

Annual Report

2012-13

Report of projects and papers completed, papers published, and external academic and policy advice given during the year

Planning Commission Unit, CDS

Tel 0471-2774204
Fax 0471-2447137

Prasanth Nagar, Ulloor, Trivandrum-
695011, Kerala

<http://www.cds.edu/>
Tilak@cds.ac.in

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1. Research Projects Completed

1.1: TRIPS compliance of national patent regimes and Domestic Innovative Activity: The Indian Experience

Joint Authors: Sudip Chaudhuri, V K Unni, Carl Pray, Latha Nagarajan

Abstract:

India's patent regime was made TRIPS compliant in 2005 after a series of three amendments to the original Patent Act of 1970. TRIPS compliance meant recognition of product patents in pharmaceuticals, agrochemicals and food products, raising the patent term to twenty years from the date of application and reversing the burden of proof from the patentee to the infringer. The paper undertakes a detailed survey of the processes through which the national patent regime in India was made TRIPS compliant and then analyses the more proximate effects of these changes on a number of dimensions of innovation activity in general and those affecting pharmaceutical and agrochemical industries in particular. The resulting analysis presents a mixed picture. Some of the more positive and negative effects expected have not happened.

1.2: TRIPS Compliance, National Patent Regimes and Innovation, Evidence and Experience from Developing Countries,

Abstract:

An important aspect of changes in international governance rules with respect to Intellectual Property Regimes is the passage of the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). The TRIPS Agreement has been in force since 1995 and is to date the most comprehensive multilateral agreement on intellectual property. The Agreement introduced global minimum standards for protecting and enforcing nearly all forms of intellectual property rights (IPR), including those for patents. International conventions prior to TRIPS did not specify minimum standards for patents. At the time that negotiations began, over 40 countries in the world did not grant patent protection for pharmaceutical products. The TRIPS Agreement now requires all WTO members, with few exceptions, to adapt their laws to the minimum standards of IPR protection. In addition, the TRIPS Agreement also introduced detailed obligations for the enforcement of intellectual property rights. However, TRIPS also contains provisions that allow a degree of flexibility and sufficient room for countries to accommodate their own patent and intellectual property systems and developmental needs.

This means countries have a certain amount of freedom in modifying their regulations and, various options exist for them in formulating their national legislation to ensure a proper balance between the goal of providing incentives for future inventions of new drugs and the goal of affordable access to existing medicines. The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.

Although the TRIPS came into being in 1995, developing countries were given time until 2005 to have their respective IPR regimes aligned to the varied provisions of TRIPS. After a series of three amendments, the Indian Patents Act 1970 was made TRIPS compliant wef January 1, 2005. In the context, the purpose of the present study is to analyse the potential and actual effects of the TRIPS compliant patent regime on innovative activity in a select number of developing countries not only at the macro level but also on those industries such as pharmaceuticals and agrochemicals, the two industries that are most likely to be affected as a result of some major changes which the TRIPS compliance has brought about. The developing countries covered in the book are Brazil, China, India and Thailand all of which have manufacturing and R&D capabilities in industries most likely to be affected by a tighter IPR regime implied by TRIPS compliance.

The book is structured into six chapters. The first chapter will introduce the issue of TRIPS compliance and will then discuss its actual and potential effects on innovative activity. The aim of this chapter is to introduce the key analytical hypotheses wrt the impact of TRIPS compliance that are taken up for in depth examination in the subsequent chapters. The subsequent four chapters discuss the four country cases and the sixth and final chapter sums the main findings and policy conclusions of the study.

This is being published as a book by Edward Elgar, Cheltenham, UK and Northampton, Mass, USA

1.3: Outward FDI and Knowledge Flows, The Case of Three Indian Automotive Firms

Abstract:

Over the last ten years or so, Indian companies have been going global and investing abroad. In fact India has become, along with China, a major investor in industrial projects abroad. In this process, a select number of Indian companies have become MNCs in their own right having manufacturing operations in a range of countries, both developed and developing and in manufacturing and service sectors. The outward FDI (OFDI) from India has been continuously increasing until 2008 or so when the global financial crisis seems to have reduced the rate of increase. In the context the study, looks at the experiences of two leading domestic automotive firms, Tata and Mahindra which have gone abroad and taken over both vehicle manufacturers and input suppliers. The main motive has been the desire of these enterprises to become important automotive manufacturers not just in India but also in the world itself. Their outward investments have also resulted in considerable knowledge transfers from and to the parent company based in India.

1.4: Performance of Public Sector Enterprises since economic liberalization

Abstract:

The paper analyses the position and performance of India's public sector enterprises over the period since economic liberalisation and increased integration of India's economy. The ensuing analysis shows us that there is enough quantitative evidence to show that performance, both financial and technological, have shown some sharp increases. However technological performance seems to be concentrated in a few enterprises and as such is not widespread. If the country wants to be self-reliant in certain areas of high technology, it has to instil and nurture the spirit of innovation across a much larger number of public sector enterprises.

2. On going Research Papers

2.1 Changing leadership in IT Services, Emergence of India as the current world leader in IT services

Abstract:

An interesting aspect of modern times is the diffusion of computers in various activities that one does ranging from the simplest of activities like making one's morning cup of tea to more complex operations in a nuclear plant or in a space station. For most of these operations one has to employ custom made computer software that is written specifically for that purpose. The term computer software involves three types: (i) packaged software or software products; (ii) IT services that involve developing custom software applications that are turnkey solutions for a specific client; and (iii) embedded software is computer software written for machines that are not, first and foremost, computers. Companies from the United States continue to be the world leader in the first and third type of leadership, while it is in IT services one sees a successive change in international leadership. Our study is primarily concerned with tracking this changing leadership in IT services across countries and then providing some explanations for this changing leadership. Before we proceed with the analysis, it will be very useful to reiterate two dimensions of our analysis. First, we are only concerned with changing leadership in IT services and second our unit of reference is a country and not companies within countries. This is because in a service industry such as IT services there are several companies that can justifiably be called a leader. Rest of the paper is organized as follows. In section 2, we analyse the change in leadership in IT services from the USA to Ireland and argue that the Irish leadership in IT services was not sustainable in view of the nature of its organization. Section 3 undertakes a detailed review of the factors that has made India a world leader in IT services. In doing so, it steers clear from the usual debate of whether it has been achieved by the market or by the state as both the market and the state have had an important role in the achievement of this position. Section 4 concludes the paper.

2.2: Rise to market leadership, Cases from India's Automotive and Pharmaceutical Industries

Abstract:

India is not considered to be a manufacturing powerhouse of any sorts, but over the last two decades, two manufacturing industries have come to occupy an important place in India's manufacturing establishment. These are the automotive and pharmaceutical industries. Although the technologies involved are different, both the industries have been one of the fastest growing manufacturing industries

in the country, increasingly globalized and also relatively speaking innovative. Over the last three decades, Indian pharmaceutical firms had accumulated considerable technological capability in manufacturing generic versions of off patented drugs. This is evident from a number of indicators such as significant increases in the number of Abbreviated New Drug Applications (ANDA) granted to Indian pharmaceutical firms in the USA, significant increases in exports and R&D intensity. India is slowly becoming an important player in the field of automotive, especially in small trucks, compact cars, tractors and motor cycles. At the very same time it has established itself as a very credible supplier of generic drugs to the whole world, both developed and developing as well. As far as the automotive sector is concerned by 2010, India has become the largest tractor manufacturer, second largest two-wheeler manufacturer, fifth largest commercial vehicle manufacturer and the eleventh largest car manufacturer in the world. Although there are a large number of MNCs operating in the country's industrial sector, in terms of shares in sales revenue the market is evenly divided between domestic and foreign firms. In the context, the purpose of the paper is to identify a set of firms from India's automotive and pharmaceutical industries which have achieved leadership position not only among their peers in India but also among their counterparts elsewhere in the world itself. The paper then analyses the firm-specific and systemic factors that would have enabled these enterprises to achieve the leadership position that they have come to occupy.

Publications during 2012-13

Journal Articles

- Mani, Sunil (2013), 'Evolution of the sectoral system of innovation of India's aeronautical industry', *International Journal of Technology and Globalisation*, Vol. 7, Nos: 1 and 2, pp. 92- 117
- Mani, Sunil (2013), 'Science, Technology and Innovation Policy 2013, An evaluation', *Economic and Political Weekly*, Vol, XLVIII, No: 10, pp. 16-19
- Mani, Sunil (2012)), 'Entrepreneurship and Industry', *Seminar*, Number 637, (September), pp. 49-54
- Mani, Sunil (2012) 'A compendium on Indian telecommunications industry', *Economic and Political Weekly*, Vol. XLVII, NO: 23, pp. 36-38.

Chapters in Books

- Mani, Sunil (2012), 'Have China and India Become More Innovative Since the Onset of Reforms in the Two Countries?' in Amiya Kumar Bagchi and Anthony P. D'Costa (eds.) *Transformation and Development, The Political Economy of Transition in India and China*, Delhi: Oxford University Press, pp. 273-300.

- Mani, Sunil(2012), ' Innovation activities in China and India. Are there any lessons for other BRICS countries', in Viswanathan H H S and Nandan Unnikrishnan (eds.), In Search of Stability, Security and Growth, BRICS amd a New Order, New Delhi: Observer Research Foundation, pp. 77-90.
- Mani, Sunil (2012) High skilled migration and remittances: India's experience since economic liberalization" in K Pushpangadan and V N Balasubramanyam, (eds.), *Growth, Development and Diversity*, Delhi: Oxford University, pp. 181-209.

Other Publications

Mani, Sunil (2013), 'Technological development in India', *Mathrubhumi Year Book Plus 2013*, pp. 69-98

Seminars/Conferences/Workshops attended

- Attended the second meeting of the Advisory Steering Committee at Centre for Science, Technology and Innovation Indicators, Human Sciences Research Council (HSRC), Cape Town, South Africa, April 2-3, 2012
- Attended and presented two papers on 'Rise to Industrial Leadership: Cases from India's Automotive industry' and "Rise to Industrial Leadership, Cases from India's Pharmaceutical Industry; at the international workshop on *Rise to Industrial Leadership*" The Earth Institute, Columbia University, New York, USA, April 11-12, 2012.
- Presented a lecture on "Foreign R&D centres in India, An analysis of its size, structure and implications', Globe Lecture Series, Department of Human Geography, Planning and International Development, University of Amsterdam, The Netherlands, April 25, 2012.
- Presented a paper on 'Successive Changes in Industrial Leadership and Catch-Up by Latecomers, Case of India's IT Services Industry' at the International Workshop on *Successive Changes in Industrial Leadership and Catch-Up by Latecomers*, KITeS, Bocconi University, Milan, Italy, June 8, 2012.
- Presented a paper on 'TRIPS compliance of national patent regimes and its effects on innovative activity in India", at the Gordon Research Conference on Science and Technology Policy, Waterville Valley Resort, New Hampshire, USA, August 5-10, 2012.
- Co-ordinated a workshop along with Professor Richard Nelson on "TRIPS compliance of national patent regimes and its effects on domestic innovative activity in Brazil, China, India, Thailand and South Africa', The Earth Institute, Columbia University, New York, USA, September 18-19, 2012
- was a Visiting Research Professor at Bocconi University, Milan, Italy during October through December 2012. During the time he taught a compulsory course on 'Microeconomics of Technical Change' to Masters Students along with Professor

Franco Malerba. Further he has also initiated a new research project on 'knowledge-based entrepreneurship in India's medical devices industry' along with Professor Franco Malerba and Professor Pamela Adams (Franklin College, Lugano, Switzerland).

- Participated in the third meeting of the International Advisory Steering Committee of Centre for Science, Technology and Innovation Indicators (CeSTII), Human Sciences Research Council, Cape Town, South Africa, November 26-27.
- He presented a seminar on "TRIPS compliance of national patent regimes and domestic innovative activity, The Indian Experience" at Bocconi University, Milan, Italy on November 29, 2012
- Gave a lecture on "Innovations in China and India" at Franklin College, Lugano, Switzerland, November 30, 2012.
- Conducted a workshop on "India, a growing knowledge-based economy?" at Think! The Innovation Knowledge Foundation, Milan, Italy, December 3, 2012.
- Presented a paper on 'Outward FDI and Knowledge Flows, The case of three Indian automotive firms' at the International Workshop on "Innovation between and within supply chain: Empirical study of tracing local and global production knowledge network in East Asia" at IDE-Jetro, Bangkok, Thailand, February 20-21, 2013
- Presented a paper (via Skype) on "Innovative activity in India's pharmaceutical industry: Post TRIPS" at the international conference on "Business strategy and innovation spaces in emerging markets" at Institute for Management of Innovation and Technology, KTH Royal Institute of Technology, Goteborg, Sweden, February 24, 2013.
- Was a Visiting Professor at University of Toulouse Le Mirail during March 1-31, 2013. During the time he gave 16 hrs of lectures on 'Innovation and Technology Policy' to Master's students.
- Presented a paper on "Evolution of the sectoral system of innovation if India's aeronautical industry" at University of Toulouse Le Mirail, France, March 14, 2013

- Presented a paper on 'TRIPS compliance of India's patent regime, Analysis of its effects on innovative activity in pharmaceutical industry' at LEREPS, Université de Toulouse1 Capitole, France, March 21, 2013

National Conferences/Workshops

- Presented a paper on 'An introduction to Industrial Statistics in India' at the *Statistics Day 2012* organized by National Sample Survey Organization, Trivandrum, June 29, 2012
- Was invited to be a member of the Planning Group for developing training resources for Economics teachers by the National Council of Education Research and Training (NCERT), New Delhi. He attended the first meeting of this group on June 30, at NCERT, New Delhi.
- Presented a paper on 'TRIPS compliance of national patent regimes and its effect on innovative activity, case of India's pharmaceutical industry' at the seminar on *Mapping the innovation landscape in India*, Nehru Memorial Museum and Library, August 24-25, 2012

External involvement in academic and policy Advice

- Visiting Research Professor, Bocconi University, Milan, Italy
- Visiting Professor, University of Toulouse Le Mirail, Toulouse, France
- Member, Advisory Steering Committee, Centre for Science, Technology and Innovation Indicators, Human Sciences Research Council, Republic of South Africa.
- Member, Apex committee for identification and prioritisation of areas and activities for the Patent Facilitating Centre of Technology, Information, Forecasting and Assessment Council (TIFAC)
- Member, Planning Group for developing training resources for Economics teachers by the National Council of Education Research and Training (NCERT), New Delhi.
- External Referee to international and national journals: Research Policy, Technovation, World Development, Small Business Economics Journal, Science, Economic and Political Weekly

Personnel Associated with the Unit

Professor Sunil Mani
Planning Commission Chair
Tel 04712774204
Fax 04712447137
Mani@cds.ac.in

Tilak Baker
Publication Officer
Tel 04712774276
Fax 04712447137
Tilak@cds.ac.in

Registrar
Tel 04712774251
Fax registrar@cds.ac.in

Contact Address

Planning Commission Unit, CDS
Prasanth Nagar, Ulloor, Trivandrum-695011, Kerala
Tel 0471-2774204
Fax 0471-2447137

<http://www.cds.edu/>