enables all bank account holders to send and receive money instantly using smartphones

3.7 b cumulative transactions between during Jan – Dec 2018

DIGILOCKER

Platform for issuing and verifying documents digitally using cloud storage

17.4 m users of the service as of January 2019

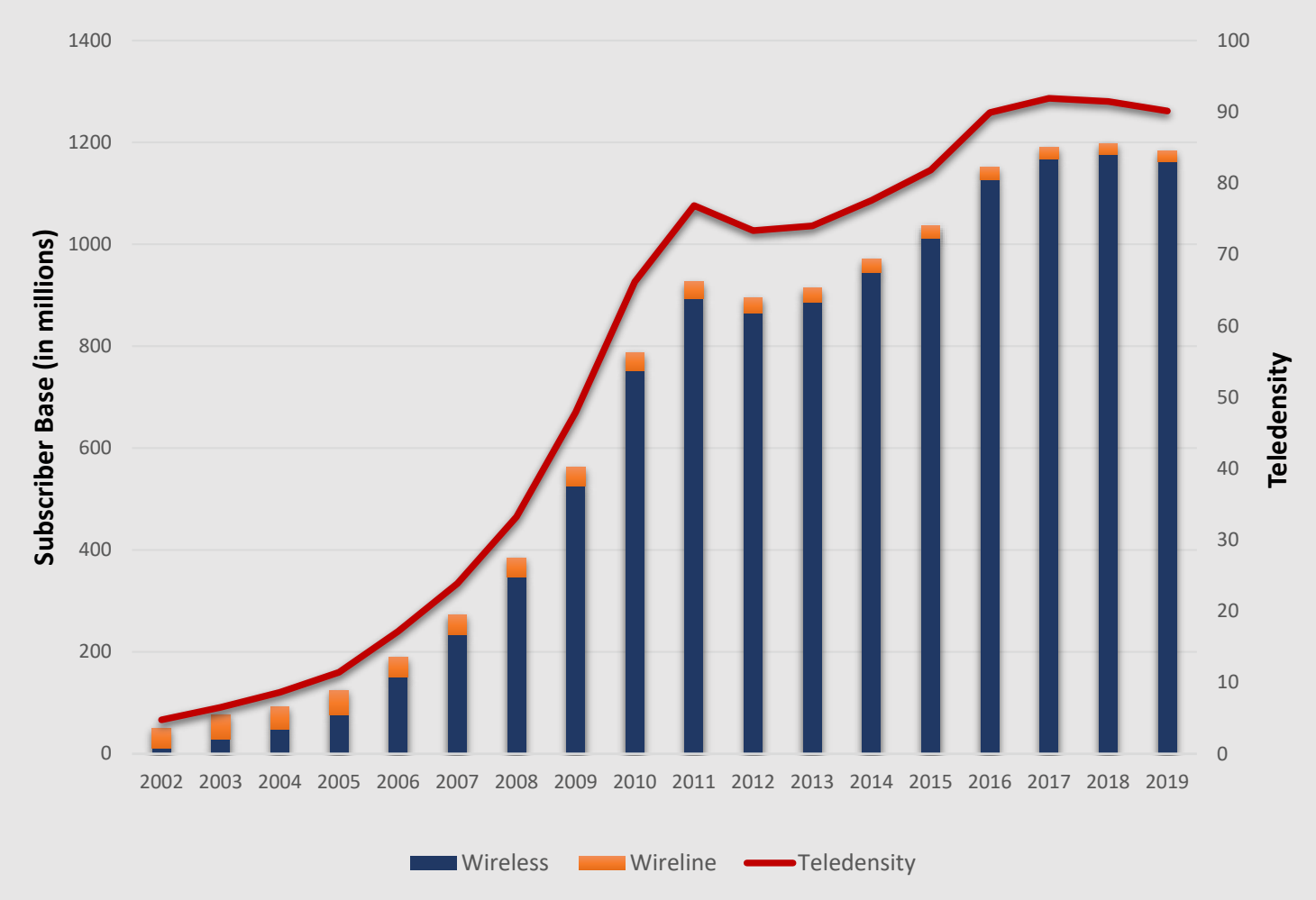
GSTN

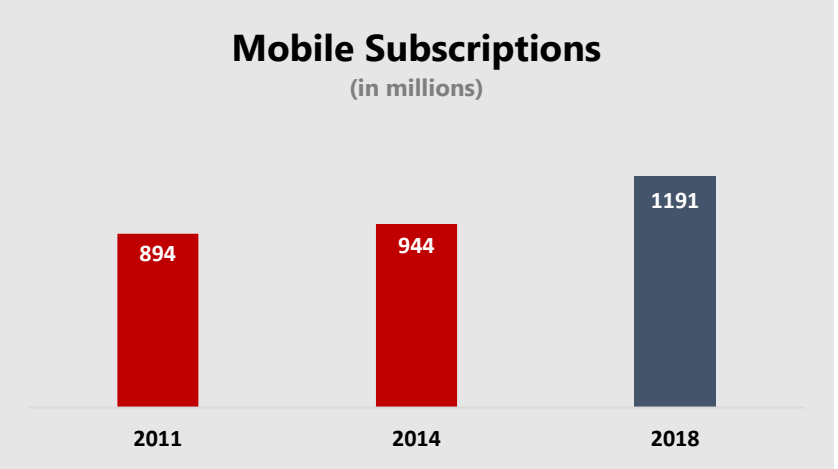
Unified indirect tax administration platform for the entire country to handle invoices, registrations and payments

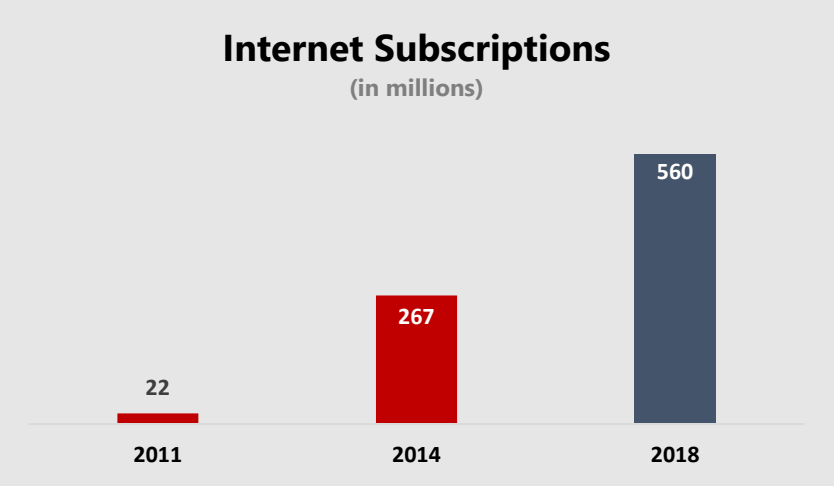
10.3 m businesses registered as of March 2018

Large-Scale Digital Adoption in India

Driven by Government and Market Forces







Source: TRAI Reports

Large-Scale Digital Adoption in India

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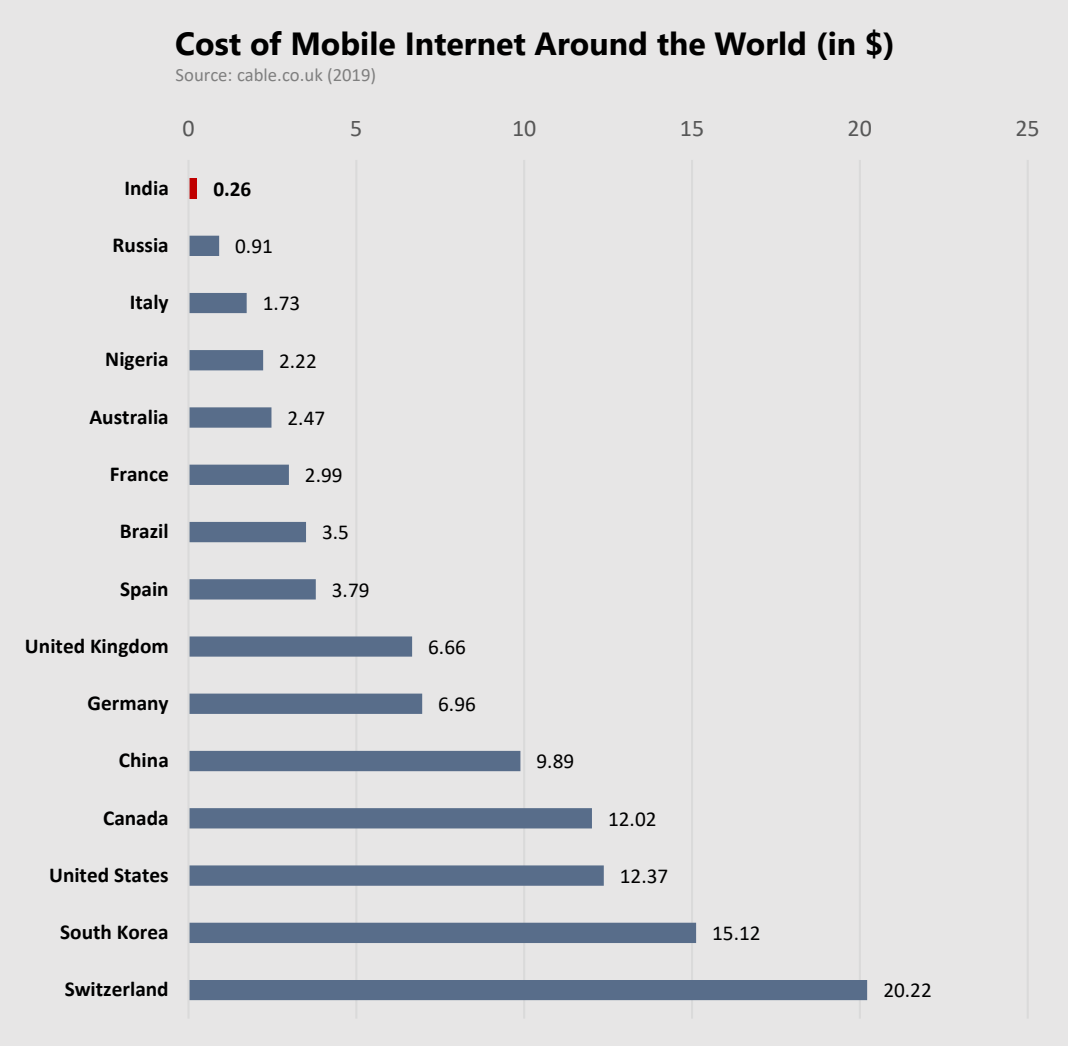
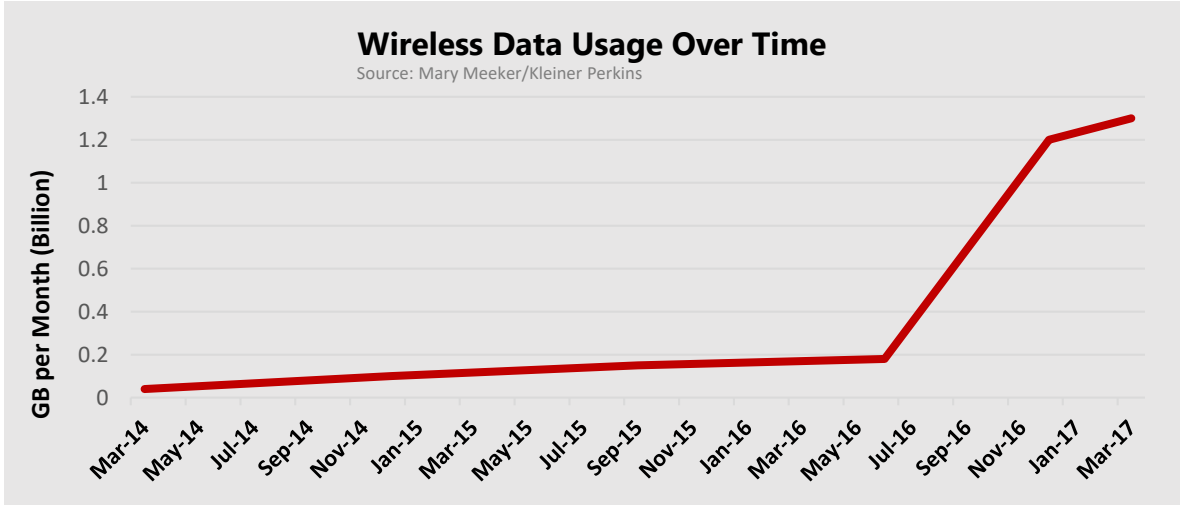
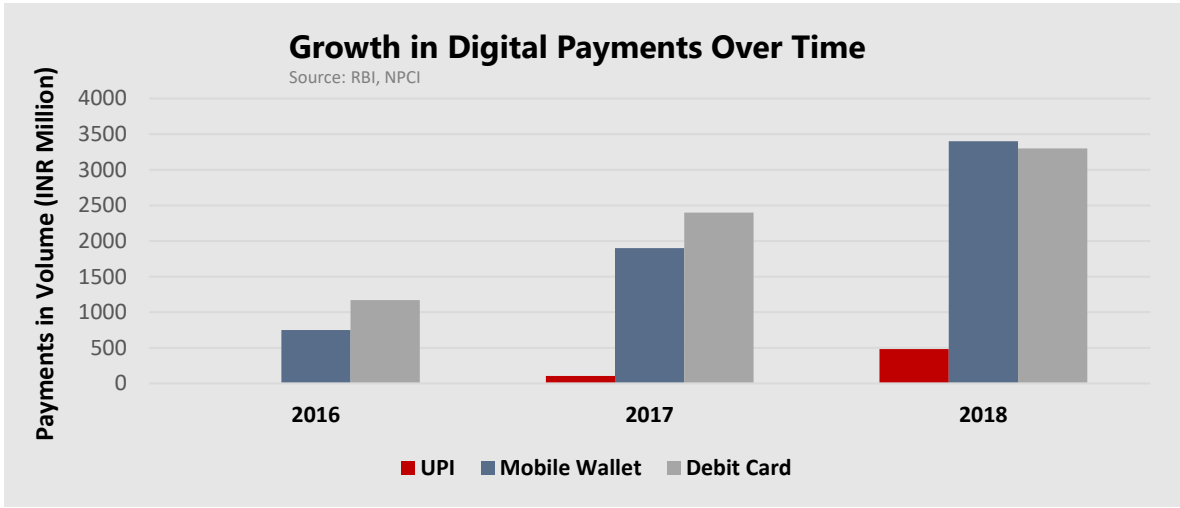
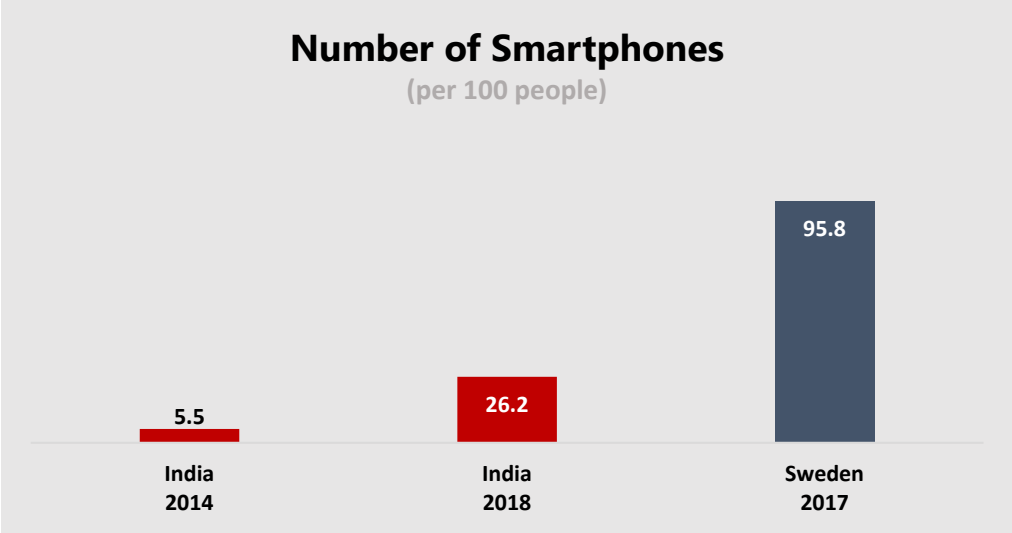
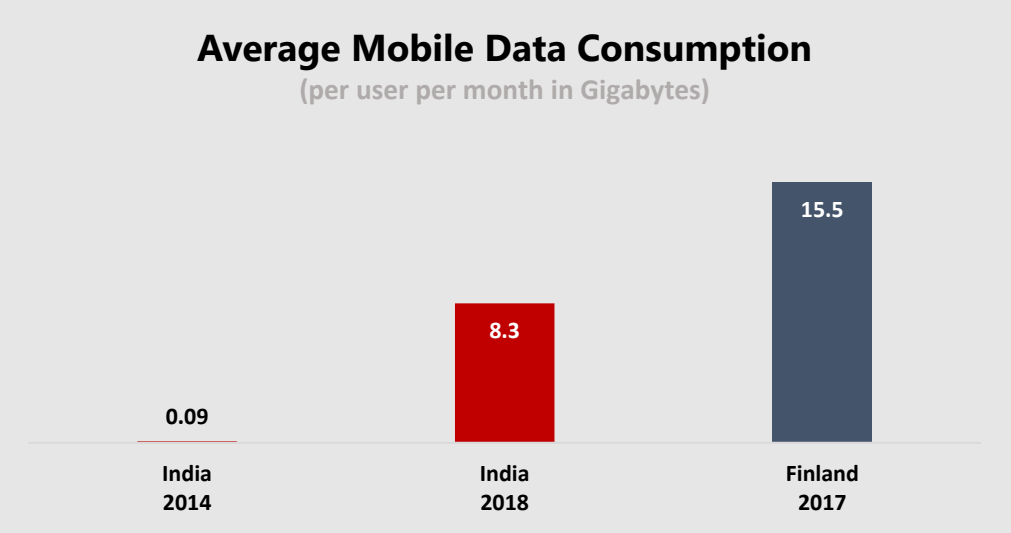


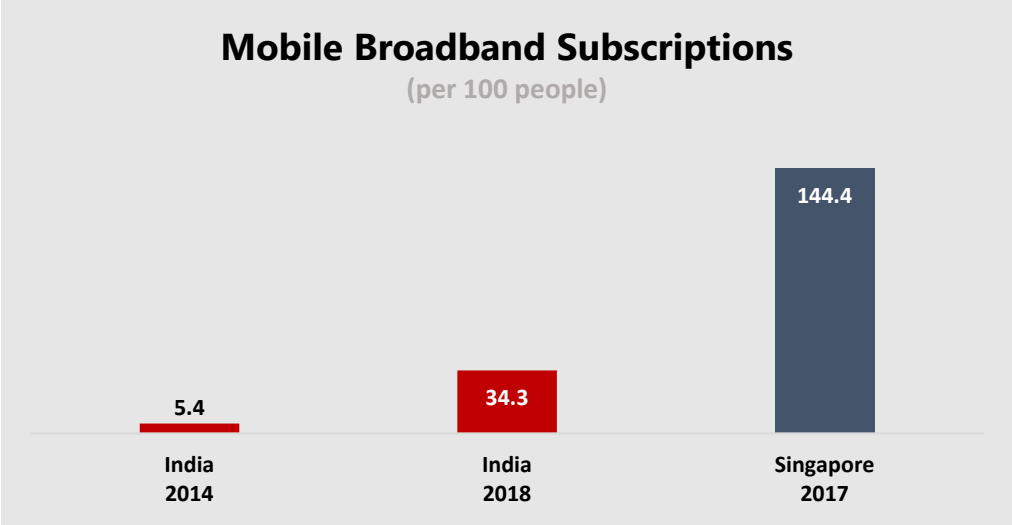




But Immense Scope for Improvement Remains...







Source: MGI Report

Impact of Internet Access on the Indian Economy

A Regression Analysis

In order to test the impact of internet penetration on GDP per capita levels of regions, a fixed effects panel data regression was estimated. The data pertains to 18 Indian states for the period 2004-2014.

The model used is as follows:

$$Log\ GDP_{it} = \alpha + \beta\ L_{it} + \gamma\ GCF_{it} + \delta\ Log\ IPen_{it} + \varepsilon$$

$Log\ GDP_{it}$ is the logarithmic value of state GDP per capita in i^{th} state in year t;
L_{it} is the labour population of the state in i^{th} state in year t;
GCF_{it} is the gross capital formation of the state excluding investment in telecom;
$IPen_{it}$ is the logarithmic value of internet penetration within the state in i^{th} state in year t

The model shows that

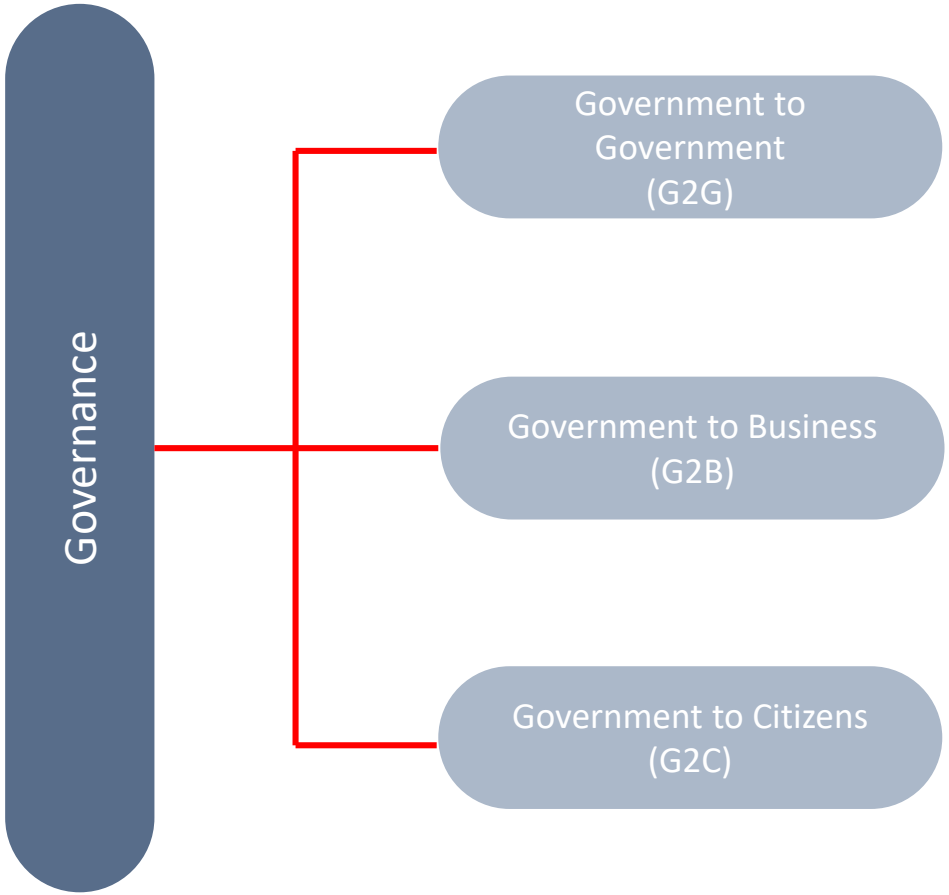
10% increase in internet penetration leads to

an increase in **GDP** by

3.9%

keeping all other factors constant

E-Governance
Applications



Online interaction between central government departments, state government authorities and government organisations enhance the efficiency and evoke greater innovation.

Policy Examples: Data Smart Cities, Control and Command Centre

Government departments need to interact with various business houses. The conduct of online transactions simplifies the regulatory processes and help the businesses to become more competitive.

Policy Examples: Goods and Services Tax Network; Ease of Doing Business like e-tendering, e-procurement.

A number of services are being offered by the government agencies to the citizens that can range from a simple request resolution to anything useful to both the parties.

Policy Examples: JAM Trinity; e-Services like Passport, Birth and Death Registration; DBT Bharat; e-Kranti; UPI.

Government to Business

E-Marketplace

₹ 50,000 Cr.

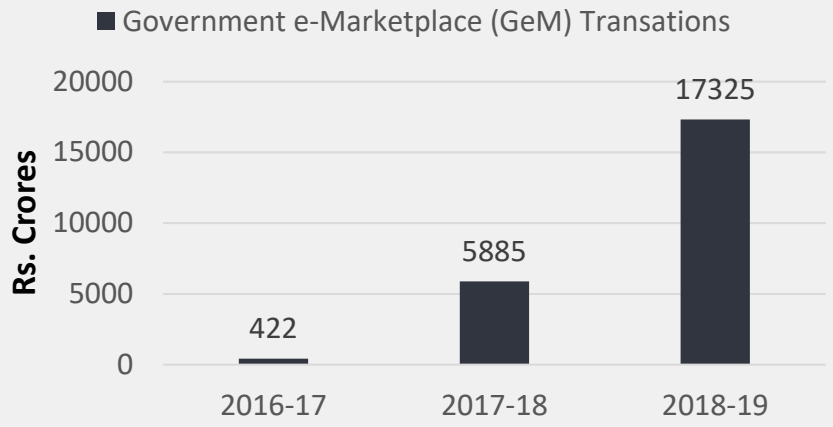
Target Transactions in 2019-20

From **30-60 days** *to* **10-15 days**

Fall in delivery time

35,935	2,35,630
Buyer Organizations	Sellers & Service Providers

- 25 percent of average savings across transactions. This can be used for other development projects.
- 42 percent of the transactions by volume are done by MSME. Efforts can be made to bring start-ups, small artisans and SHGs on this platform.



Government e-Marketplace

- India's government spends ***20 percent of GDP*** on public procurement.
- To tackle the issues of decentralized procurement, GoI set up Government e-Marketplace (GeM).
- It is the National Public Procurement Portal for providing procurement of goods and services required by Central & State Government organizations.
- The platform reduces manual process inefficiencies and human interventions in procurement and enables increased coverage, access, and efficiency of faceless standardised public procurement.

Government to Citizens

Jandhan Aadhar Mobile (JAM)

85% of Indian citizens now having a bank account, compared to 45% in 2014.

Residents have a unique biometric identity card and a digital platform to authenticate anywhere and anytime.

1191 million mobile subscriptions and 560 million internet subscriptions.

The combination of **32.94 crore Jandhan bank** Accounts, **121 Crore mobile phones** and digital identity through **122 crore Aadhaar** is helping the poor receive the benefits directly into their bank account

1. Improving public delivery

2. Enhancing Financial Inclusion

3. Empowering citizens economically

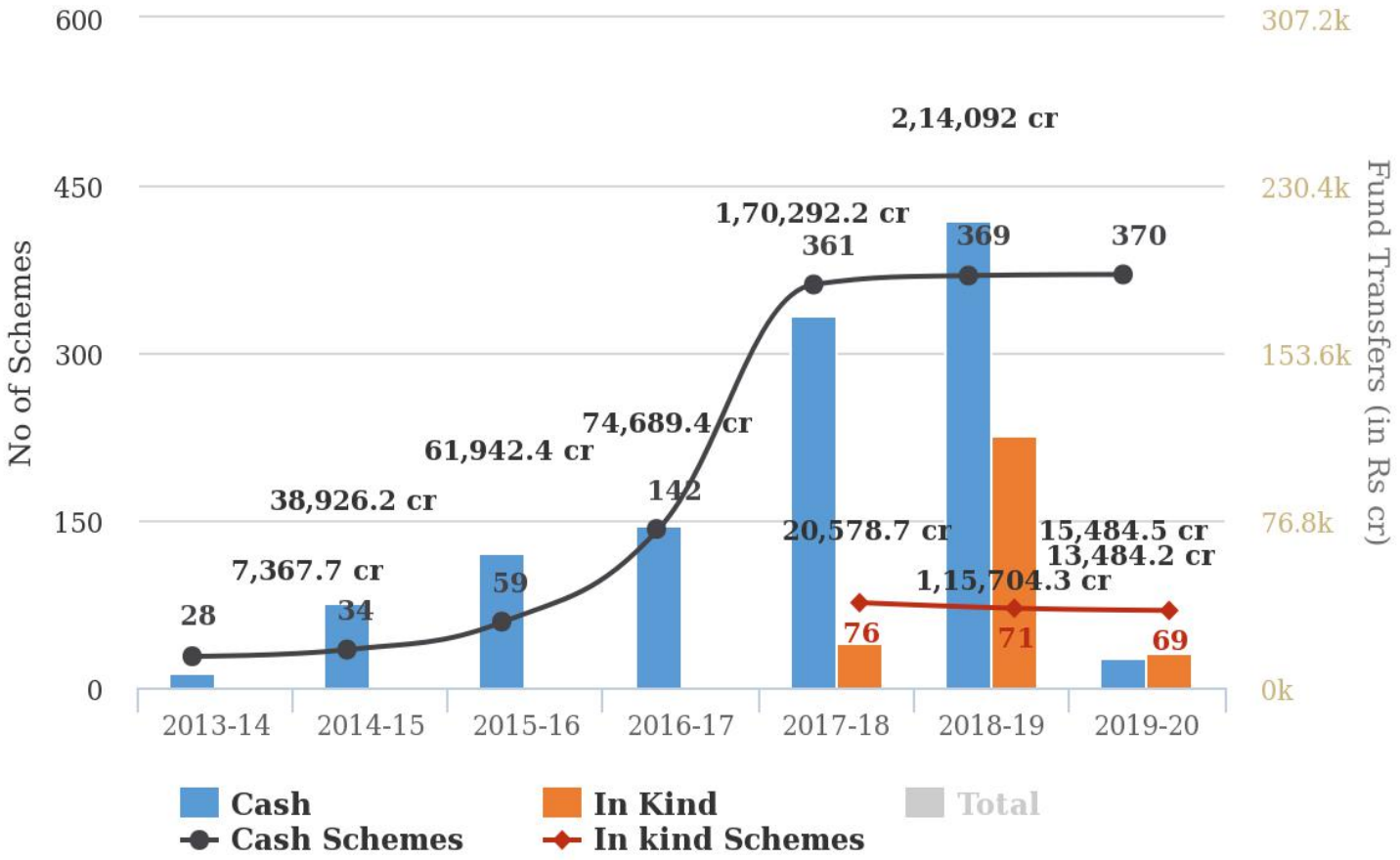
4. Improving Ease of Living

Government to Citizens

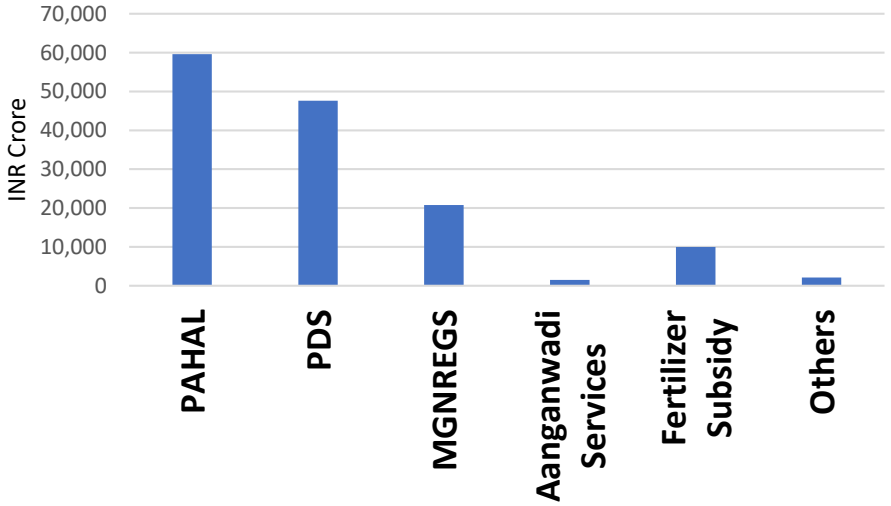
Direct Benefit Transfers: Addressing Public Welfare Delivery

Year-Wise Fund Transfer Across Different Schemes Through DBT

Source: DBT India



Cumulative Savings in different Schemes (Up to March 2019)



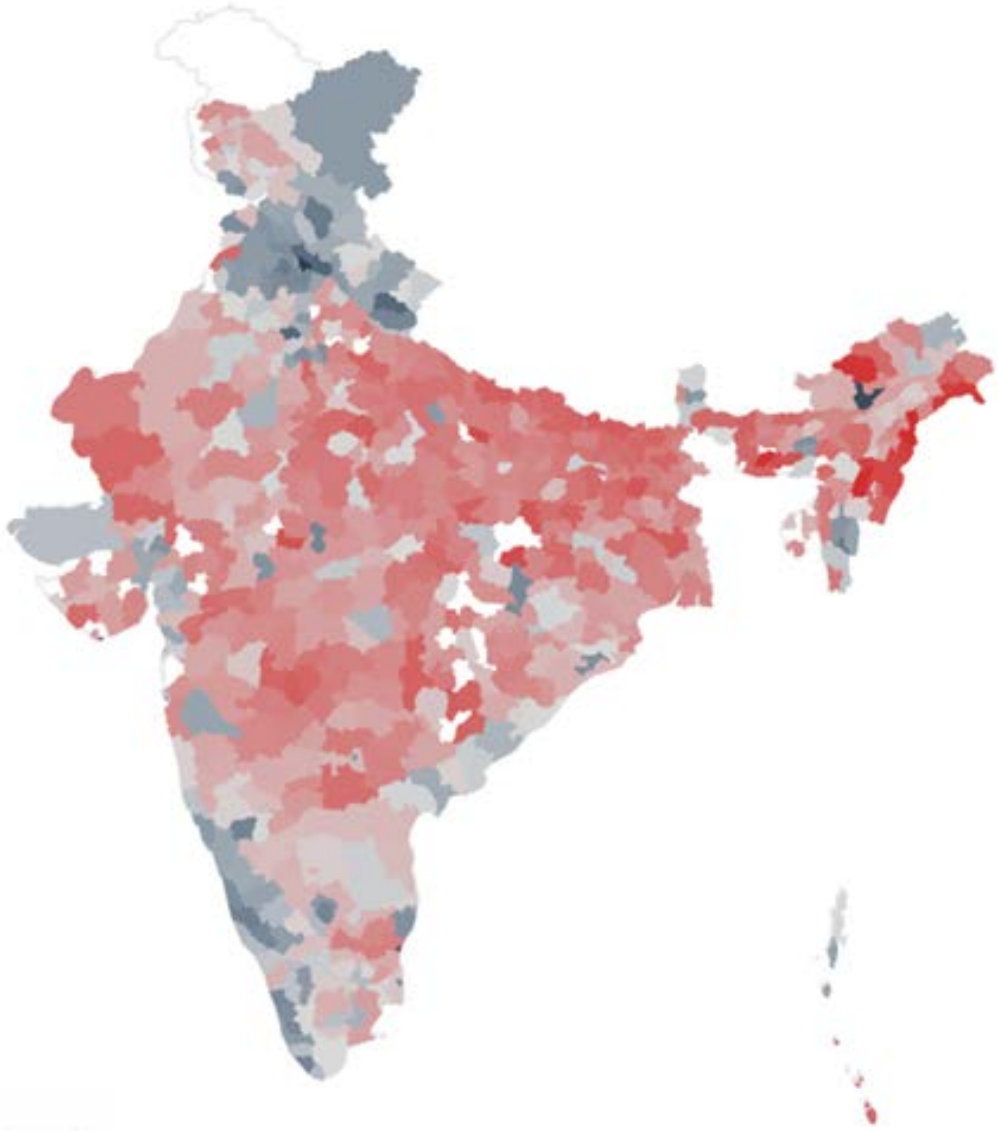
- Over the last two years, DBT has significantly picked up. In 2018-19, ₹2 trillion (around 8% of total government expenditure) was delivered through DBT into beneficiary accounts according to the DBT Mission.
- The DBT Mission estimates that Aadhaar and DBT have helped save the government around ₹1.2 trillion since 2014.

Government to Citizens

Enhancing Financial Inclusion and Empowering Citizens Economically

- Indicators
  - Bank Branches
  - Bank Accounts
  - Credit to Deposit ratio
  - MSME Clusters

The map shows that there are significant differences across the Indian districts.



Social Progress Framework

Basic Human Needs

Nutrition and Basic Medical Care
Do people have enough food to eat and are they receiving basic medical care?

Water and Sanitation
Can people drink water and keep themselves clean without getting sick?

Shelter
Do people have adequate housing with basic utilities?

Personal Safety
Are people able to feel safe?

Foundations of Wellbeing

Access to Basic Knowledge
Do people have the educational foundations to improve their lives?

Access to Information and Communications
Can people freely access ideas and information from anywhere in the world?

Health and Wellness
Do people live long and healthy lives?

Environmental Quality
Is this society using its resources so they will be available to future generations?

Opportunity

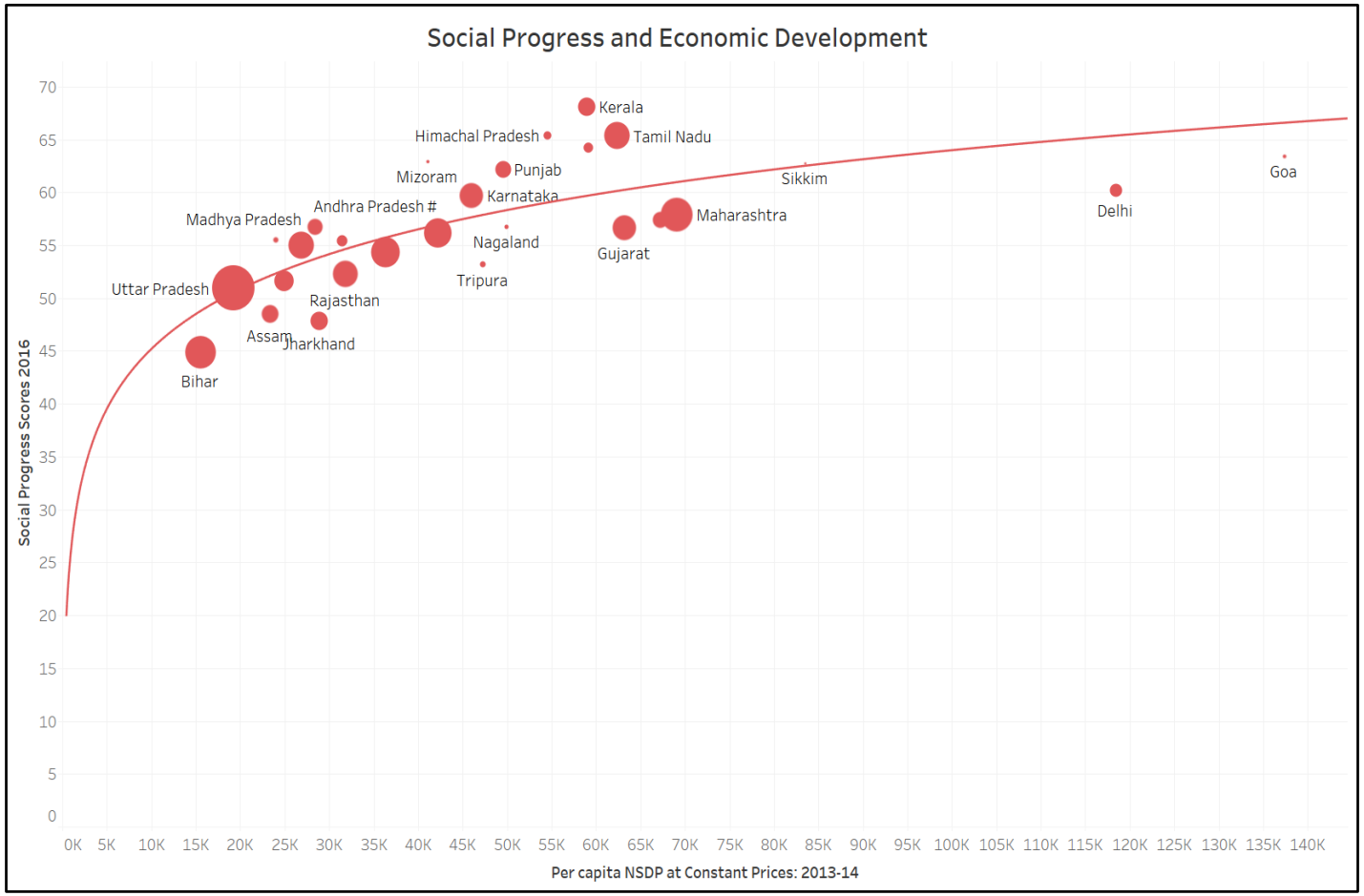
Personal Rights
Are people free of restrictions on their rights?

Personal Freedom and Choice
Are people free of restrictions on their personal decisions?

Tolerance and Inclusion
Is no one excluded from the opportunity to be a contributing member of society?

Access to Advanced Education
Do people have the opportunity to achieve high levels of education?

Social Progress and Economic Development



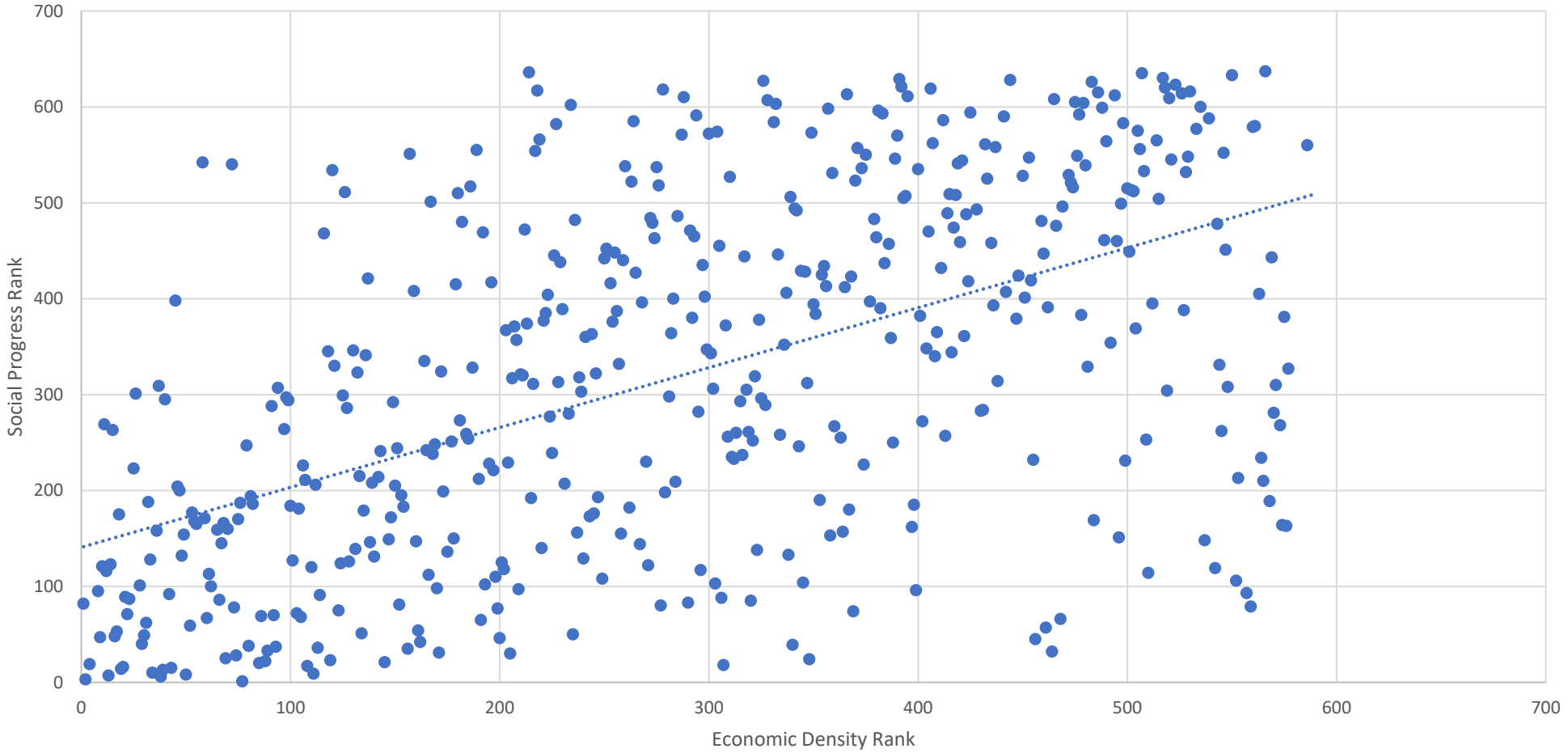
First, ***there is a positive and strong relationship between NSDP (Net State Domestic Product) per capita and the Social Progress Index***. For instance, Bihar with a per capita NSDP of 15,506 scores 44.89 on the Social Progress Index, States of India. On the other hand, Goa with NSDP per capita of 137,401 has a Social Progress Index score of 63.39. At an aggregate level, a one percent increase in NSDP per capita is associated with a 0.08-point increase in Social Progress Index score.

Second, ***the relationship between social progress and NSDP (economic development) is not linear.*** At lower levels of income, a small change in NSDP leads to great advancements in social progress scores. However, as income levels rise, the rate of change slows.

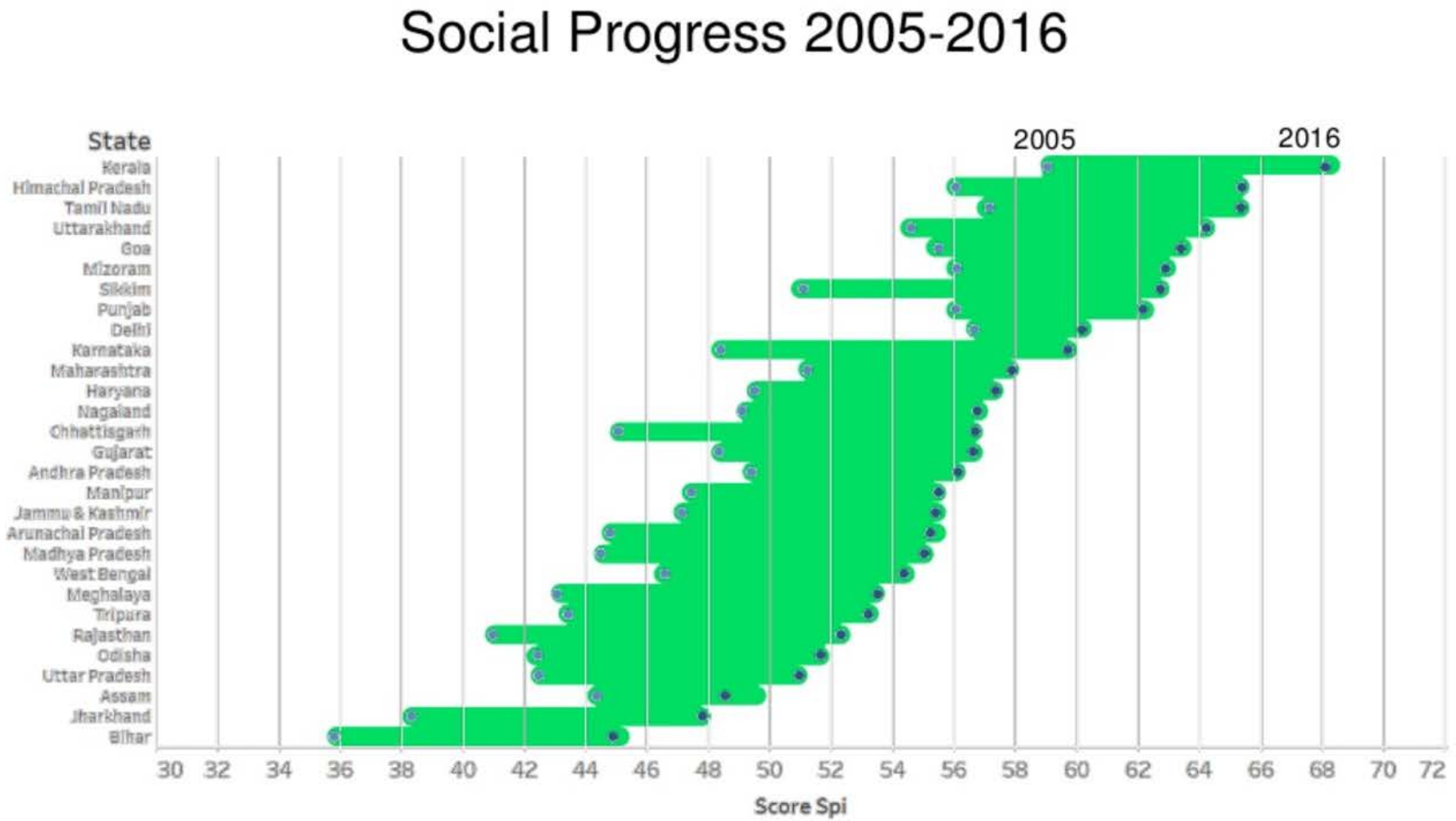
Third, despite the correlation between NSDP per capita and the Social Progress Index, a considerable amount of variability in social progress is observed among states with comparable levels of NSDP per capita. Hence, ***economic performance alone does not fully explain social progress.*** This fact, which was empirically established by the Global Social Progress Index holds true for the Indian states as well.
The model has an R-squared value of 0.54 i.e. only 54% of the changes in social progress can be explained by the NSDP per capita.

Social Progress and Economic Development

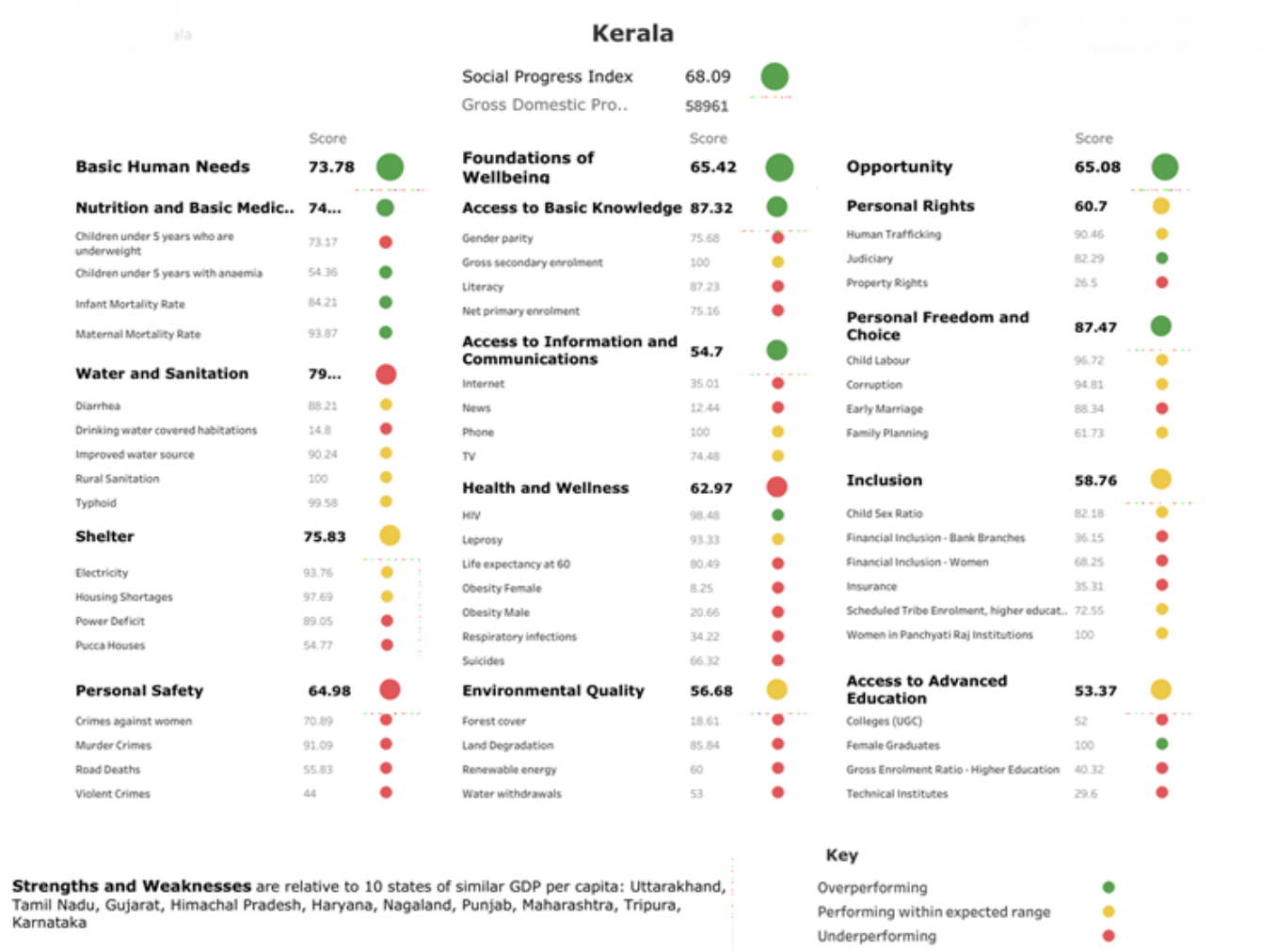
District Level Relationship



How Social Progress has improved over the years

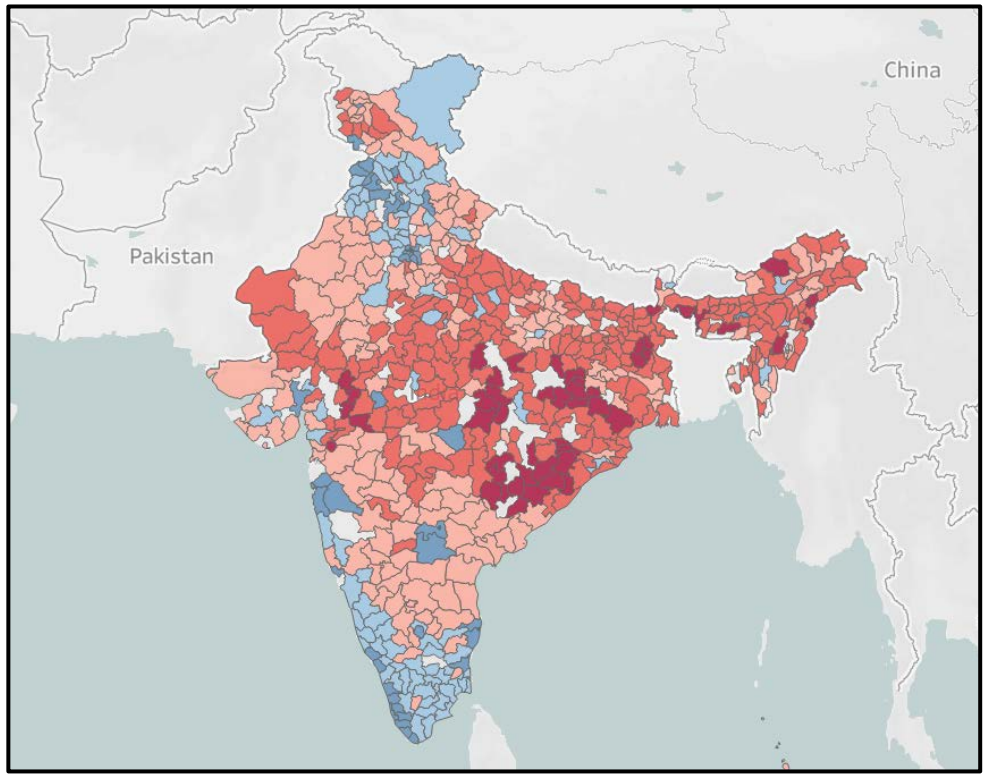


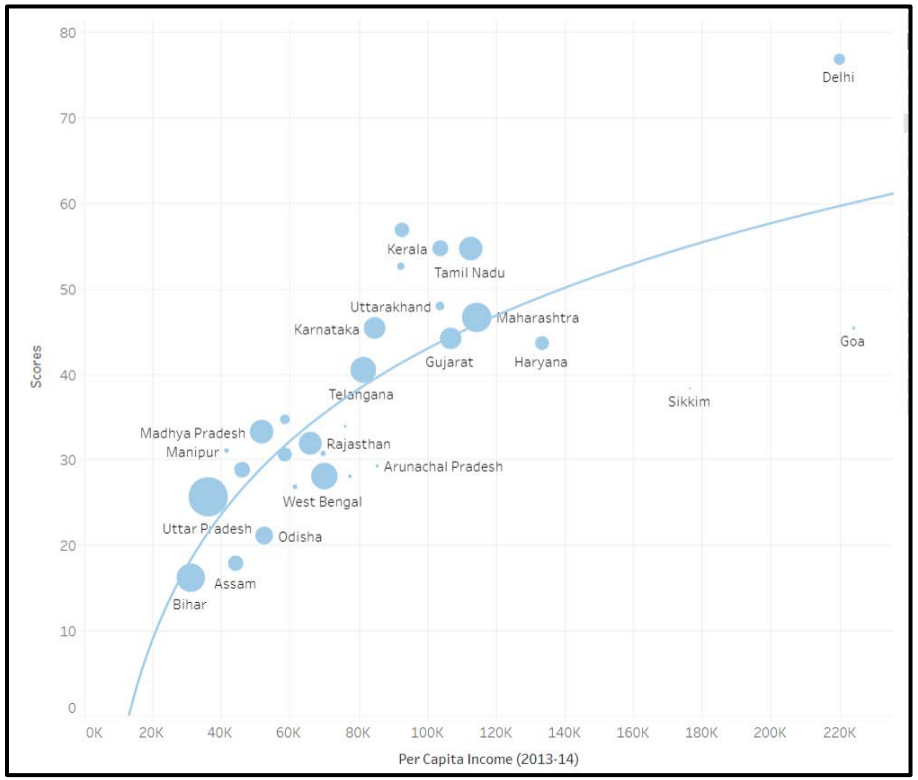
Social Progress Scorecard



Access to Information & Communication and Economic Development

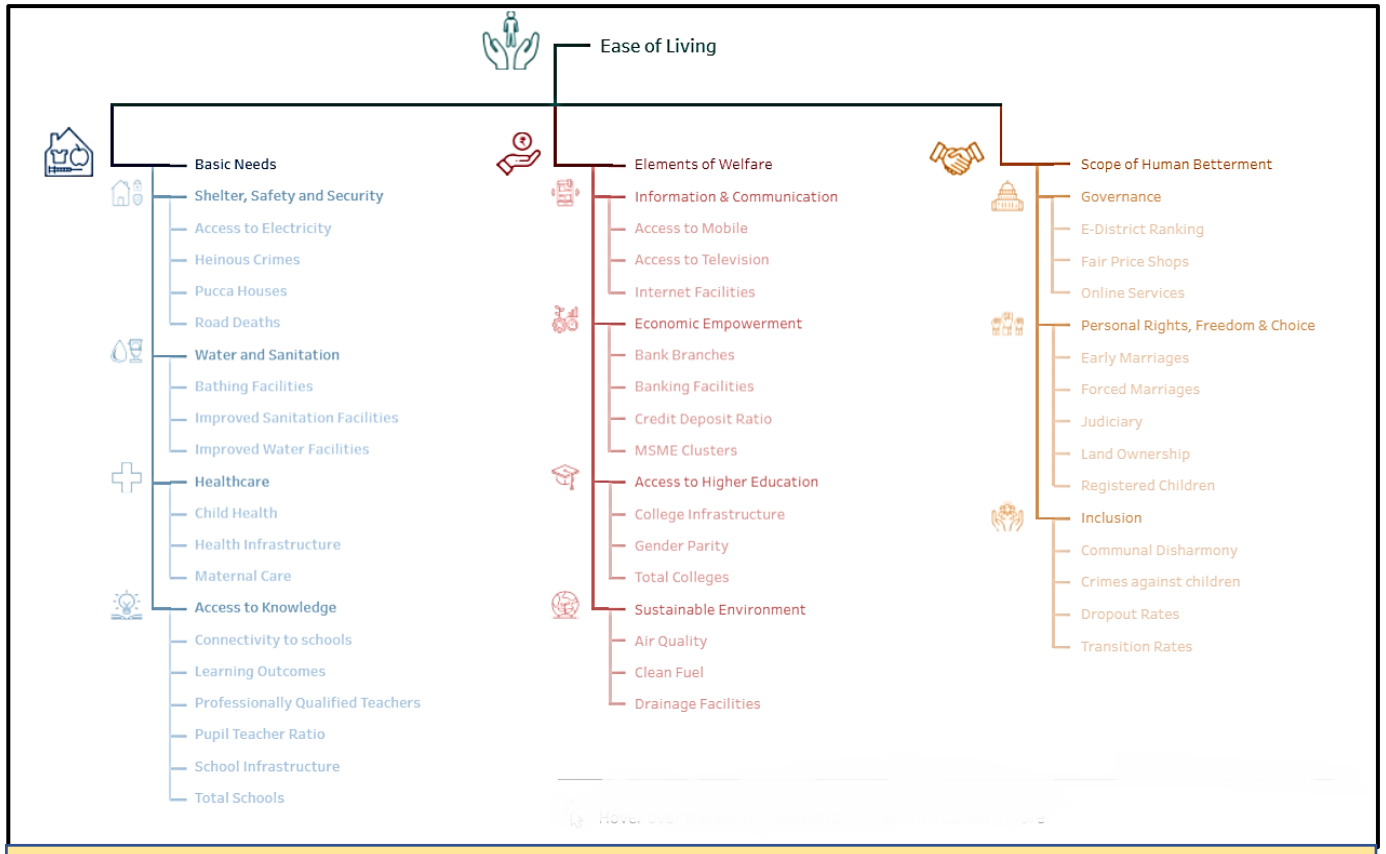
- Indicators
  - Mobile Phones
  - Television
  - Internet

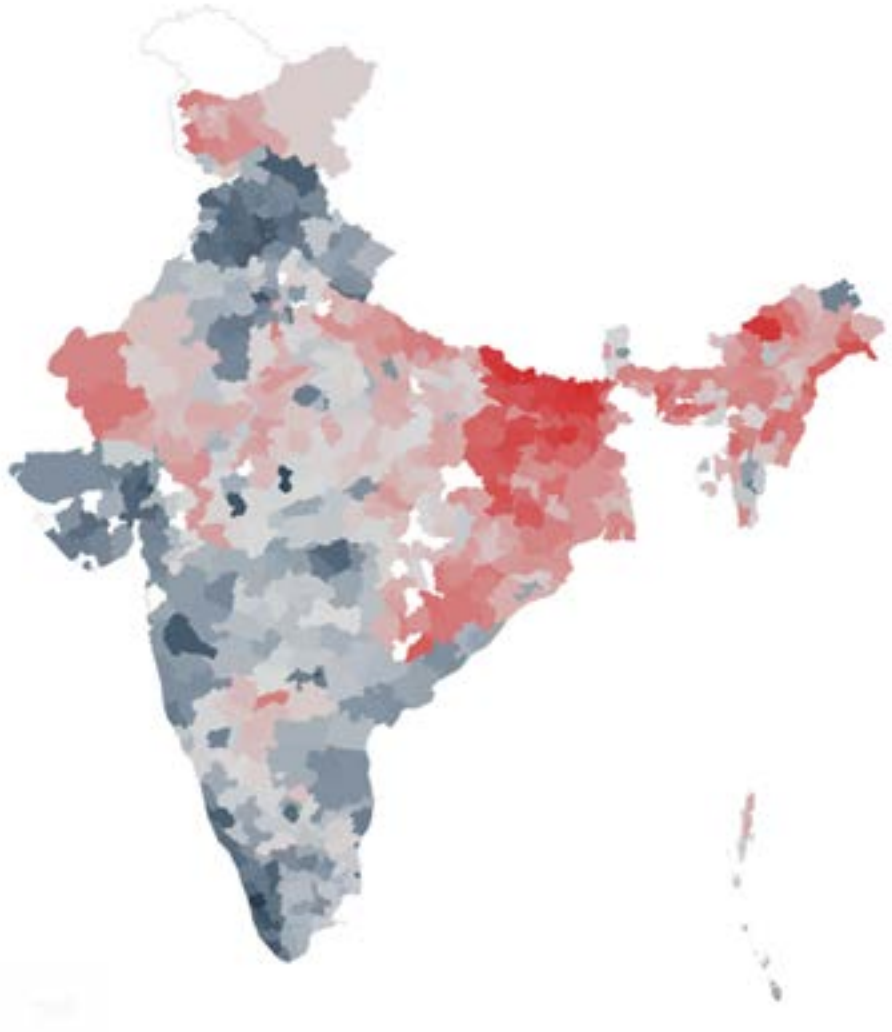




Government to Citizens

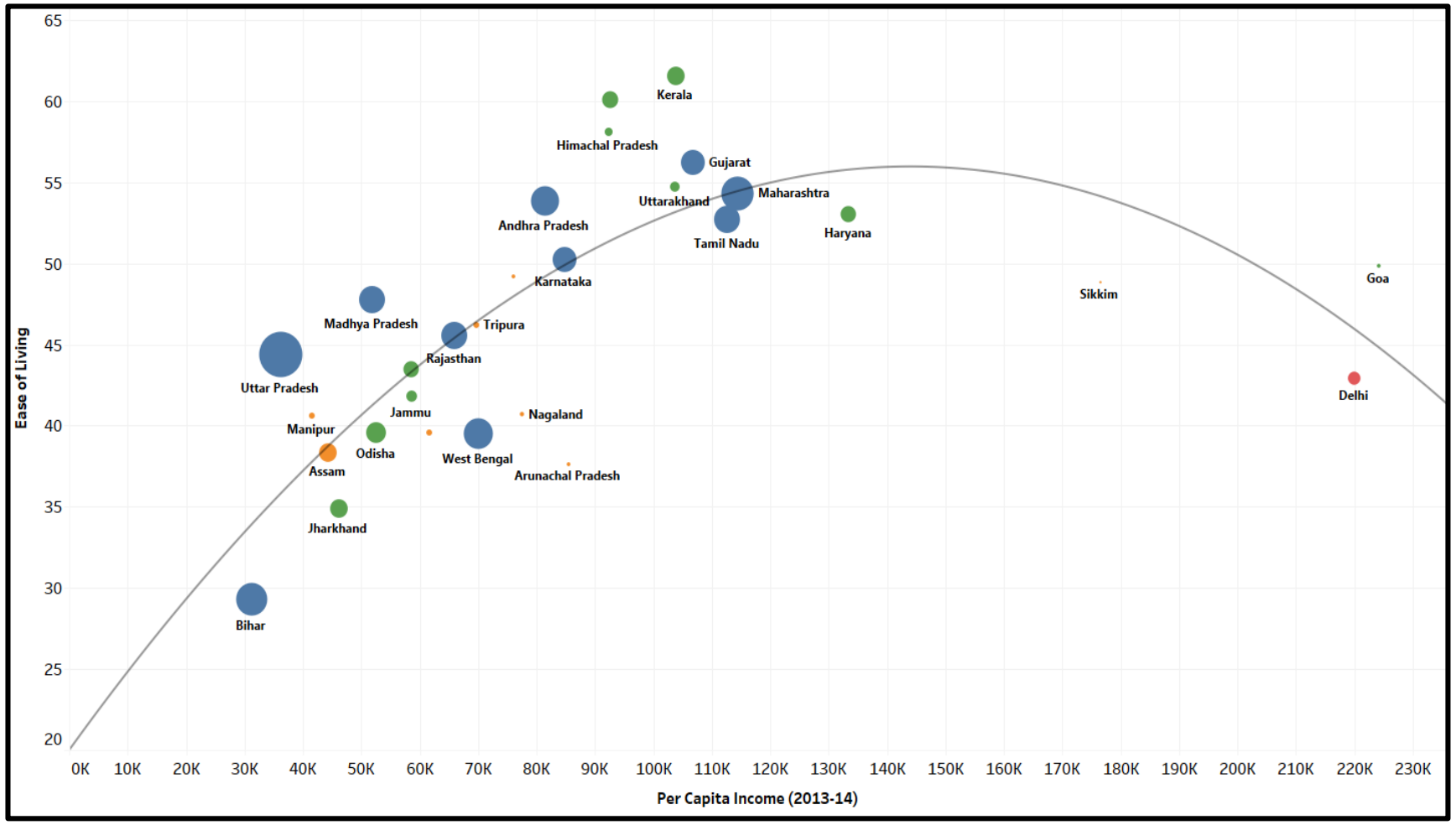
Measuring Ease of Living across Indian Districts





The framework captures Ease of Living by looking at three main pillars: Basic Needs, Elements of Welfare and Scope of Human Betterment.

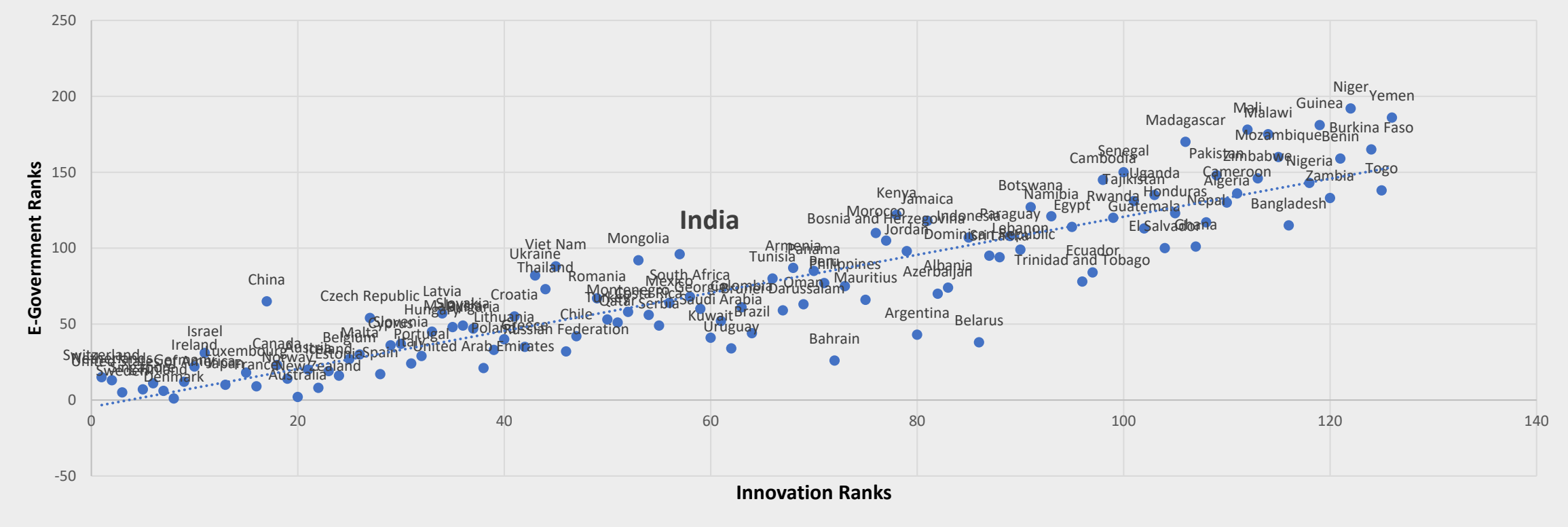
Ease of Living and Per Capita Income



One, there exists a complex non-linear relationship between ease of living and per capita GDP. Therefore, the impact of economic development on the ease of living will depend on where the region is placed.

Second, *the linear effect parameter is positive while the quadratic effect parameter is negative*. This shows that if one is at a lower level of economic development, investing in economic wellbeing will translate into social wellbeing. However, after the cut-off is reached higher economic development will lead to a fall in the ease of living.

E-Governance and Innovation

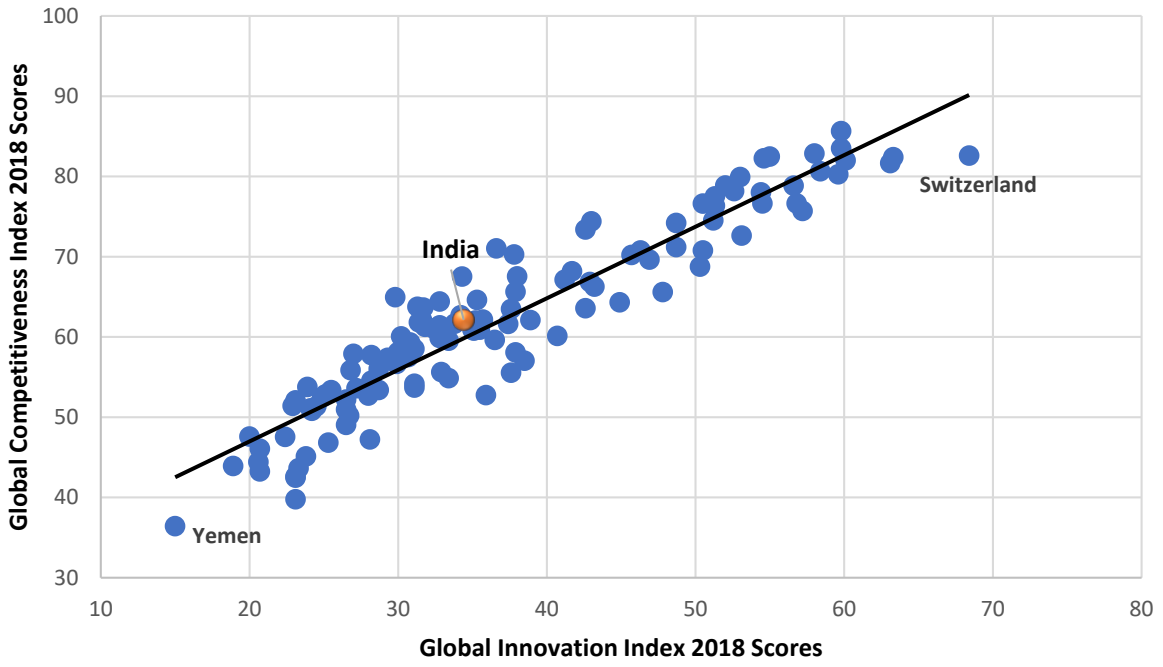


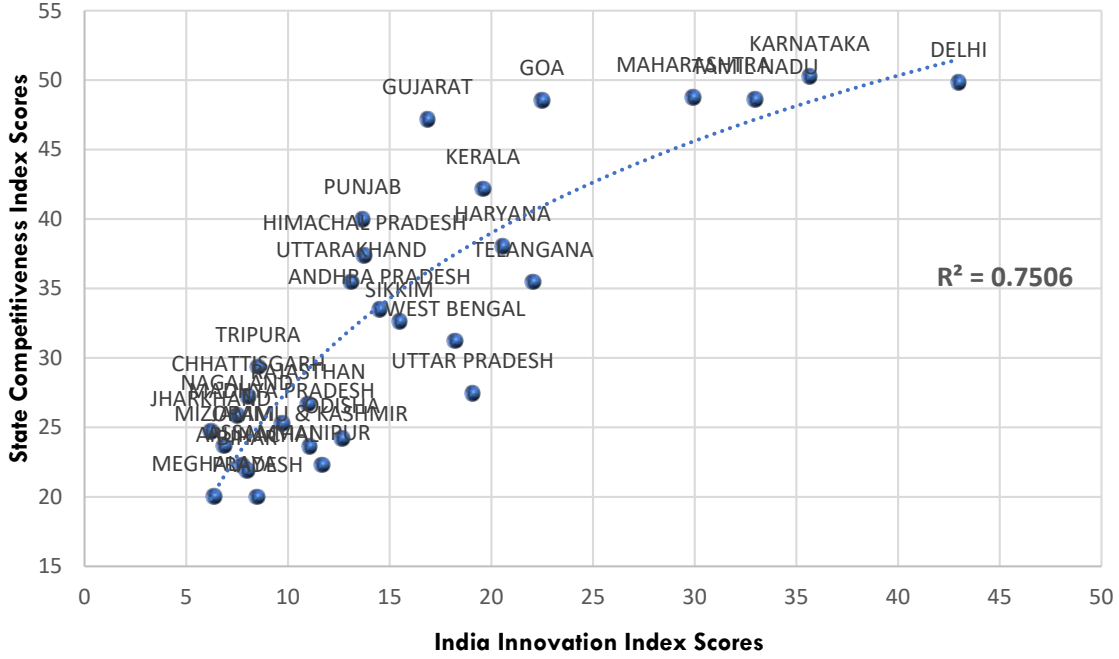
The enhanced efficiency in service delivery due to e-governance initiatives makes the micro-economic environment of the country conducive for business activity.
The increase in business activity enhances the innovative capacity and makes the nations more competitive.

Source: Innovation Index – GII; E-Government – United Nations

Innovation and Competitiveness

Global and State Level Relationship

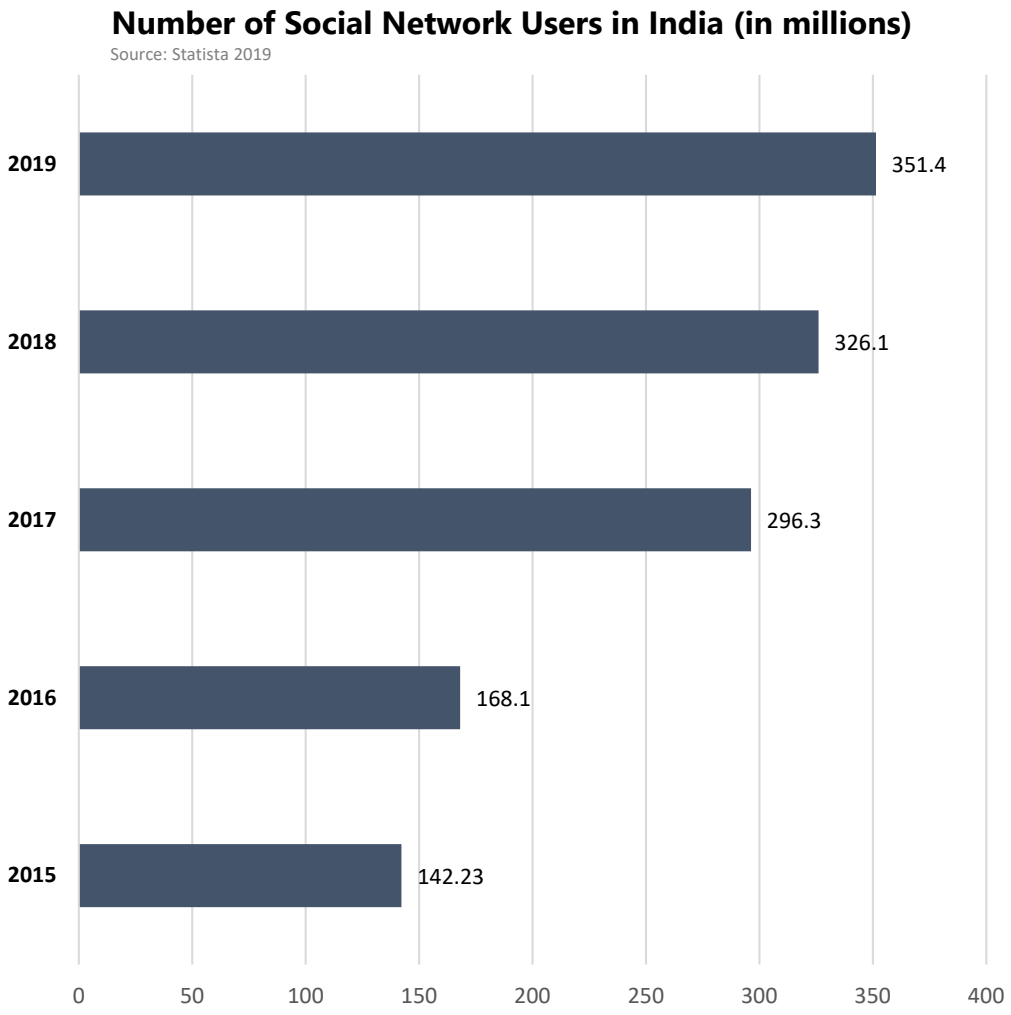




When firms innovate, they derive prosperity by creating value adding products through realization of the resources. This ability to innovate increases the productivity and in turn enhances the competitiveness. So, innovation should be considered as the basis of creating prosperity.

Social Media Growth in India

The Problem of Fake News



260 million users

200 million users

78 million users

35 million users

Creative Economy

Technology, Talent and Tolerance

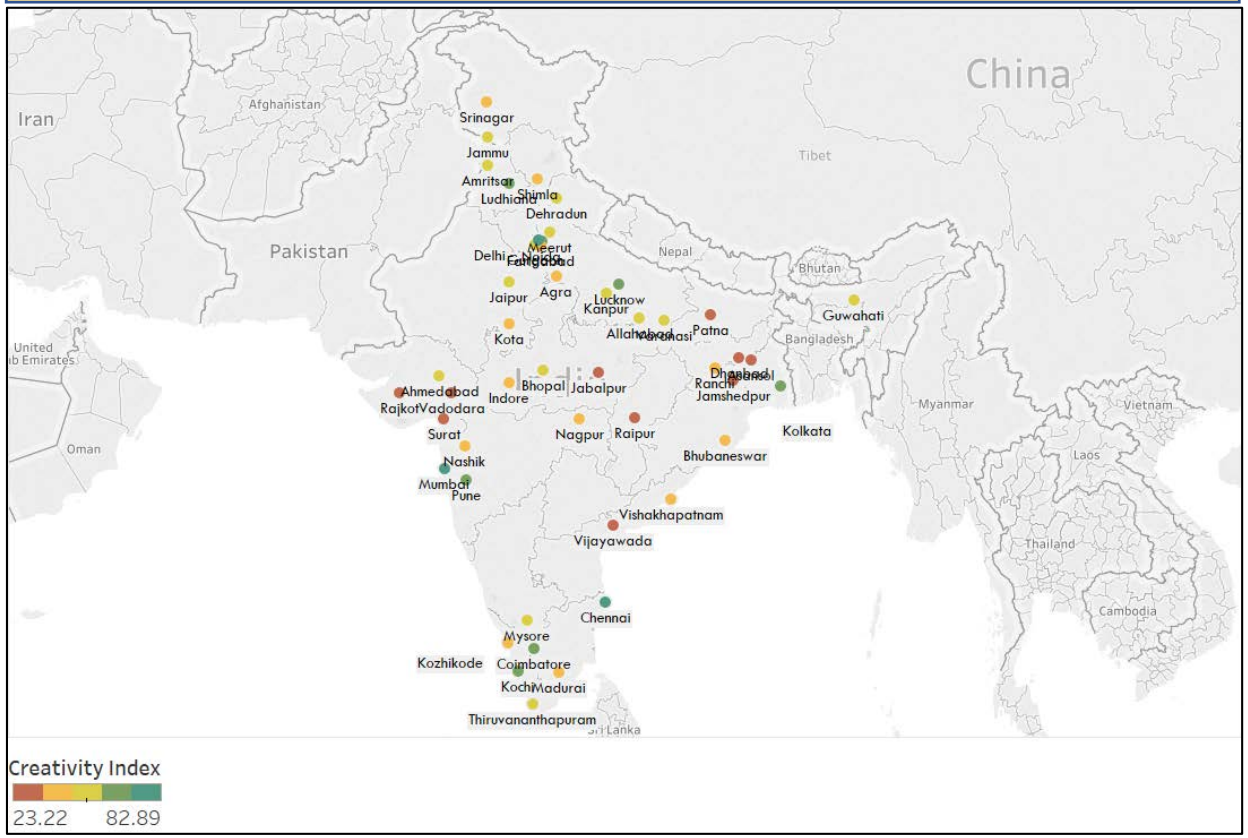
Technology, Talent, and Tolerance are the three most crucial factors that are needed to explain the rise and fall of cities. A confluence of all these 3Ts of economic development determines the economic potential and capability of cities to attract and retain the Creative Class.

Technology is a critical component that a city needs to have in place for achieving economic growth and prosperity. It improves the competitiveness of a region by addressing societal needs in an efficient, cost-effective manner. Robert Solow and Trevor Swan showed in their Nobel Prize-winning work how varying rates of technological progress could explain the differences in the standard of living between different countries.

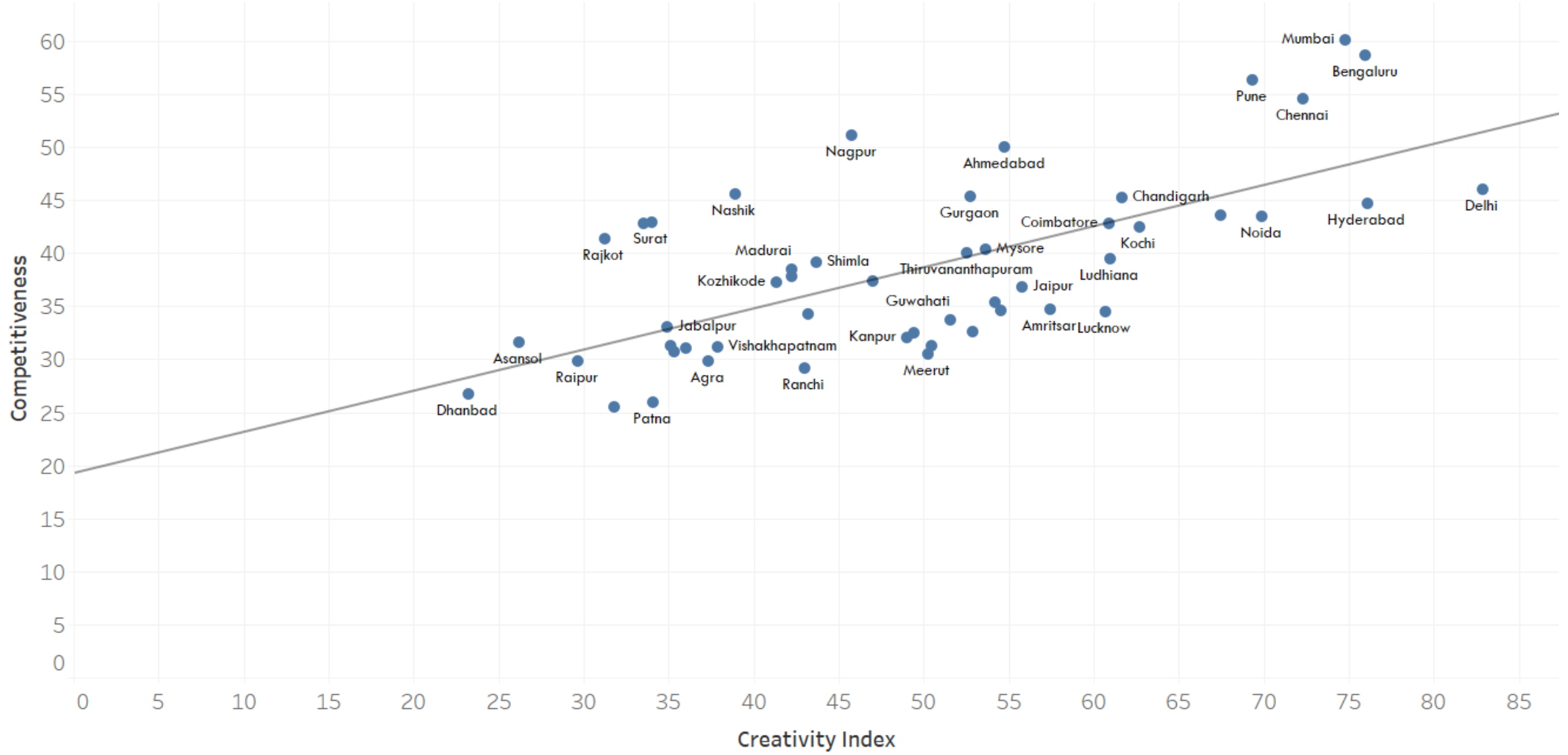
Talent is another crucial element that determines regional development. Talented individuals generate innovative ideas that lead to the development of technologies, which stimulate economic growth. Apart from investing in people to develop talent, cities need to attract and retain talent as well to maintain a competitive edge.

Tolerance of diverse group of people is imperative for the development of cities. An openness to diversity can provide an economic stimulus to nations, regions, and cities due to low entry barriers for talented individuals. It boosts the ability of nations and regions to mobilize their creative capacities and compete for creative talent, i.e. the more tolerant or open a country or region is, the more talent it is able to mobilize and attract. Unfortunately, tolerance is nearly absent from conventional economic models.

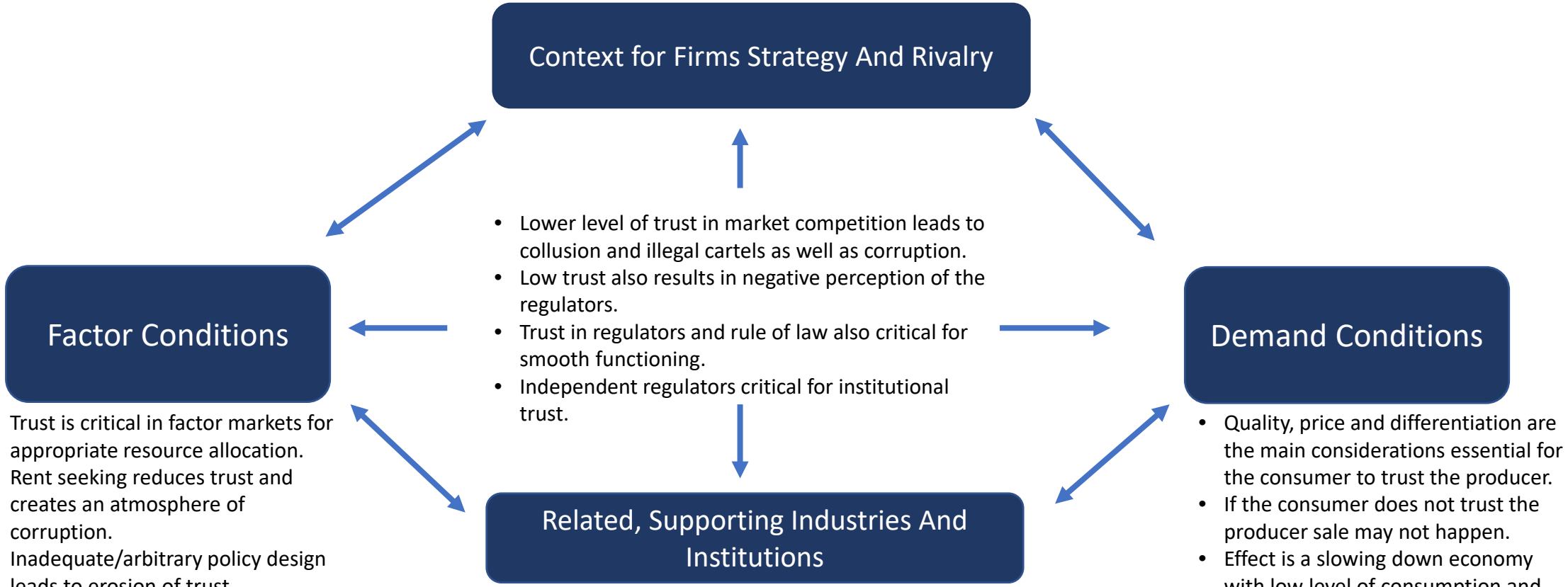
Creative Economy of Indian Cities



Competitiveness and Creative Economy



DOES LACK OF TRUST UNDERMINE COMPETITIVENESS?



- Lower level of trust in market competition leads to collusion and illegal cartels as well as corruption.
- Low trust also results in negative perception of the regulators.
- Trust in regulators and rule of law also critical for smooth functioning.
- Independent regulators critical for institutional trust.

- Trust is critical in factor markets for appropriate resource allocation.
- Rent seeking reduces trust and creates an atmosphere of corruption.
- Inadequate/arbitrary policy design leads to erosion of trust.
- Risk of the market is in the form of trust that the goods and services produces will be consumed.

- Quality, price and differentiation are the main considerations essential for the consumer to trust the producer.
- If the consumer does not trust the producer sale may not happen.
- Effect is a slowing down economy with low level of consumption and investments.
- Safeguards in the economy include quality certifying institutions as well as branding of the product.

- Lower level of trust in institutions undermines the rule of law.
- Low level of trust leads to non sharing of know how resulting in lesser network externalities of agglomerations.
- Trust in institutions undermined when they harass companies.
- Vicious cycle also leads to poor quality services as nobody is willing to provide them in an over-regulated economy.

Digital Tools

Boon or Bane for democracy?

Digital Communication Technologies

were supposed to be a boon for democracy

A discussion platform
that cannot be influenced by authoritarian powers

Direct and Unfiltered
access to information impacts quality of public deliberation

Inexpensive platform
for leaders to engage with citizens

Examples include downfall of oppressive regimes in Libya, Tunisia and Egypt

However, during the last decade, negative aspects of digital tools have become apparent. Democratic processes are being influenced in three ways.

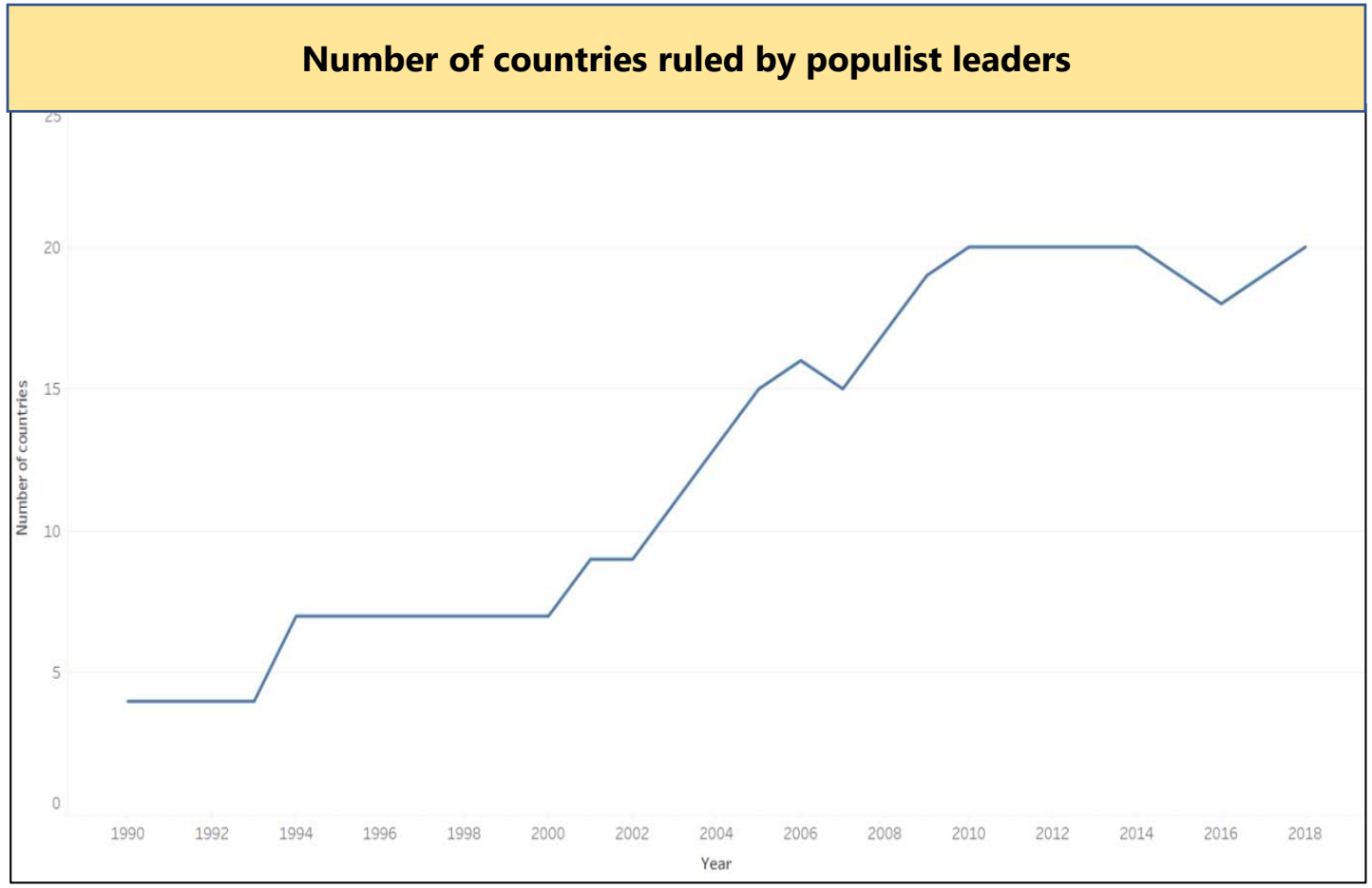
Spreading **Fake News** by conducting disinformation campaigns.
Examples: Bots and Sock - puppets

Conducting **Cyber Attacks** on government's and political party's data
Examples: Leaking data of Emanuel Macron two days before 2017 French Presidential elections

Using **Big data** and micro targeting techniques to disseminate messages
Example: Brexit
The Leave party was assisted by companies in micro-targeting advertisement

The best way to tackle this challenge is that greater access to information must be accompanied by digital literacy programs to educate citizens how to discern genuine from fake news.

The Rise of Populism



Source: Kyle, J., & Gultchin, L. (2018). *Populist in Power Around the World*

- We can trace the origin of the term *populism* back to agrarian protests in the late 1800s in the United States and Russia.
- In the early 1900s, the idea spread its footprint in Latin America, starting with Brazilian leader Getúlio Vargas assuming power in 1930.
- Next door to Brazil, populism also fueled the political movement that developed around Argentina's Carlos Menem. Yet, until the 2000s, populism was a limited phenomenon.
- The recent evidence of populism we see in the headlines is not unexpected; rather, it has been building up for the last two decades. Since 2000 the number of populist leaders has more than doubled.

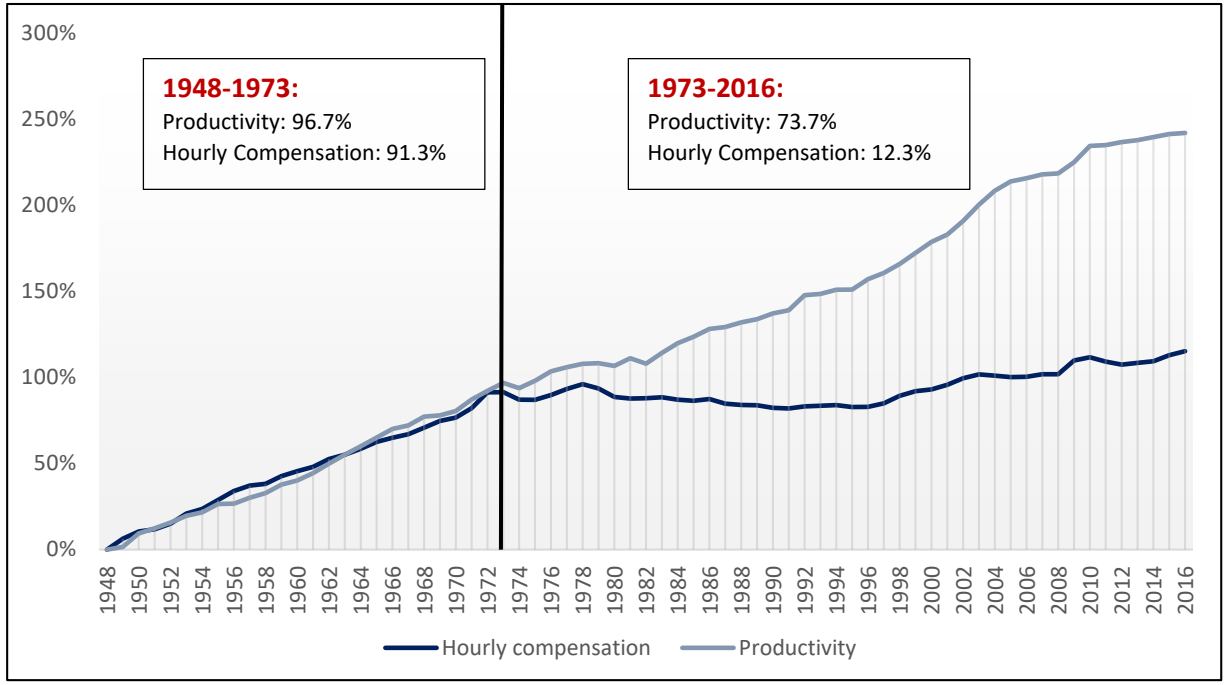
The Rise of Populism

Reasons

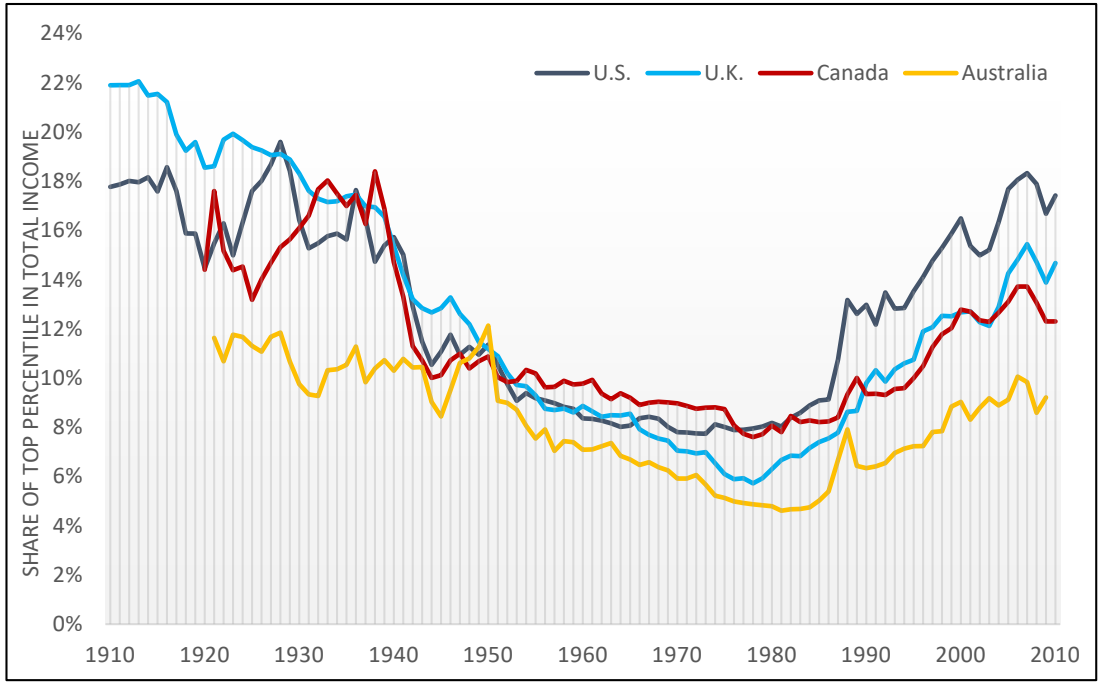
The world is moving away from from globalization towards individually stronger nation-states, and the rise of populist parties, a sign of a dynamic democracy, is a product of this movement.

We can trace the factors driving this shift back to the decades of building resentment among the masses.

Stagnation of wage growth for the US economy



Income inequality in Anglo-Saxon countries



Brexit

Equation:

$$L_{la} = \beta_1 * MS_{la} + \beta_2 * Perception_{la} + \beta_3 * Education_{la} + \beta_4 * Age_{la} + e$$

where,
L is the dependent variables that shows the share of leave votes;
MS is the migration shock;
Perception is the anti-EU sentiment;
Education is the percentage of population with Level 4 or more qualification;
Age is the percentage of population within the 18-29 age bracket.

The model together explains **90 percent** of the variation in the leave votes.

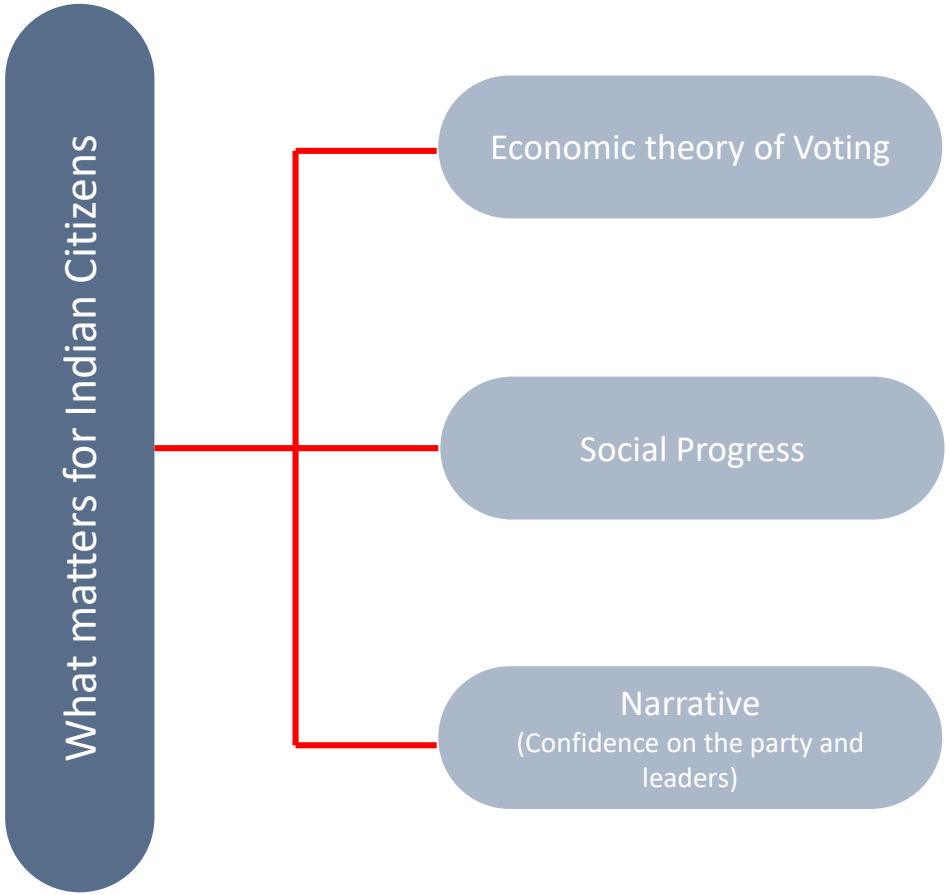
Variable	Relationship with Leave votes	Coefficient	p – Value
Migration Shock	Positive	0.006	0.001
Perception (Anti-EU sentiment)	Positive	0.695	0.000
Education (Level 4 or more)	Negative	-0.603	0.000
Age (18-29)	Negative	-0.081	0.079

Insights:

Immigration might have influenced the leave vote in two ways.

- First, by creating resentment towards the European integration. There is vast literature that suggests that if citizens feel their national identity is being threatened by the integration, they will vote to leave to the European Union.
- Second, the influx of immigrants is associated with loss of jobs, especially for the unskilled population. This is captured in the model through the education indicator.

How Indian citizens vote



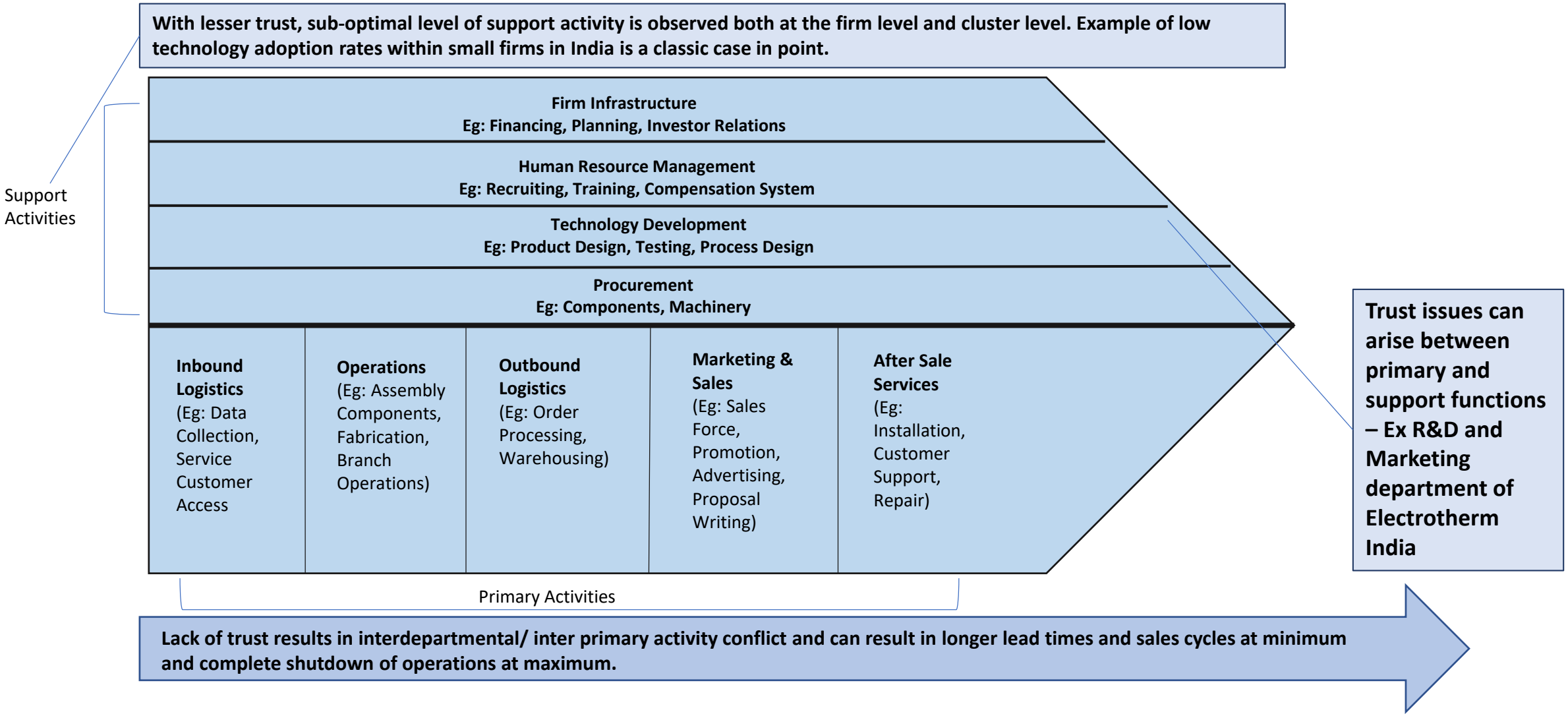
In India, good economics does not make good politics.
Analysis reveals a negative relationship between the growth rate of GDP per capita and the incumbent party getting re-elected, implying that in most cases despite higher growth incumbent does not get re-elected.

The analysis brings out that while casting their vote, people keep in mind two major social issues – inclusion and wellbeing.

The second crucial factor which dominates the arena of decision making is the sentiment towards the government and the noteworthy role of media in shaping any political elections in the country.

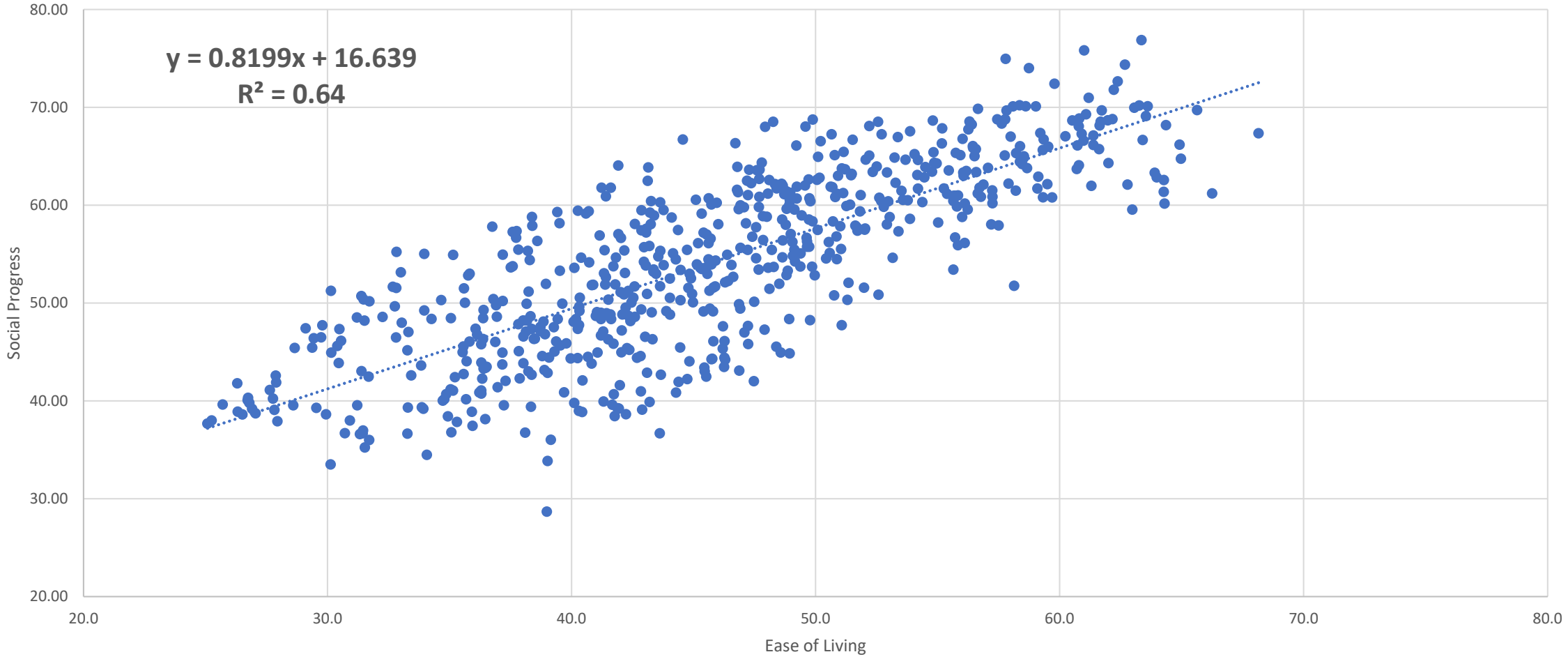
Appendix

IMPACT OF TRUST ON THE VALUE CHAIN OF A FIRM



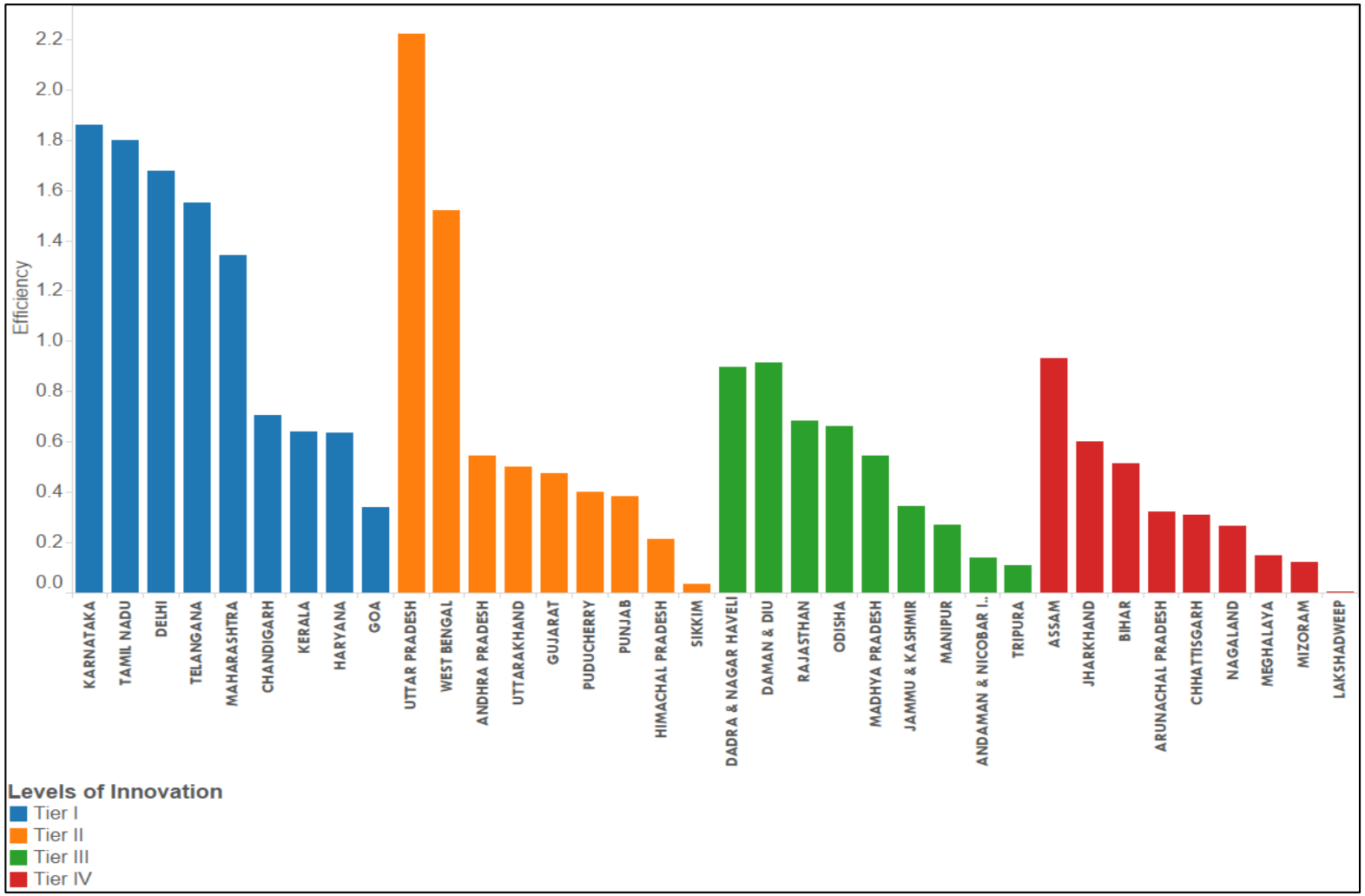
Source: Michael E. Porter and Institute for Competitiveness Analysis

Ease of Living and Social Progress



India Innovation Index

Efficiency Score



Insights: India Innovation Index

- This graph examines the states' efficiency in leveraging its inputs for outputs.
- Karnataka, Tamil Nadu Delhi, Telangana, Maharashtra, Uttar Pradesh and West Bengal are the most efficient states in the country with efficiency ratio above 1.

Cities

The Drivers of Innovation

India's Urbanisation

2001

290 million

2030

590 million

More than **70 percent** of India's GDP will be generated by **urban areas** by 2020

Therefore, cities should lead the way. The first step should be the measurement of the current indicators.

- **Ease of Living Index**
- **Municipal Performance Index**

DATA SOURCE: MCKINSEY REPORT

Ease of Living: Cities

Ease of Living Index

Quality of Life

Education
Household expenditure on education
Literacy Rate
Pupil-Teacher Ratio
Drop Out Rate
Access to digital education
Professionally Trained Teachers
Nation Achievement Survey Score

Health
Household expenditure on health
Availability of Healthacre Professionals
Accredited public health facilities
Availability of Hospital Beds
Prevalance of Water borne Diseases
Prevalance of Vector borne Diseases

Housing and Shelter
Households with electrical connections
Average length of electrical interruptions
Beneficiaries Under PMAY
Slum Population

WASH and SWM
Water Supplied to Households
Households with piped water supply
Swachh Survekshan score
Amount of waste water treated
Connection to Sewerage Network

Mobility
Availability of public transport
Transport related fatalities
Road Infrastructure:
a. Road Density
b. Footpath Density

Safety and Security
Prevalence of Violent Crime
Extent of crime recorded against women
Extent of crime recorded against children
Extent of crime recorded against elderly

Recreation
Availability of Open Spaces
Availability of Recreation Facilities

Economic-Ability

Level of Economic Development
Traded Clusters

Economic Opportunities
Cluster Strength
Credit Availability
Number of Incubation Centres / Skill Development centres

Gini Coefficient
Inequality index based on consumption expenditure

Sustainability

Environment
Water Quality
Total Tree Cover
Households using clean fuel for cooking
Hazardous waste generation
Air quality index:
a. SO_2
b. NO_2
c. PM10

Green Spaces and Buildings
Availability of Green Spaces
Does the city incentivise green buildings? (Y/N)
Green buildings in the city

Energy Consumption
Energy Requirement vs Energy Supplied
Energy generated from renewable sources
Number of Energy Parks

City Resilience
Has the city implemented local disaster reduction strategies? (Y/N)
Number of deaths and directly affected persons attributed to disasters

Municipal Performance Index

Municipal Performance Index

Services

Education
Vacancy of Teachers
Pupil-Teacher Ratio
Expenditure

Health
Primary Healthcare Institutions
Vacancy of Doctors
Expenditure
Community Healthcare Workers

Water and Wastewater
Households with piped connection
Water Supplied
Wastewater Treatment
Storm Water Drainage
Sewerage Network

SWM & Sanitation
Garbage Collection
Street Cleanliness
Waste Disposal
Waste Treatment
Sewage Treatment Capacity
Household Sewer Connection

Registrations and Permits
Registration Efficiency
Online Registration
Ease of Obtaining Permits
Online Registration of Permits
Number of licenses awarded
Online Registration of Licenses

Infrastructure
Roads with Street Lights
Street Lights with LEDs
Expenditure on Road Maintenance
Road Density
Footpath Density
Community Services

Finance

Revenue Management
Own Revenue vs Total Revenue
Tax Revenue vs Own Revenue
Tax Coverage Efficiency
Properties Mapped on GIS
Tax Collection Efficiency
Review of Property Tax
Last Revision
Accounting System
Alternate Sources of Financing
Budget Efficiency

Expenditure Management
Central Grant Expenditure Efficiency
State Grant Expenditure Efficiency
Capital Expenditure vs Total Exp
Establishment Exp vs Total Exp
Salary Expenses vs Total Own Rev
Preperation of Budget Estimate
Capital Expenditure per capita
Establishment Expenditure per capita

Fiscal Responsibility
Participatory Budgeting
Budget Variance
External Audit
Data Sharing
Internal Audit
Publication of Audits

Fiscal Decentralisation
Tax Collection Powers
Borrowing Powers
Credit Rating

Technology

Digital Governance
e-Governance Initiatives
Command and Control System
Number of e-tenders
Value of e-tenders
Open Data Policy
Presence of CDO
City-data Alliance
Presence on Open Data Portal

Digital Access
Internet Access
Usage

Digital Literacy
Digital Literacy Programmes
Number of Centres
Number of People Trained

Planning

Plan Preperation
Development Plan
Plan on GIS Platform
Planning by Town Planners
Town Planning Schemes

Plan Implementation
Land-titling Law
Land-pooling Law
Single-Window Clearance
Green Buildings

Plan Enforcement
Plan Violations
Plan Efficiency

Governance

Transparency and Accountability
Disclosure of Assets
Budget Publication
Publication of Performance Reports
Environmental Status Report
Corruption Cases Against Employees

Human Resource
Adequacy of ULB staff
Leadership Stability
Gender Equality
Average Tenure of Mayor
Direct Election of Mayor

Participation
Voter Turnout
Local Representation
Community Involvement

Effectiveness
Citizen Charter
Establishment Exp per Employee
Capacity Building
Presence of Ombudsman