



India, Indians and their Innovation Capabilities: The Road Ahead

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What is Innovation?

- A process to achieve measurable value enhancement in any commercial activity through introduction of new or improved goods and services, and/or operational and organisational processes
- A complex activity requiring widespread interaction across the entire economy from the grassroots to large firm level

(National Knowledge Commission Report 2007)

Differing interpretations

- Innovation often equated to science & technology and/ or R & D
- Innovation can take place in all business functions and not just R&D
- Innovations can be and very often are social
- Innovations need not be linked only to business houses
- All innovations are not patented; and all patents don't translate into innovations

Images of Indian Innovation Capabilities

- “India is Innovation”
- “Every Indian is a master at *‘jugaad’*: the ability to creatively manage quick-fix solutions”
- “India is emerging as a global hub of innovation”
- “Indians excel at networked & outsourced international business models”
- “New ventures globally depend on Indian connection for technical support”
- “India has now regained its innovative spirit”

Images of Indian Innovation Capabilities (contd.)

- “India has been a hesitant innovator till now”
- “Compared with innovation systems of other countries, the Indian system looks ramshackle and improvised...”
- “There is no such thing as an innovation system in India; at every part of the chain, there is a hurdle...”
- “Streets in India & China are filled with people who innovate to earn livelihood”

“Measuring India’s science and innovations is like standing in a fairground hall of mirrors. Seen from one vantage point, India seems like a scientific powerhouse in the making. From another, it looks feeble compared with the scale of tasks it faces”

(“India: The uneven innovator”, Bound, Kristen Demos, U.K.)

“India is increasingly becoming a top global innovator for high-tech products and services. Still, the country is underperforming relative to its innovation potential”

(World Bank: “Unleashing India’s Innovation: Towards Sustainable and Inclusive Growth”)

India's Ranking on Innovation Indices

- 81st out of 134 country rankings on innovation index in WBI KAM Indices, 2008
- 27th out of 134 countries on Innovation Sub-index under Global Competitiveness Index 2008-09 (World Economic Forum)
- 41st out of 130 countries under Global Innovation Index 2008-09 (INSEAD- CII Report)
- 46th out of 110 countries under The National Innovation Index, 2009 (BCG-NMA Report)

Comments on Rankings

- The constituents of each of these indices considerably vary and therefore rankings are not comparable
- In many cases, these constituents tend to equate innovation with science & technology and R&D

Typical Constituents of Innovation Index under KAM

- FDI outflows and inflows
- Royalty & license fee payments and receipts
- S&E enrollment Ratio
- Researchers in R&D
- Total expenditure on R&D as % of GDP
- Manufacturing trade as % of GDP
- University- Company Research Collaboration
- Science & Technology Journal articles

Typical Constituents of Innovation Sub-index under GCI

- Capacity for innovation
- Quality of scientific research institutions
- Company spending on R&D
- University-industry research collaboration
- Government procurement of advanced technology products
- Availability of scientists & engineers
- Utility Patents
- Intellectual Property Protection

Typical Constituents of Global Innovation Index (INSEAD)

- Institutions & Policies
- Human Capacity
- General & ICT Infrastructure
- Market sophistication
- Business sophistication

← Input Pillars

- Knowledge Creation
- Competitiveness
- Wealth Creation

← Output Pillars

Typical Constituents of The International Innovation Index (BCG/ NAM)

- Fiscal policy
- Other policies
(Education, Trade, Immigration, Regulation, IP, Infrastructure)

Innovation
Inputs



- R&D results
- Business performance
- Public impact of innovation

Innovation
Performance



NKC Survey Findings (137 firms)

- Innovation intensity (i.e., the percentage of revenue derived from products/services less than three years old)
 - has increased for all types of firms
 - Is higher for MNCs than for non-MNCs
 - Is higher for private and publicly funded firms than government funded firms
 - Is higher for firms collaborating with universities and R&D labs

Factors driving Indian Innovation Capabilities

- Social conditions favouring innovation
- Demographic advantage and global spread of Indians
- Exposure to global market forces
- Continual exposure to external ideas through cultural interchanges
- Communication technologies & easier travel
- Innovation driving activities at selected places

The Demographic Advantage

- “Nearly 20 million Indians spread across the globe are scientists, technologists, engineers & entrepreneurs”
- “Indians make up 14% of 3.1 million foreign-born science & engineering graduates in the US”
 (“India: The uneven innovator”, Demos, U.K.)
- “India’s talent pool of young university graduates is nearly 14 million --1.5 times that of China
 (Bannister, Judith – “China and India: Demographic and Economic Transactions”)

“Even if innovators emerge naturally only one among a million, India would still have a thousand potential agents of transformation”

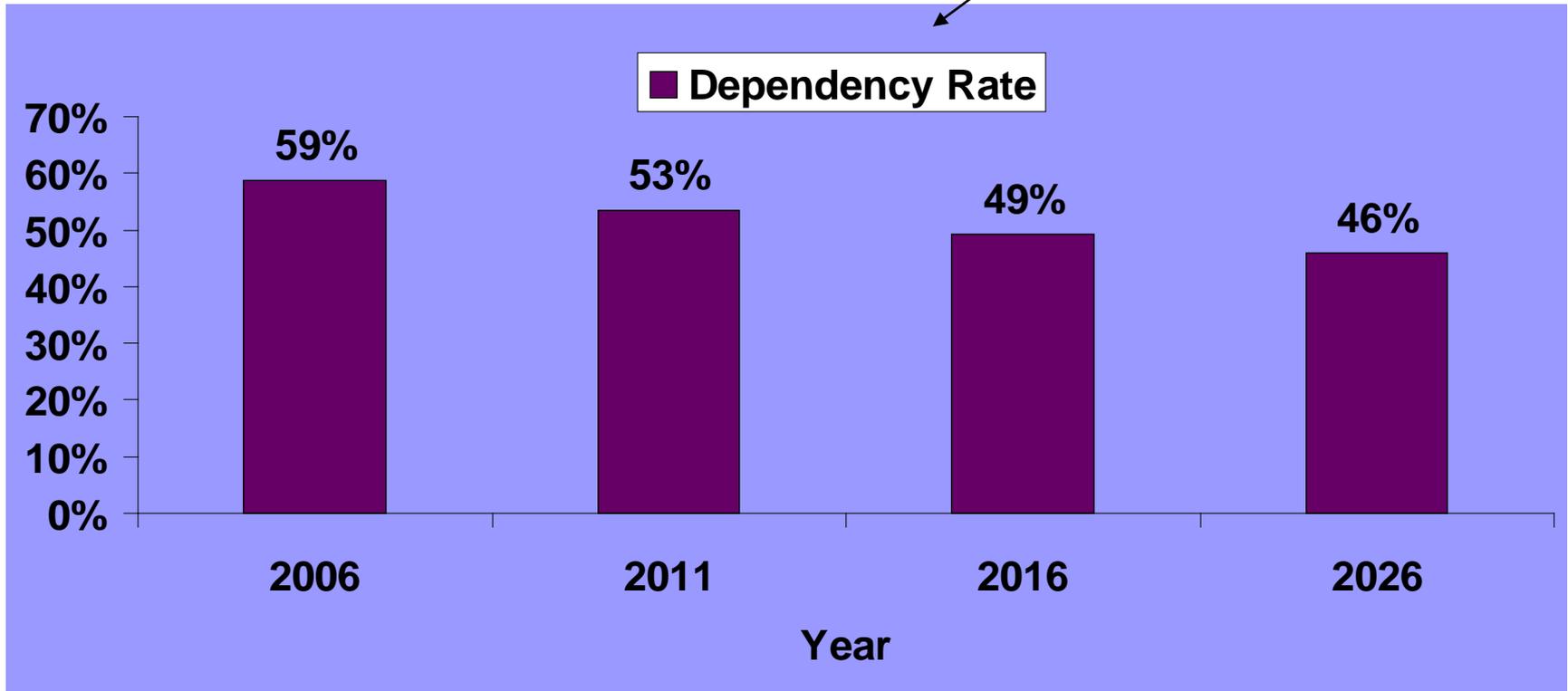
(“India: The uneven innovator”, Bound, Kristen, Demos, U.K.)

Median Age of Population in the Year 2000

- India: 24
- China: 30
- Europe: 38
- Japan: 41

(Source: Eleventh Plan Document of India)

Ratio of
Population in Age 0-14 + >65
And
Population in Age 15-64



(Source: Statistical Outline of India)

Who are innovating?

- MNCs having set up innovation centres (over 150) in selected cities in India
- Micro-MNCs
- Indian Pharmaceutical industry / Biotech/ Bio-informatics
- Labs of Council for Scientific & Industrial Research (CSIR)
- Grassroot level innovations (Honeybee Network)

Honeybee Network

- Brings together innovative persons at the grass root, who have solved a problem through their own genius.
- Objective: To scout, support, and scale up such grass root innovations
- E-knowledge network: To create an electronic network of innovators linked with users through village kiosks, communicating in local language
- To secure IPR for such innovators
- Over 7000 innovations identified & documented

The Hype Factor?

- Despite its innovative capabilities, India has only 2% of global GDP and only 1% of world trade
- 19.3% people are officially below the poverty line
- Only 1% of persons in age group >15 years in rural areas and 5% in urban areas had received formal technical education

Some Recent Initiatives

- Eleventh Plan initiatives in Higher Education, Skill Development and Innovation
- National Knowledge Commission Initiatives
- Draft National Innovation Act 2008
- Financing support to innovation (e.g.: NMTLI : New Millennium Technology Leadership Initiative Scheme)
- National Innovation Foundation/ Grassroots Innovation Augmentation Network (GIAN)

The Future of Innovation

- Need for “Inclusive Innovation”
- “Both pro-poor and global competitiveness objectives need to be embedded in the search for innovations”
- “How quickly can India evolve from being a technology server to US & Europe to an innovator & creator in its own right?”

Conclusions

- The innovation front in India is clustered with a variety of initiatives
- These are driven by think tanks of the Government, academia, industry, MNCs, NGOs and external researchers
- Demographic advantage is important, but its full potential is yet to be tapped

The question is whether the current
initiatives are innovative enough to set a
new direction for the innovation objectives
& strategies of India?

THANK YOU!



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