PATENTS AND INNOVATION IN INDIA: FROM ELEPHANTS TO TIGERS?

Shamnad Basheer

Oxford IP Research Center (Univ of Oxford)

Bhaven Sampat

Department of Health Management and Policy

and

School of International and Public Affairs

(Columbia University)

National Academy of Sciences

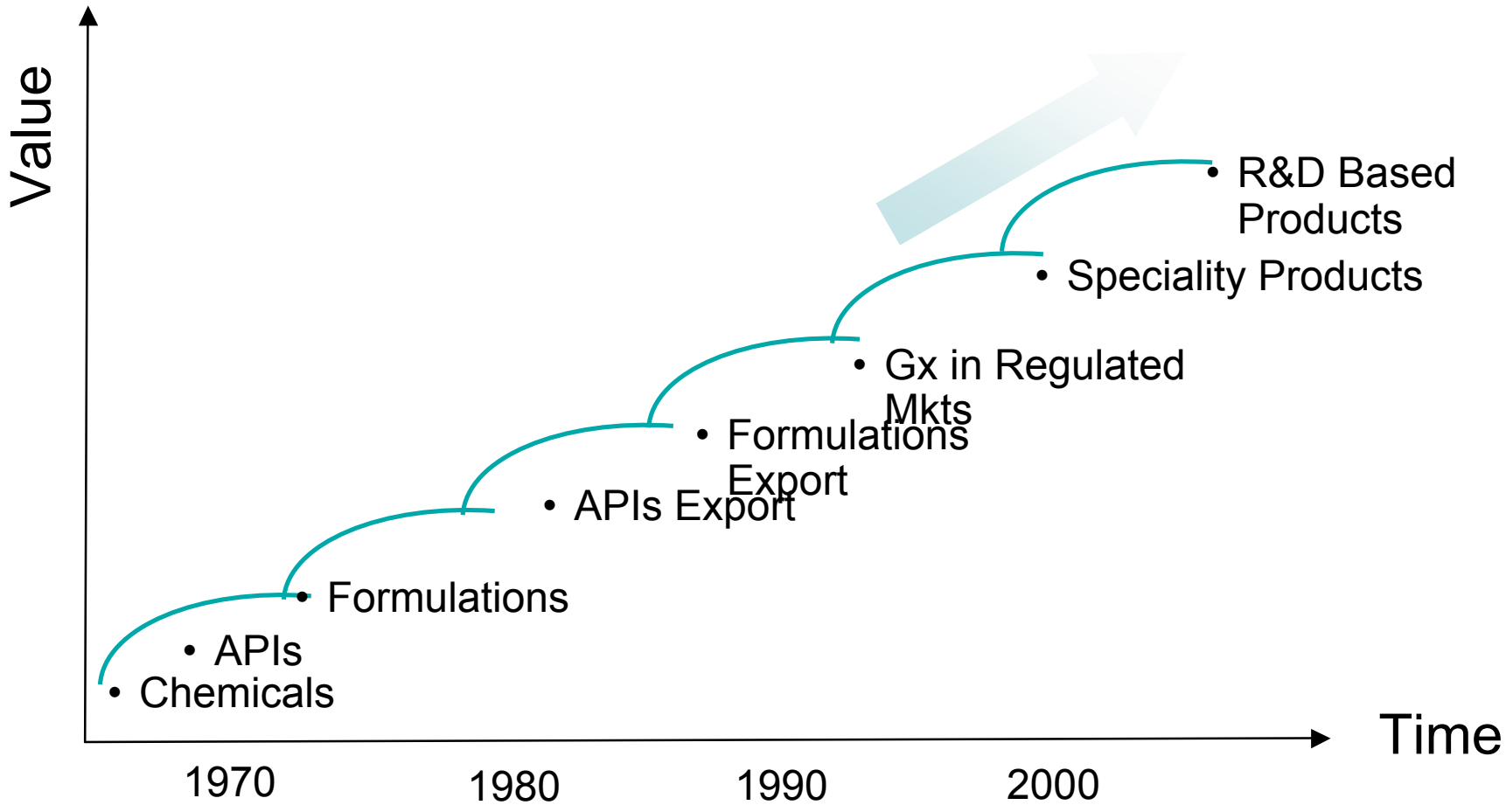
Washington DC

24 September 2007

INDEPENDENT INDIA: THE 1970 REGIME

- Ayyangar Committee (1959)
  - Fledgling Industry with Organic Chemistry skills
  - Recommended only Process Patent Regime
- 1970 Patents Act
- Generics: 'Design Around' Process Patents With Ease
- Anti-Infective "Cefaclor"
  - 56 processes were patented by Eli Lilly in the US
  - Ranbaxy found the 57th
- Process patent innovation
- World Class Generic industry
  - Supplies 22% of world generic market generic market
  - Growing at 10% (will triple to 20 billion in 2015)
  - Ranbaxy: Exports to 70 countries

MOVING UP THE VALUE CHAIN



Source: Ravi Sodha Presentation at Chatham House, London, 2005

GLOBALIZED INDIA: THE 2005 AMENDMENTS

- Signing of TRIPS
- Product Patents in Pharmaceuticals
- Several Safeguards to Ensure Generic Production
- Rigorous Patentability Criteria
  - Section 3(d): Specific criteria for pharmaceutical applications
  - Novartis rejection
- Strong CL norms
- Wide Parallel Import provision
- Subject matter exclusions:
  - "New use" patents
  - Software/Business Method Patents
  - Method of medical treatment

"TECHNOLOGICALLY PROFICIENT" DEVELOPING COUNTRY?

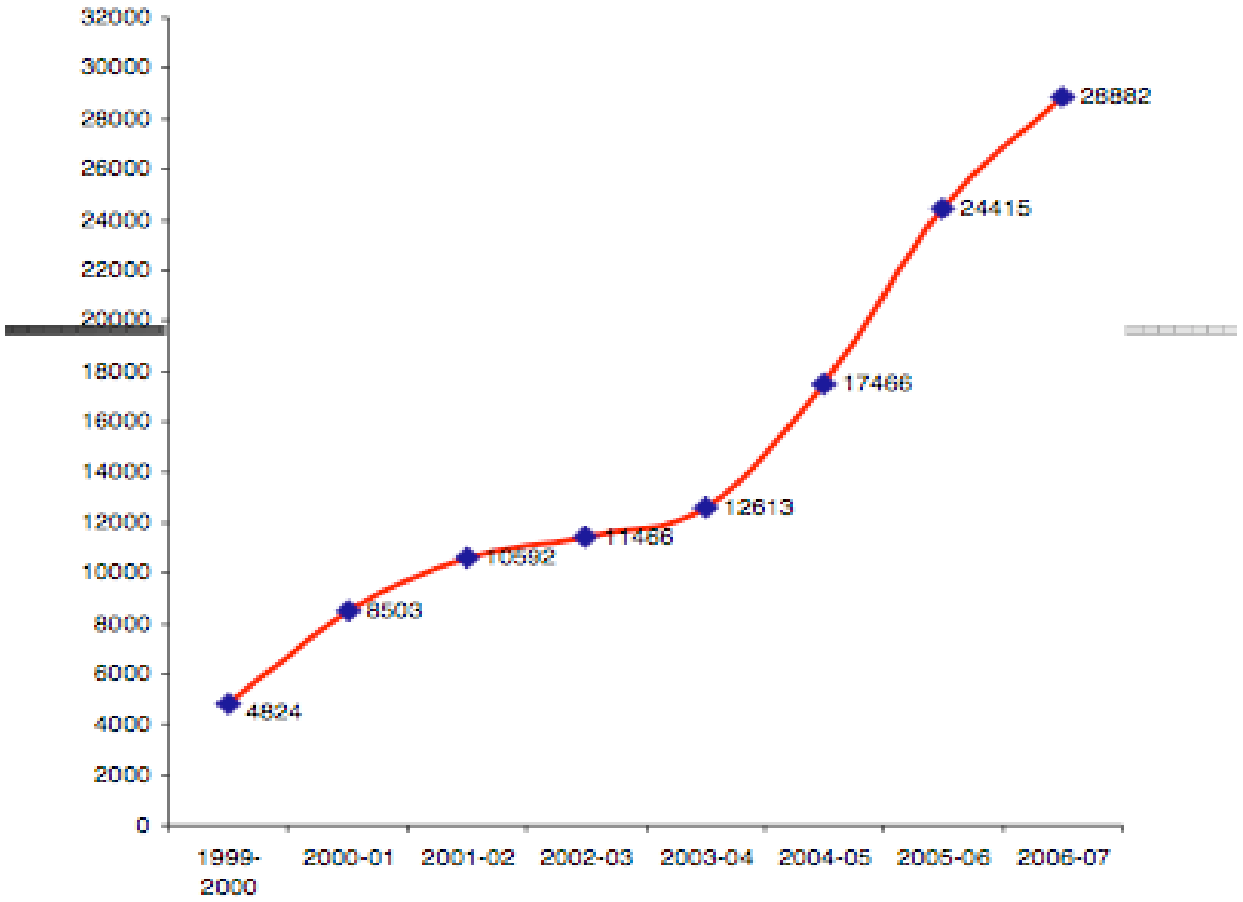
- History stresses the virtues of a "weak" patent regime for developing countries
- But should India continue to be hostage to this history?
- "Technologically Proficient" Developing Country
  - US/EU **vs** Sub Saharan Africa
  - Strong Industry **vs** Public Health Concerns
- To what extent do Indian patents matter?
  - Ranbaxy: 30% of revenues from India
  - But this is likely to grow (McKinsey Report)

INDIAN PATENT OFFICE

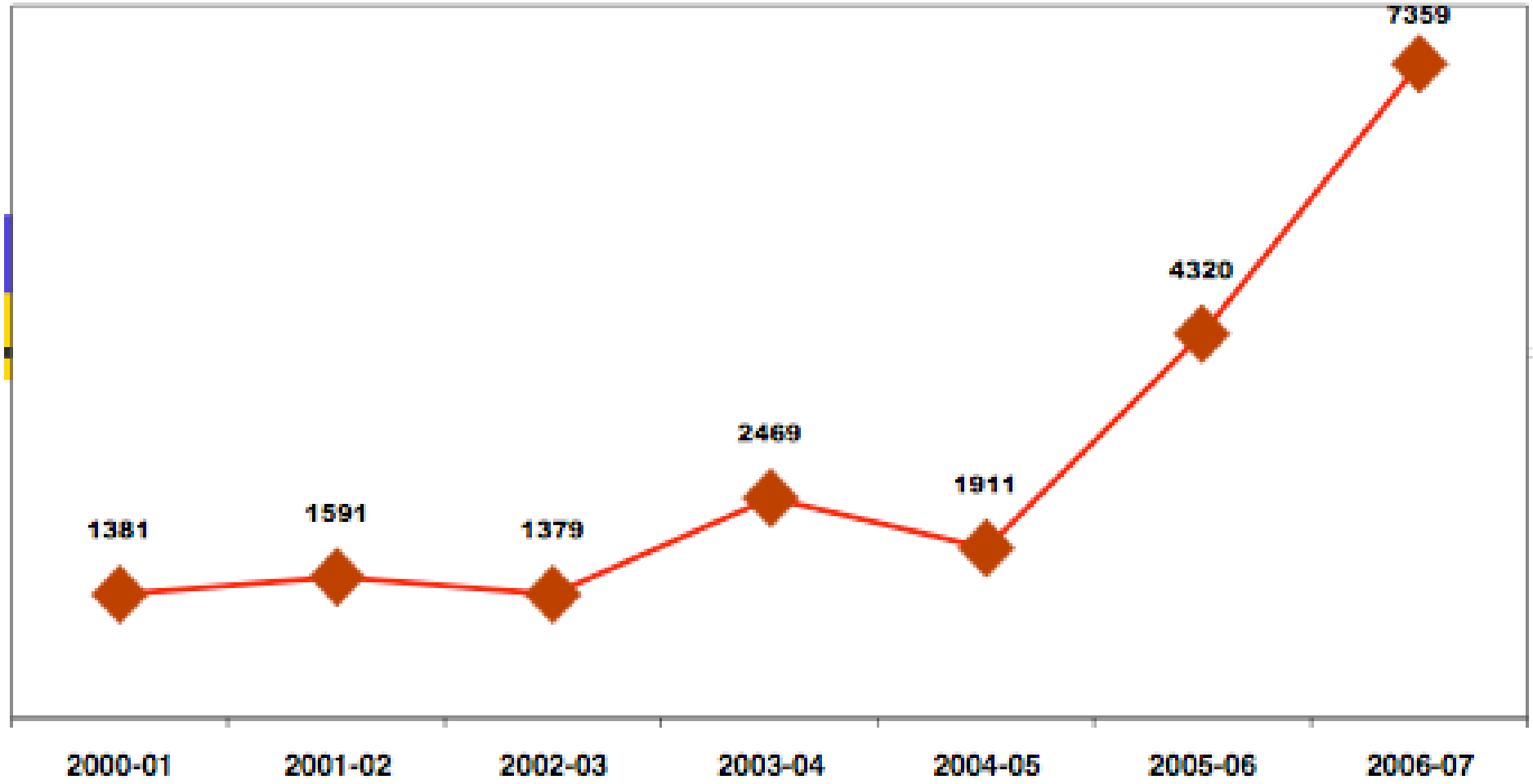
- Utility patents
- Four patent offices
- Examination "Pressures"
  - 135 examiners
  - 26,000 applications in a year
  - Sector specific examinations not always the norm
  - Pharma applications for first time
  - 8000 applications in mailbox
- Quality?
  - Pre-grant + post grant opposition mechanisms
- Considerable delays at patent office (six to eight years).

Modernization: Patent Office in India--Before and After…..

PATENT APPLICATIONS IN INDIA



PATENT GRANTS IN INDIA

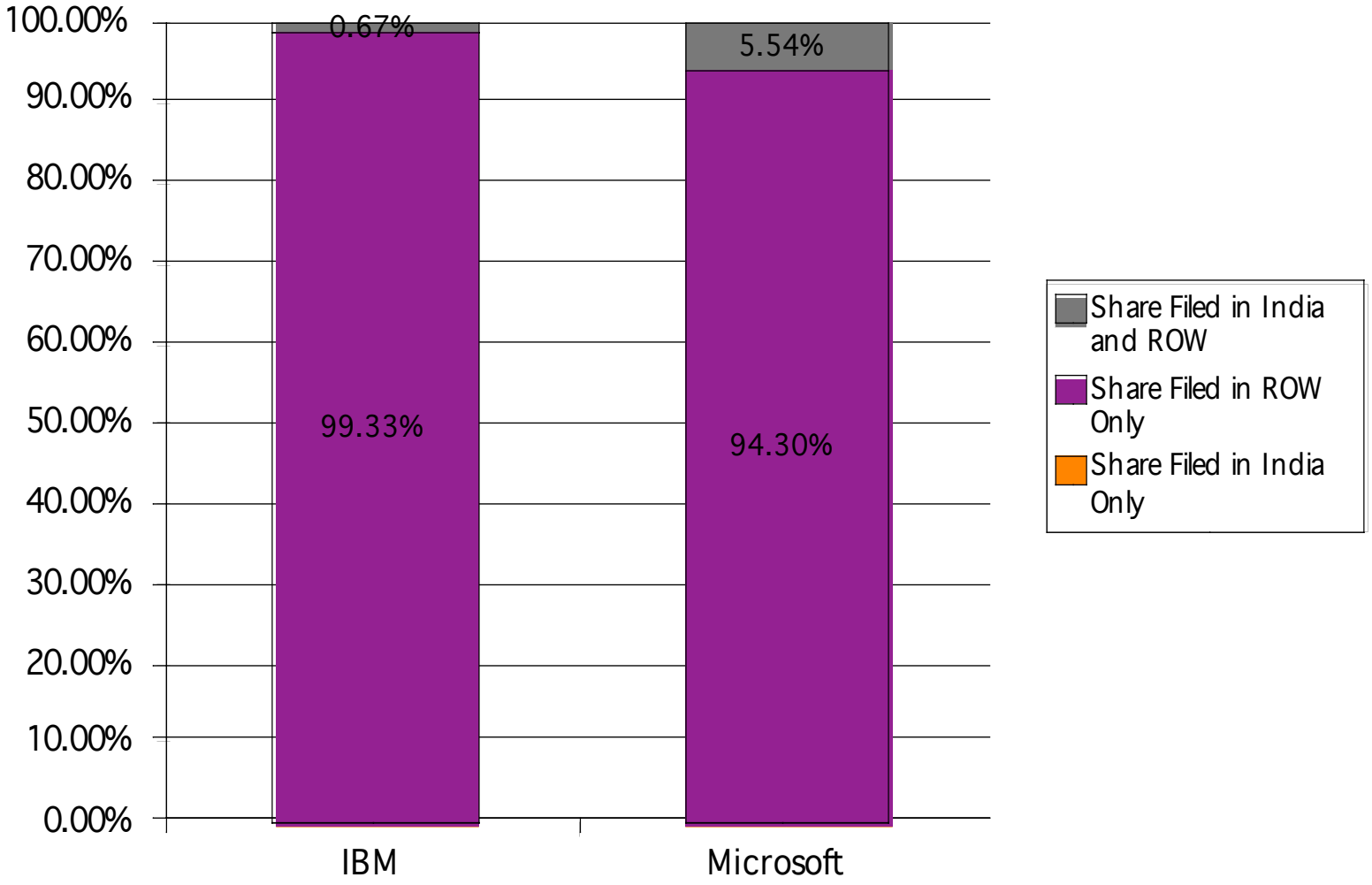


Indian Patent Applications: Top 20 Applicants by Volume

Standardized Assignee Name	Number of Apps
Council of Scientific and Industrial Research	1,278
Hindustan Lever Ltd.	940
Bayer AG (BAYZY)	816
Koninklijke Philips Electronics N.V. (PHG)	765
Pfizer Inc. (PFE)	759
Honda Motor Company Ltd. (HMC)	751
QUALCOMM Inc. (QCOM)	727
Novartis Inc. (NVS)	704
GlaxoSmithKline plc (GSK)	695
Microsoft Corp. (MSFT)	657
AstraZeneca PLC (AZN)	600
Sanofi-Aventis	595
Samsung Electronics Company Ltd. (SEC)	560
BASF AG (BF)	527
Johnson and Johnson (JNJ)	465
Merck and Company Inc. (MRK)	376
LM Ericsson Telephone Co. (LMEB)	374
Roche Holding AG (RHHVF)	349
Matsushita Electric Industrial Co. Ltd. (MC)	342
E.I. du Pont de Nemours and Co. (DD)	338

Patent Filings in India and Rest of World (ROW) by Leading Indian and Global Pharma Firms

Patent Filings in India/ROW by IBM and Microsoft



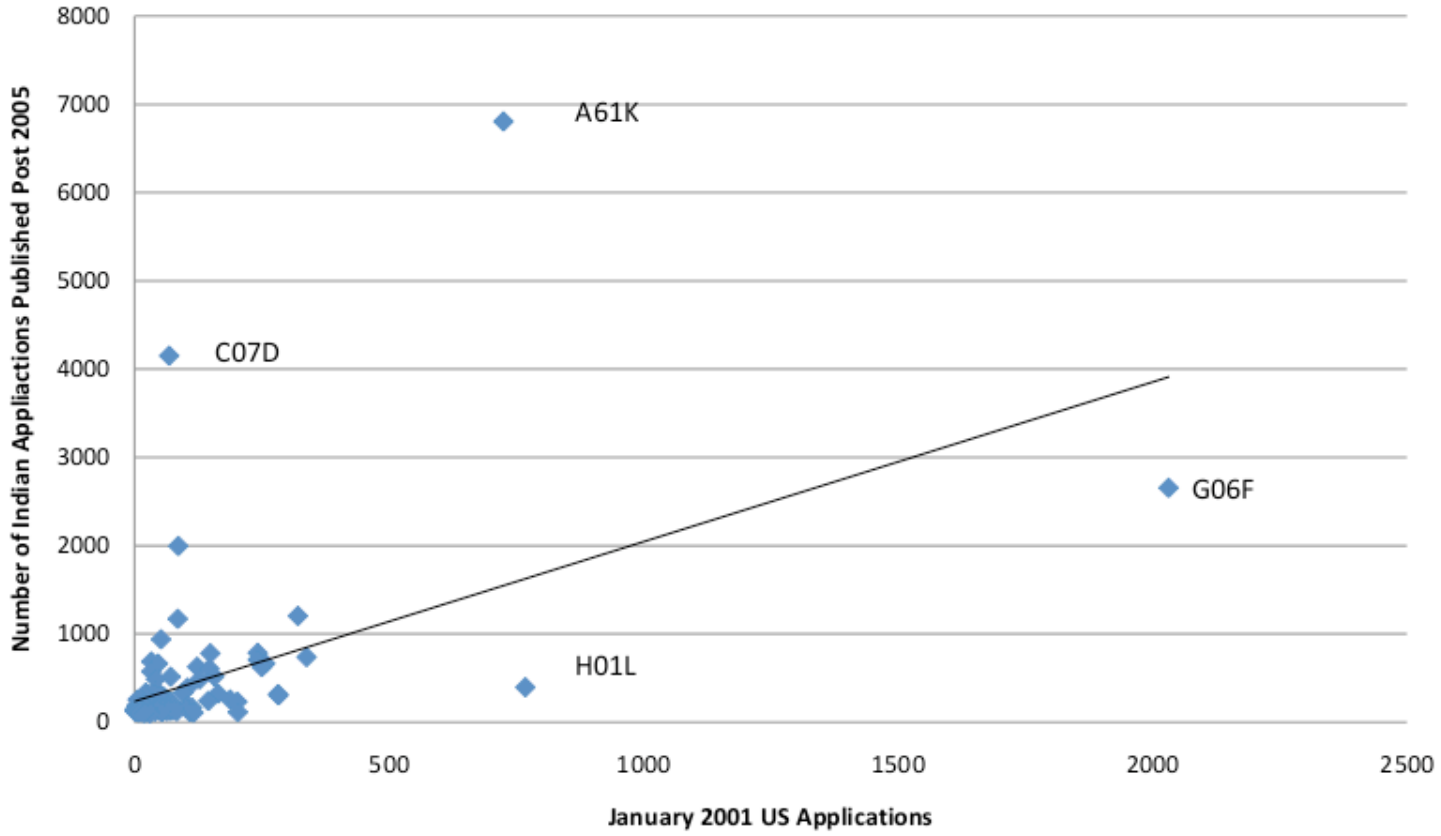
Conclusions

- Post-TRIPs era: “Patent or no patent” genie left the bottle
  - “What **kind** of patents/patent system?” is the question of the day
  - Rich vs. poor dichotomy also does not apply neatly to India:
    - Optimal patent system different in “technologically proficient” developing countries
- Much of the action/controversy in pharma
  - Outside of this field, patents likely to have little impact (good or bad)
- Even in pharma, main impact of patent laws on innovation will be in disease areas where Indian market is large relative to world market

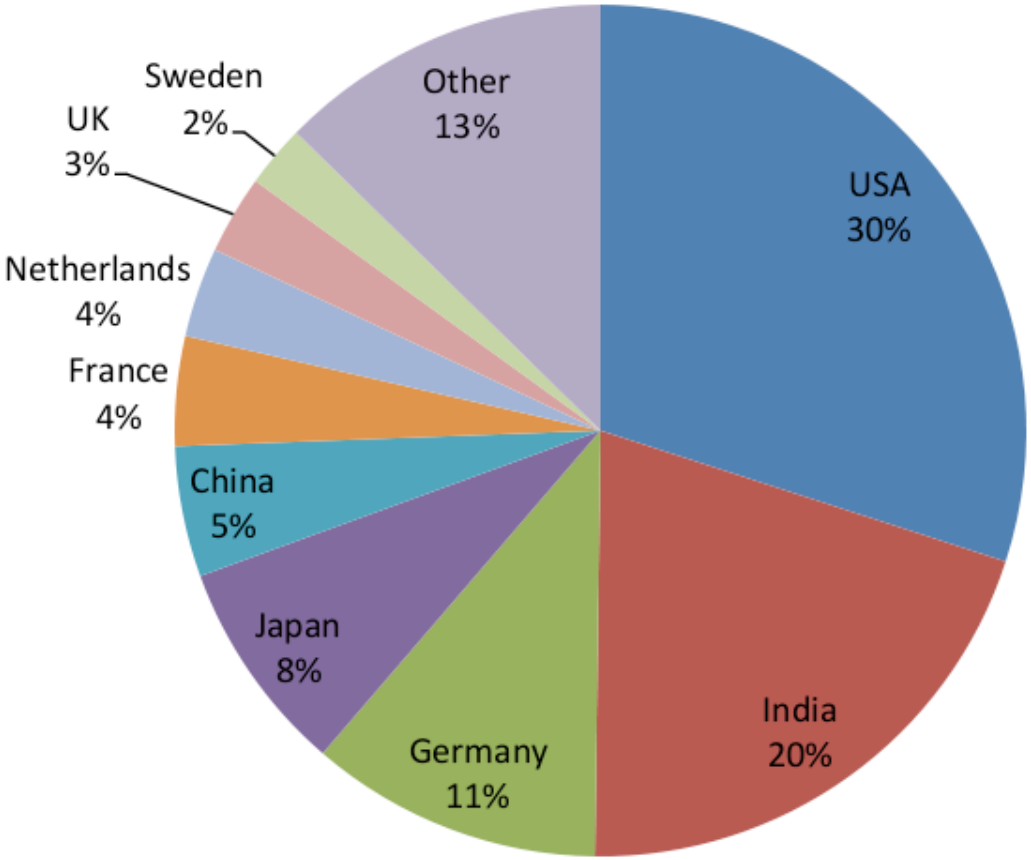
Indian patent applications: Top Ten IPCs by Volume

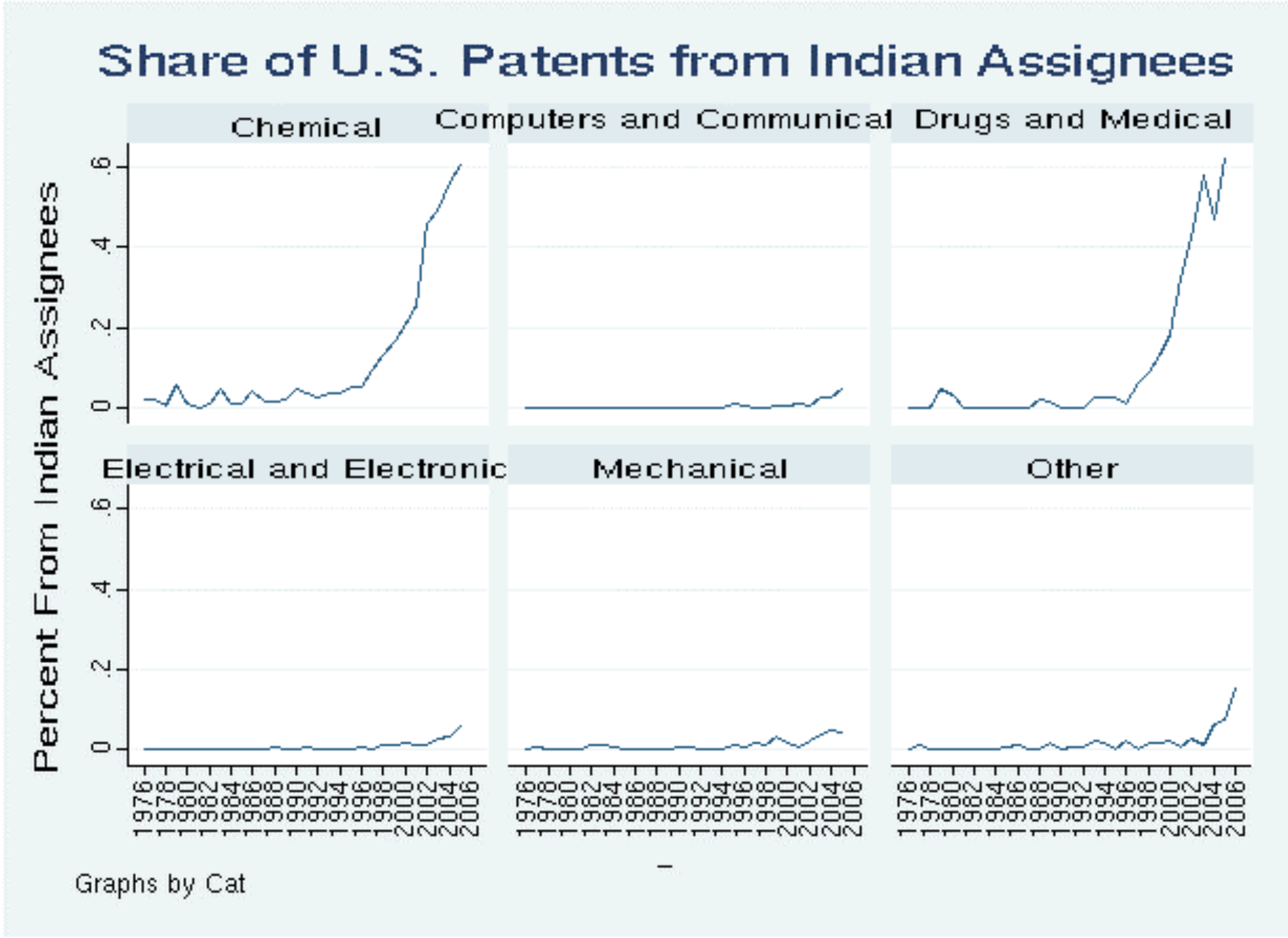
IPC	NAME	N
A61K	PREPARATIONS FOR MEDICAL, DENTAL, OR TOILET PURPOSES	6804
C07D	HETEROCYCLIC COMPOUNDS	4151
G06F	ELECTRIC DIGITAL DATA PROCESSING	2655
C07C	ACYCLIC OR CARBOCYCLIC COMPOUNDS	1996
H04L	TRANSMISSION OF DIGITAL INFORMATION, e.g. TELEGRAPHIC COMMUNICATION	1204
C12N	MICRO-ORGANISMS OR ENZYMES; COMPOSITIONS THEREOF	1171
A01N	PRESERVATION OF BODIES OF HUMANS OR ANIMALS OR PLANTS OR PARTS THEREOF; BIOCIDES	939
H04B	TRANSMISSION	785
H04Q	SELECTING	780
H04N	PICTORIAL COMMUNICATION, e.g. TELEVISION	738

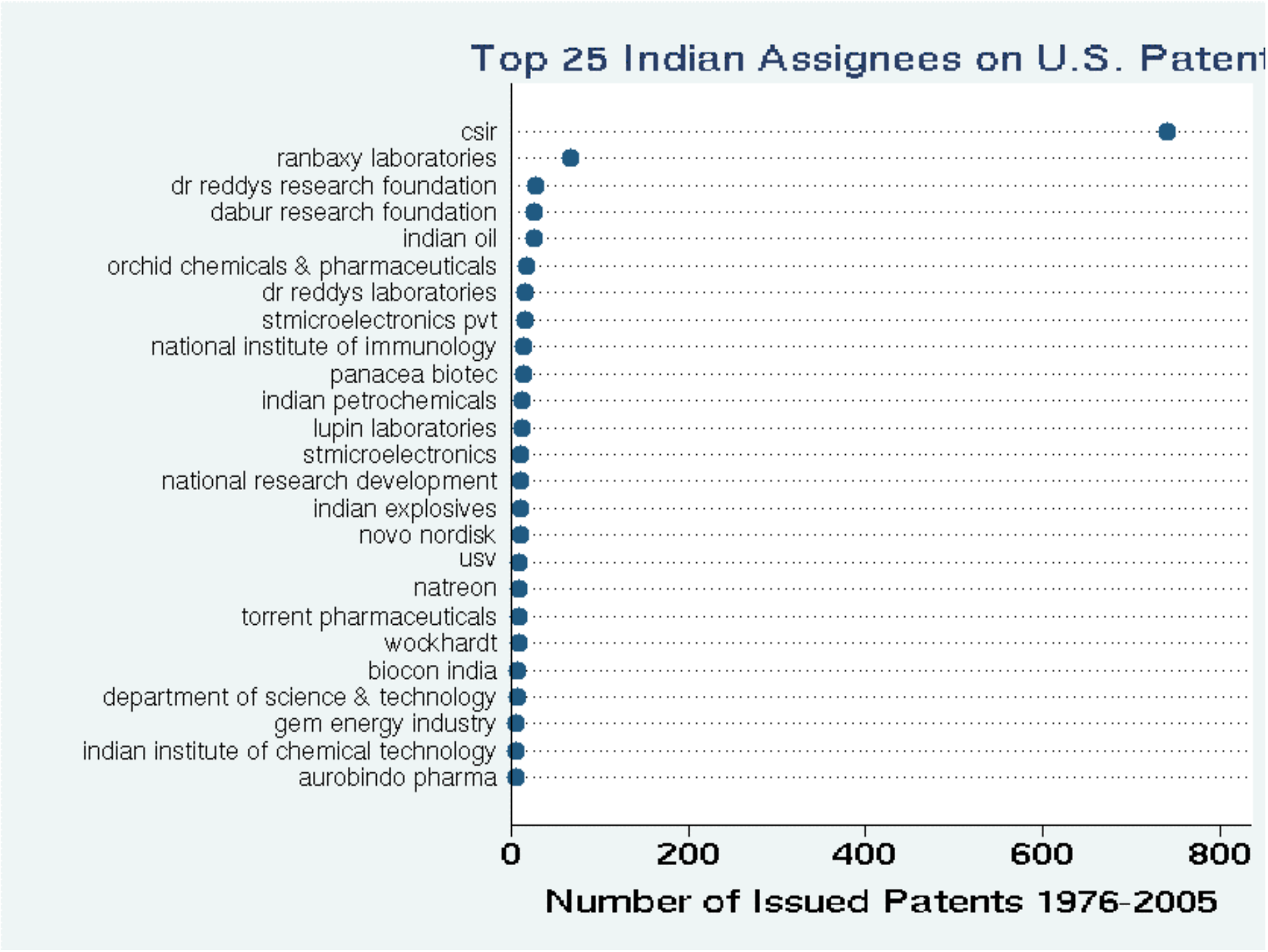
Indian vs. US Applications by IPC



Distribution of Indian patent applications by country




Share of U.S. Patents from Indian Assignees
Chemical
Computers and Communical
Drugs and Medical
Electrical and Electronic
Mechanical
Other
Percent From Indian Assignees
0
.2
.4
.6
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
Graphs by Cat


Top 25 Indian Assignees on U.S. Patent
csir
ranbaxy laboratories
dr reddys research foundation
dabur research foundation
indian oil
orchid chemicals & pharmaceuticals
dr reddys laboratories
stmicroelectronics pvt
national institute of immunology
panacea biotec
indian petrochemicals
lupin laboratories
stmicroelectronics
national research development
indian explosives
novo nordisk
usv
natreon
torrent pharmaceuticals
wockhardt
biocon india
department of science & technology
gem energy industry
indian institute of chemical technology
aurobindo pharma
0
200
400
600
800
Number of Issued Patents 1976-2005

STRUCTURE

- Historical Perspective on patents and pharma innovation in India
- Indian Patent Office
- Filings of indian firms in India and abroad
- Sector specific performance: Pharma vs IT
- Some Conclusions
- Elephant vs Tiger…

*The **elephant moves very slowly***
Oh so very slowly
He doesn't like to move to fast
*Because he is so **big and heavy***
(Hap Palmer's lullaby)

PHASES OF INDIAN IP

- Ancient India (4000 BC-1000AD): Trade Secrecy
- Medieval India (1000AD-1750AD): Royal Patronage + Trade Secrecy
- British India (1750 AD-1947): Imperialistic Patent Regime
- Independent India (1947-1990): Socialist Regime
- Globalized India (1990 onwards): Schizophrenic?
  - "Technologically Proficient" Developing Country

BRITISH INDIA: IMPERIALISTIC PATENT REGIME

- Product Patents in all areas of Technology, including pharmaceuticals
- Very few patent applications
  - 1930: 1099 applications (80% by foreigners)
- Did not contribute to indigenous technology development in any significant way
  - Most drugs imported
  - Some drugs more expensive than in the West
    - Kefauver Committee Report (1961)
    - Meprobamate (Anti-anxiety pill) was 147% of US Price