

INCIDENCE OF COMMERCIALISATION OF PATENTS: An Empirical Study of Inventors' Viewpoints

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ABSTRACT

The present paper is an attempt to measure and examine the inventors' extent of agreement on the velocity of commercialization of patents being low in India. The study is based on primary data collected via a structured questionnaire using five point scales i.e. not at all, little extent, some extent, large extent and full extent, which was administered to faculties of various disciplines of centrally funded technical institutes in India. The study reveals that a majority of the respondents in this regard agreed to full extent and large extent that incidence of commercialization of patents is low in India. The null hypothesis: 'the respondents' independent variables do not exhibit any significant difference about their degree of agreement on rate of commercialization of patents in India' stands accepted in the case of analysis carried according to six independent variables out of the seven variables considered for the purpose. However, in the case of the variable, number of 'patents granted', the hypothesis stands rejected. The overall view does not appear to be appreciative of the existing pace of commercialization of patents in India. We suggest that steps need to be taken to establish and strengthen technology transfer and entrepreneurship cells in the institutions where scientists are motivated to patent their inventions.

Key Words: Discipline, patenting, commercialization, inventors, IPRs, independent variables.

1.0 Introduction

As the name suggests, an intellectual property is an intangible asset which is creation of mind. Such properties may include art and literary works, inventions of new products and processes, signs, marks, symbols or designs, geographical indications, etc. The right over an intellectual property is like a right over any other property, such as land, building, valuables, etc. Such rights give the owner an opportunity to get exclusive benefit from the creations of their minds. With the growing popularity of intellectual property rights (IPRs), especially after the adoption of TRIPs agreement in 1994, it is felt that the existing IPR management practices need to change to cope with the challenges of new knowledge economy. The management of knowledge based assets such as innovations and know-how makes their understanding all the more important. The success of institutions and enterprises is dependent on the time for grasping knowledge and put it into

domain of end users. The lesser time they take in commercialization of new ideas; higher will be the chances of their success. Thus, the velocity of time taken in creating new or incremental knowledge and their timely commercialization form the important parameters for success of economies. The changing trade environment characterized by WTO regulations, global competition, high cost and risk in innovations and gale of disruptive technologies have made IPR management all the more important.

The liberalization of global trade has broken the geographical barriers, setting a new emerging economic order. However, the new economic order has also posed the challenges of imitation of products, production of close substitutes, international trade disputes, stringent requirements for registration of patents and other IPRs and the like. The different countries simultaneously use many products and technologies which are facilitated by the opening up of trade in goods and services. This has made intellectual property rights (IPR) more susceptible to infringements. This harms the creators of knowledge by reducing their return on time and money investments. To keep up the pace of new innovations, it is imperative that developers of such products and technologies not only get full compensation of R&D costs and other costs associated with introduction of new products in the market, but also generate enough profits to keep up the pace of their efforts. This will be possible only if their rights are protected and they get rights of perennial exclusivity for a fairly long period of time. As creation of intellectual property requires huge investment of money and time along with very high mortality rate of new technology, its protection needs appropriate regulations, newer constructs and processes of management, facilities for commercialization of new ideas and technologies, etc. This is truer of capital intensive industries like pharmaceuticals, software and hardware, biotechnology, agriculture and industry machinery, etc. No company would like to risk its intellectual property becoming a public property without adequate returns on it. The risks that a company takes are mostly at the developmental stage and the returns are generated at the stage of its commercialization. The realization of the potential of intellectual property as a catalyst for economic and cultural well being needs 'efficient and equitable intellectual property system'. Such a system helps strike a balance between the interests of innovators and the general public, providing an environment in which creativity and invention can flourish, for the benefit of all. This is with this rationale that present study has been carried out.

1.0 Review of Literature

An overview of articles appeared in different journals on different IPR issues has revealed that the studies are restrictive in nature and do not give a comprehensive view. **Jain (1996)** examined the problems in international protection of IPRs and also highlighted the conflicts between developed and developing countries on the level of protection granted and controversies in the field of IPRs. Having analyzed the general intellectual property rights, **Rady (2002)** claimed that intellectual property rights have been a main driving force in economic development, but developed countries have still not

reached a satisfactory level of enforcement. They need to permanently improve IP related laws in order of guarantee the adequate and effective protection of industrial property and to bring their legal framework in full compliance with internationally established rules for the protection of intellectual property including the TRIPS-WTO agreement. **David, Gene, Joseph, Edward and John (2005)** found that companies which are skilled at managing intellectual property as a business strategy protect the core of the business while licensing intellectual property to generate a return on investment. For the success of any intellectual asset management program, the development of a reasonable and defensive valuation model is very necessary. **Jain and Sharma (2006)** evaluated the role of intellectual property management system in building organizational capabilities to achieve sustainable competitive advantage and recommended that intellectual property needs to be managed according to the business strategy and innovation practices of the organization. Having studied the economic foundations of intellectual property rights, **Stiglitz (2008)** observed that the importance of these rights has been exaggerated, as they form only one part of innovation system. He suggested that there is a need to strengthen the other elements of this portfolio and redesign the intellectual property regime to increase its benefits and reduce its costs. **Musyuni (2011)** emphasized that for IPR management is just a beginning and more awareness is required for better growth. The author noted that IPR is definitely a boon for all the mysteries to fight against competition. There is still a long way to go for creating awareness among the business people of India for proper utilization of IP and government should, therefore, compensate with adequate incentives and awards for the innovation. **Lianos and Dryfuss (2013)** studied the new challenges in the intersection of intellectual property rights with competition law and found that the intersection between these two gives rise to complex trade-offs between incentives to innovate and dissemination of innovation, static and dynamic efficiency. With reference to the intellectual property law in India, **Desai (2013)** observed that the protection of IPRs is acknowledged the world over as essential to business and India is no exception in this regard. India has taken steps to comply with its obligations under TRIPS and the Indian Intellectual property law regime is almost at par with the regimes of many developed nations. Overall, India has taken many positive steps towards improving its intellectual property rights regime and is expected to do much more in the coming years.

Cong Xu (2014) studied the comparative analysis of intellectual property between China and the West and found that the potential and inherent difficulties encountered by China's intellectual property protection and the current perception of the intellectual property system amongst its people are affected by the deep-rooted Chinese culture. The Chinese intellectual property culture has been deemed as a result of the deficiency and low efficiency of the legal execution system. These and other studies referred to have been found wanting in the aspect of commercialization of patents as viewed by the inventors.

2.0 Research Design and Methods

The research design, which glues together all

results of ANOVA ($p=0.711$), ($df=3,186$) accept the aforesaid null hypothesis.

4.4 Number of National Publications-wise

The responses according to the number of national level research publications, exhibited in sub-table 1.4, reveal that, at overall level, majority of the respondents *i.e.* 155 (81.6 %) agree in the range of some extent to full extent. This offers a generalization that scientists by and large feel that commercialization of patents is at a low pace in India. Statistically, ANOVA results at 5 percent level of significance ($p=0.516$), ($df=4,185$) reveal that the responses do not significantly differ across categories made according to the national publications. Thus the null hypothesis is accepted, implying category wise insignificant differences.

4.5 Number of International Publications-wise

The survey results as per the number of international research publications of respondents, presented in sub-table 1.5, indicate that the number of respondents agreeing to a large extent and full extent taken together is the largest in each class of respondents according to the present criterion. However, to meet up our inquisitiveness whether number of international publications of respondents brings about any significant impact on the pattern of their agreement or disagreement, we have tested the aforesaid null hypotheses. The results of ANOVA ($p=0.167$), ($df=3,186$) render the null hypothesis accepted, giving a clue about similarity of respondents' views, irrespective of their publications in international journals.

4.6 Number of Patents Filed-wise

According to the number of patents filed, discerned in sub-table 1.6, the largest percentage in each category agreed to a large extent, followed by some extent and full extent, in this regard, implying the respondents' similarity of views irrespective of number of patents filed by them. Further, the results of ANOVA ($p=0.438$), ($df=2,187$) statistically support at 5 percent level of significance that the respondents' number of patents filed does not lay a significant difference in the extent of their agreement. Therefore, the aforesaid null hypothesis is accepted.

4.7 Number of Patents Granted wise

The survey results presented in sub-table 1.7 as per the number of patents granted to respondents reveal that the largest percentage in the first category (0-3 patents) agreed to a large extent (29.5%), followed by some extent (24.2%), full extent (16.3%) and little extent (13.7%). The results of ANOVA ($p=0.044$), ($df=2,187$) reveal statistically significant difference and therefore null hypothesis is rejected. This, by implication, means that respondents' perceptions about pace of commercialization of patents in India differ according to the number of patents they have been granted.

5.0 Conclusion

The study reveals that a majority (55.2%) of the respondents contended to full extent (18.4%) and large extent (36.8%) that incidence of commercialization of patents is low

in India. The overall percentage goes as high as 81.5 when we include respondents' agreement 'to some extent' also. The null

Table 1: The frequency of commercialization of patents is very low in India

Profile of Respondents	N/P	Not at all	Little Extent	Some Extent	Large Extent	Full Extent	Total	ANOVA	
								F (df=3,186)	Sig.
1.1 Discipline-wise								0.095	0.963
Management	N	0	0	2	0	1	3		
	P	.0	.0	1.1	.0	.5	1.6		
Life Sciences	N	0	4	11	12	6	33		
	P	.0	2.1	5.8	6.3	3.2	17.4		
Physical Sciences	N	2	7	12	22	8	51		
	P	1.1	3.7	6.3	11.6	4.2	26.8		
IT and Engineering	N	2	20	25	36	20	103		
	P	1.1	10.5	13.2	18.9	10.5	54.2		
Total	N	4	31	50	70	35	190		
	P	2.1	16.3	26.3	36.8	18.4	100.0		

1.2 Teaching Experience-wise								F (df=3,186)	Sig.		
0-8 year	N	0	4	10	7	5	26	0.536	0.658		
	P	.0	2.1	5.3	3.7	2.6	13.7				
9-16 years	N	2	12	19	26	13	72				
	P	1.1	6.3	10.0	13.7	6.8	37.9				
17-24 years	N	1	8	12	24	12	57				
	P	.5	4.2	6.3	12.6	6.3	30.0				
25 and above	N	1	7	9	13	5	35				
	P	.5	3.7	4.7	6.8	2.6	18.4				
Total	N	4	31	50	70	35	190				
	P	2.1	16.3	26.3	36.8	18.4	100.0				
1.3 Years of Research Experience										F (df=3,186)	Sig.
0-10 years	N	0	2	6	5	4	17			0.460	0.711
	P	.0	1.1	3.2	2.6	2.1	8.9				
11-20 years	N	2	16	27	31	15	91				
	P	1.1	8.4	14.2	16.3	7.9	47.9				
21-30 years	N	2	11	12	27	15	67				
	P	1.1	5.8	6.3	14.2	7.9	35.3				
31 years and more	N	0	2	5	7	1	15				
	P	.0	1.1	2.6	3.7	.5	7.9				
Total	N	4	31	50	70	35	190				
	P	2.1	16.3	26.3	36.8	18.4	100.0				
1.4 Number of Research Paper in National Journals								F (df=3,186)	Sig.		
0-20 years	N	1	11	18	15	9	54	0.817	0.516		
	P	.5	5.8	9.5	7.9	4.7	28.4				
21-40 years	N	1	13	24	30	18	86				
	P	.5	6.8	12.6	15.8	9.5	45.3				
41-60 years	N	1	4	5	17	5	32				
	P	.5	2.1	2.6	8.9	2.6	16.8				
61-80 years	N	0	3	2	6	3	14				
	P	.0	1.6	1.1	3.2	1.6	7.4				
81 years and more	N	1	0	1	2	0	4				
	P	.5	.0	.5	1.1	.0	2.1				
Total	N	4	31	50	70	35	190				
	P	2.1	16.3	26.3	36.8	18.4	100.0				
1.5 Number of Research Paper in International Journals-wise										F (df=3,186)	Sig.
0-15 years	N	3	17	32	30	22	104			1.709	0.167
	P	1.6	8.9	16.8	15.8	11.6	54.7				
16-30 years	N	0	10	12	30	11	63				
	P	.0	5.3	6.3	15.8	5.8	33.2				
31-45 years	N	1	4	6	8	1	20				
	P	.5	2.1	3.2	4.2	.5	10.5				
46 years above	N	0	0	0	2	1	3				
	P	.0	.0	.0	1.1	.5	1.6				
Total	N	4	31	50	70	35	190				
	P	2.1	16.3	26.3	36.8	18.4	100.0				

1.6 Number of Patents Filed-wise								F (df=2,187)	Sig.
0-3 years	N	2	19	32	44	21	118	0.829	0.438
	P	1.1	10.0	16.8	23.2	11.1	62.1		
4-6 years	N	1	10	16	23	13	63		
	P	.5	5.3	8.4	12.1	6.8	33.2		
7 and above	N	1	2	2	3	1	9		
	P	.5	1.1	1.1	1.6	.5	4.7		
Total	N	4	31	50	70	35	190		
	P	2.1	16.3	26.3	36.8	18.4	100.0		
1.7 Patents Granted-wise								F (df=2,187)	Sig.
0-3 years	N	3	26	46	56	31	162	3.171	0.44**
	P	1.6	13.7	24.2	29.5	16.3	85.3		
4-6 years	N	0	5	4	14	4	27		
	P	.0	2.6	2.1	7.4	2.1	14.2		
7 and above	N	1	0	0	0	0	1		
	P	.5	.0	.0	.0	.0	.5		
Total	N	4	31	50	70	35	190		
	P	2.1	16.3	26.3	36.8	18.4	100.0		

Source: Survey, Note: N= Number of Respondents, P= Percent, Note: df= Degrees of freedom, *Significant at 10 percent level of Significance, **Significant at 5 percent level of Significance.

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