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IMPACT OF INTELLECTUAL PROPERTY RIGHTS ON ECONOMIC GROWTH- Advocate Reet Singh¹**ABSTRACT**

This paper provides an overview on the impact of intellectual property law on the economy. It talks about the positive impact and the negative impact, the effect on potential gain and loss depending on the market and other business regulation, competition and technological development etc. there are governments all over the world who want to improve their economy and growth in the sector of technology, market and information which will help in the growth of new virtual products and services. There are still many developing countries which do not depend on IPR protection nor foster innovation. While developed countries push for strong protection of IPR in bilateral, regional, and multilateral actions.

Keywords: Intellectual property rights, Economy

INTRODUCTION

The question of how Intellectual property law effect the economic growth depends on many factors; the main factor is the particular circumstance in each country. The stronger the system of protection of intellectual property stronger will be economy. There are many evidences that IPR could increase the overall economic growth and bring in technological growth and help in the overall growth in every prospect which would promote effective competition².

According to TRIPS (Trade related aspect of Intellectual property rights) in WTO there have been many questions regarding the impact on economic growth³. The reasons given where first,

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2. See Robert E. Evenson& Larry E. Westphal, Technological Change and Technology Strategy, in 3A HANDBOOK OF DEVELOPMENT ECONOMICS 2209, 2229-30 (Jere Behrman & T.N. Srinivasan eds. 1995); Keith E. Maskus, The Role of Intellectual Property Rights in Encouraging Foreign Direct Investment and Technology Transfer, 9 DUKE J. COMP & INT'L L. 109, 128-38, 149 (1998) [hereinafter Maskus, Foreign Direct Investment]; Carlos A. Primo Braga et al., Intellectual Property Rights and Economic Development (1998) (unpublished manuscript, Background Paper for the World Development Report, on file with the author).

3. David M. Gould and William C. Gruben (1996) The Role of Intellectual Property Rights in Economic Growth. J. DEV. ECON 323, 334-35.

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there many factors which effect the economic growth which would lead to domination on the growth of IPR with factors like market openness, microeconomics, and macroeconomics⁴. Secondly, many economics theories also state that IPRs will have both positive and negative impact however that will depend on various circumstances in every country. However, it can be said that IPR is structured in a way that may favor the different competitions within the system supported with many rights and obligations⁵.

PURPOSE

There are two main issues which will be discussed in the paper:

- 1) The factors which effect the growth of an economy due to IPR
- 2) The various theories regarding how IPR improves the economy
- 3) The various policies which will help in various IPR regimes in developing countries.

RESEARCH METHODOLOGY

The reason I chose this topic is because there are two sides to a coin

Limitation of the paper are:

- Comparison is done with few selective countries

The research material has been taken from various research papers written in English.

THE RELATIONSHIP BETWEEN IPR AND ECONOMIC GROWTH

There are two main economic objectives for protection of intellectual property protection⁶.

First, it is important to invest in the knowledge creation, business growth and new goods and service. Without any competition companies will not want to invest in research and other commercialization activities⁷. Weak IPR create negative economic growth as they fail to

4. Griffith, R. (2000) How Important is Business R&D for Economic Growth and Should the Government Subsidies It? Briefing Note No. 12. London: Institute for Fiscal Studies (<http://www.ifs.org.uk/innovation/randdcredit.pdf>).

5. De Soto, H. (2000) The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else. New York: Basic Books

6. Rafiqzaman, Mohammed (2002) The Impact of Patent Rights on International Trade: Evidence from Canada. The Canadian Journal of Economics 35:2, 307–330

7. PRIMO BRAGA, C.A., AND C. FINK. 1997. "The Economic Justification for the Grant of Intellectual Property Rights: Patterns of Convergence and Conflict." In F.M. Abbott and D.J. Gerber, eds., Public Policy and Global Technological Integration, pp. 99-121. The Netherlands: Kluwer Academic Publishers. ———. 1999. "International Transaction in Intellectual Property and Developing Countries." Forthcoming in the Journal of International Technology Management's special edition on Intellectual Property Rights and Economic Development

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overcome the problem of reach and development and face risks in competitive areas in private markets⁸.

Second, importance of encouraging right holders to place their inventions and ideas on market as sharing information is non-rival and many developers may find it difficult to exclude others from using it.

In economic terms it is efficient to provide wide access to new technologies and products⁹. There is a fundamental tradeoff between the overall protection of IPR which would limit the social gains from various inventions due to reduction in incentives¹⁰. The weak system would reduce creativity as it fails to provide adequate returns on various investments.

Different types of IPRs operate in a different manner¹¹. Like patent provide protection from unauthorized making, selling, and importing products and technology that is recognized to be novel and industrial utility¹². In most countries patent applications are made public after a certain time period. There are several aspects of patent scopes after effective protection¹³.

Trademark is used to give protection to various names and symbols used in products and services. It is used to help the customers identify products with much confusion, as the main objective of any brand is to get investments as it talks about the quality of the products and service¹⁴. Economists believe that there is danger to the economy due to market domination in competitive economies which play as a market barrier for new entries¹⁵.

8. Romer, P. (1986) Increasing Returns and Long Run Growth. *Journal of Political Economy*. 94, 1002–1037

9. YUSUF, A.A. AND A.M VON HASE. 1992. "Intellectual Property Protection and International Trade: Exhaustion of Rights Revisited." *World Competition: Law and Economics Review* 16(1):115-131.

10. SHERWOOD, R.M. 1997. "Intellectual Property Systems and Investment Stimulation: The Rating Systems in Eighteen Developing Countries." *IDEA: The Journal of Law and Technology* 37(2):261-370.

11. You and Katayama (2005) Intellectual Property Rights Protection and Imitation: An Empirical Examination of Japanese F.D.I. in China. *Pacific Economic Review* 10:4, 591–604.

12. PRIMO BRAGA, C.A. 1990. "The Developing Country Case for and Against Intellectual Property Protection." In W.E. Dieback, ed., *Strengthening Protection of Intellectual Property in Developing Countries: A Survey of the Literature*. World Bank Discussion Paper No. 112, pp. 69-87. Washington, D.C.: The World Bank. ———. 1996. "Trade-Related Intellectual Property Issues: The Uruguay Round Agreement and its Economic Implications." In W. Martin and L.A. Winters, eds., *The Uruguay Round, and the Developing Economies*. World Bank Discussion Paper No. 307, pp. 381-411. Washington, D.C.: The World Bank.

13. Schiffler, D. and C Kitti (1978) Rates of Invention: International Patent Comparisons. *Research Policy* 7: 4 (October), 324–340.

14. WORLD BANK. 1998. *World Development Report*. New York, N.Y.: Oxford University Press.

15. Zipfel, Jacob (2004) *Determinants of Economic Growth*. Florida State University (Social Sciences-Political Science).

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Copyright is used to provide protection to literary work, artistic work etc. as these rights provides an exclusive right to the owner for a certain period of time and they can choose to sell it¹⁶. However, the short coming is that the doctrine of 'fair- use' provides only a limited number of copies to be made for research and education¹⁷.

There are still many technologies which do not fit into the traditional categories, as some elements a technology may be applicable for patent in one country but not in another¹⁸. This is particularly in developing countries especially for biotechnologies and plant breeder's right. Due to unwarranted protection these inventions cannot be considered as an innovative step, this is the same case in seed varieties¹⁹.

There is a fundamental issue in these objectives. Due to the over protectiveness of these IPRS it would limit various different social gains, a weak system would reduce innovations and effect the economy and not provide enough returns to the market²⁰.

PROTECTION OF IPR IN DIFFERENT COUNTRIES

IPR is very important in every country²¹. However, they differ from country to country in spite of being members of TRIPS. Example: United States is said to have the strongest IPR protection in the world. It has responsive institutional system for administration and also ensure IPR effectiveness of enforcement of the same and also provides equal treatment of national and international by following various IPR conventions²². The IPR protection of many developed countries come very close to that of the United states, although they may be different in the fields

16. SIEBECK, W.E., ed. 1990. "Strengthening Protection of Intellectual Property in Developing Countries: A Survey of the Literature." World Bank Discussion Paper No. 112. Washington, D.C.: The World Bank

17. YUSUF, A.A. AND A.M VON HASE. 1992. "Intellectual Property Protection and International Trade: Exhaustion of Rights Revisited." World Competition: Law and Economics Review 16(1):115-131.

18. PRIMO BRAGA, C.A., AND A. YEATS. 1992. "How Minilateral Trading Arrangements May Affect the Post-Uruguay Round World." Policy Research Working Paper, WPS 974. Washington, D.C.: International Economics Department, The World Bank

19. UNESCO. 1996. World Science Report. Paris: UNESCO. UNITED NATIONS. 1997. World Investment Report. New York

20. WATAL, J. 1997a. "Compensation to Developing Countries for the Use of Biological Resources and Traditional Knowledge." Paper commissioned by the World Development Report. 1997b. "Intellectual Property Rights and Standards." Paper commissioned by the World Development Report.

21. Koike, M., Keynote Speech at the Fourth Global Congress Combating Counterfeiting and Piracy, p. 1 (3 Feb. 2008), http://www.ipr.go.jp/e_material/keynote_speech_20080203dubai.pdf.

22. "While some consumers are looking for what they believe to be bargains, knowingly buying counterfeit and pirated products, others may purchase counterfeit and pirated products believing they have purchased genuine articles. In both cases, products are often sub-standard and carry health and safety risks that range from mild to life threatening. Sectors where health and safety effects tend to occur include: car parts (brake pads, hydraulic hoses, engine and chassis parts, suspension and steering components, airbags, spark plugs, filters), electrical components (circuit breakers, fuses, switches, batteries), food and drink (tea, rice, vodka, raw spirits, baby formula), chemicals, toiletry, household products and tobacco products."

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of governance and legal coverage²³. However, in developing countries the protections are very low as not all developing countries protect all types of intellectual properties with minimum level of protection in administration and enforcement²⁴. There is also difference in the research and development activity between the developed and developing countries, due to the privatization of the same increases the IPR protection. The IPR also influences the production and consumption in domestic and foreign residents²⁵. For developing countries, the agricultural output is much higher, thus one can say that IPR protection on agriculture is higher in developing countries than developed countries²⁶.

The privatization of agricultural research has increased the IPR, with the increasing development in seed and farming technology, the same is stated in section 5 of the as it has become complex in developed countries²⁷.

When it comes to service the copyright, protection affects the industrial sector and software, publication, and entertainment. This contributes to the GDP growth of the developed countries

23. OECD, Magnitude of Counterfeiting and Piracy of Tangible Products: An Update (Nov. 2009), http://www.oecd.org/document/23/0,3343,en_2649_34173_44088983_1_1_1_1,00.html. 120 Frontier Economics, The Impact of Counterfeiting on Governments and Consumers (May 2009), <http://www.iccwbo.org/bascap/index.html?id=30506>

24. European Commission, Green Paper on Copyright and Related Rights in the Information Society, COM(95) 382 final, p. 3 (19 Jul. 1995), http://ec.europa.eu/internal_market/copyright/docs/docs/com-95-382_en.pdf; see also Guellec, D., Madiès, T., and Prager, J.-C., Les marchés de brevets dans l'économie de la connaissance, Conseil d'Analyse Économique (28 Jul. 2010) (Patent markets are likely to have increasing importance in the allocation of technology. Affirmative participation in these markets will be a prerequisite for access to knowledge and markets globally.), <http://www.cae.gouv.fr/spip.php?breve19>.

25. Jervelund, C., Jespersen, S.T. and Winiarczyk, M., Copenhagen Economics, Clean Technology and European Jobs, pp. 1, 8 (Oct. 2009) (citing IEA estimates), <http://www.thecied.org/NRrdonlyresesyxt37gmfw4siedbh6tjtaxai6gy4bzpztprv5g5bwq2xhsye6k6h7da7yz2jzkz46rhotgjilyvo7oikpptsge42e/CleanTechandEuroJobsFullReportFINAL.pdf>.

26. WIPO, Global Financial Crisis Hits International Trademark Filings in 2009 (18 Mar. 2010) (describing profile of goods and services for which trademarks were registered in 2009), http://www.wipo.int/pressroom/en/articles/2010/article_0006.html.

27. See, e.g., European Commission, Conference on Counterfeiting and Piracy: Frequently Asked Questions (FAQs) (13 May 2008), <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/299&format=HTML&aged=0&language=EN&guiLanguage=en>: "While some consumers are looking for what they believe to be bargains, knowingly buying counterfeit and pirated products, others may purchase counterfeit and pirated products believing they have purchased genuine articles. In both cases, products are often sub-standard and carry health and safety risks that range from mild to life threatening. Sectors where health and safety effects tend to occur include: car parts (brake pads, hydraulic hoses, engine and chassis parts, suspension and steering components, airbags, spark plugs, filters), electrical components (circuit breakers, fuses, switches, batteries), food and drink (tea, rice, vodka, raw spirits, baby formula), chemicals, toiletry, household products and tobacco products."

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and on the other hand developing countries the service share is smaller and it's limited only to artistic and literary property²⁸.

INTELLECTUAL PROPERTY RIGHTS AND ECONOMIC DEVELOPMENT

The IPRS plays a big role in the economic goals for any IPR Protection²⁹. The aim is to promote investments in creation and business creation by establishing exclusive rights to use and sell new technologies, service, goods etc. When talking from the economics point of view a weak IPRS creates a negative externality. The problem fails in research and development and risks information from private market³⁰.

Secondly, it's to promote new knowledge and replace it with different inventions and ideas. Since information is public it is non-rival and developers find it difficult to exclude others from using it³¹. It is socially and economically efficient to provide product to new products, software, technologies when they get developed. Having an overly protective IPRS could limit the social gains from invention by reducing the incentives on the other hand having an overly weak will fail to provide adequate returns³².

28. 3 Resurreccion, L., Tech-Transfer law seen to boost R&D, economy, Business Mirror (24 Apr. 2010), <http://www.bic.searca.org/news/2010/apr/phi/24.html>; dela Pena, T., Undersecretary for S&T Services, Department of Science and Technology, Republic of the Philippines, The Technology Transfer Act of the Philippines (2009), http://www.healthresearch.ph/index.php?option=com_phocadownload&view=category&download=62:technology-transfer-act-of-thephilippines&id=14:3rd-pnhrs.

29. OECD, Turning Science into Business: Patenting and Licensing at Public Research Organizations, p. 11 (2003), <http://www.oecdbookshop.org/oecd/display.asp?lang=EN&sf1=identifiers&st1=922003021p1>. Countries that have adopted such legislation include Canada (1985), Japan (1998), Great Britain (1998), Germany (1998, 2001), France (1999), Austria (2002), Italy (2001), Belgium (1999), Spain (1986), Denmark (2000), Switzerland (2002), Netherlands (1998), and Korea (1998, 2000 and 2001). Davison, H., Public-Private Partnerships: The Role of IPRs, Stockholm Network, <http://www.stockholm-network.org/downloads/events/HelenDavison.pdf>.

30. Schwiebacher, F. and Müller, E., How Companies Use Different Forms of IPR Protection: Are Patents and Trademarks Complements or Substitutes? DRUID-DIME Academy Winter 2010 PhD Conference (Nov. 2009), <http://www2.druid.dk/conferences/viewpaper.php?id=500648&cf=44>.

31.0 SandroMendonça, Tiago Santos Pereira and Manuel Mira Godinho, Trademarks as an Indicator of Innovation and Industrial Change, DRUID Summer Conference 2004 on Industrial Dynamics, Innovation And Development (May 2004), http://www.druid.dk/uploads/tx_picturedb/ds2004-1406.pdf; Smith, P. and Amos, J., Brands, Innovation and Growth: Evidence on the contribution from branded consumer businesses to economic growth (Apr. 2004),

http://www.aim.be/Documents/Insight%20%20innovation/growth/PIMS_brands_innovation%20growth_2004.pdf; Clayton, T. and Turner, G., Brands, Innovation and Growth: The Role of Brands in Innovation and Growth for Consumer Businesses, in Tid, J. (ed.), From Knowledge Management to Strategic Competence: Measuring Technological, Market and organizational Innovation (2006).

32. 8 Bayh, B. (Sen.), Allen, J.P. and Bremer, H.W., Universities, Inventors, and the Bayh-Dole Act, Life Sciences Law & Industry Report, 24:3 (18 Dec. 2009) ("The Bayh-Dole Act unleashed the previously untapped potential of university inventions, allowing them to be turned from disclosures in scientific papers into products benefiting the taxpaying public.").

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POSITIVE IMPACT OF INTELLECTUAL PROPERTY RIGHTS ON ECONOMIC DEVELOPMENT

Many economists have recognized several channels through which the Intellectual property rights have a positive impact on the overall growth and development of the economy³³. They are independent and dependent on each other. While IPR plays an important role in encouraging new innovations, product development etc, in developing countries they have IPR system which favors information through low cost imitation of other IPR systems all over the world by copying their product and technology³⁴. Due to this there is insufficient development in the IPR growth in the domestic front which results in low level economic growth as they aim at local markets and could try to gain benefit from patents, copyright and trade secret³⁵.

In many cases inventions include only minor changes in the technology which causes effect in the growth in the knowledge and various other activities which have a cumulative impact in the same. In order to give a tough competition to the other developing countries they have to come up with new and latest management, effective laws and organizational skills. However, adapting requires large amount of capital investment which have high social returns to improve in global norms, especially where there is unfair competition and due to trademark infringement. IPR would help entrepreneurs with more creativity and risk taking³⁶. Example, in Brazil helps domestic producers to gain significant share by encouraging foreign technologies to local market. The Japanese patent system effected technical progress, measured by increase in total factor productivity³⁷. The mechanism for promoting these processes include the creator to disclose and also accept any opposition if any on the patent application. This process seems to also encourage the creators in a large number for their invention³⁸.

33. Greenhalgh, C. and Rogers, M., Trademarks and Performance in UK Firms: Evidence of Schumpeterian Competition Through Innovation, pp. 24-25 (Mar. 2007), <http://www.economics.ox.ac.uk/Research/wp/pdf/paper300.pdf>.

34. Greenhalgh, C. and Rogers, M., The Value of Innovation: The Interaction of Competition, R&D and IP, Research Policy 35:4, 562- 580, p. 577 (2006), <http://www.sciencedirect.com/science/article/B6V77-4JMKMP7-2/2/ca89c15d79ed303ce35756bdadc2e436>.

35. 9 Association of University Technology Managers, the unsung hero in job creation: New survey reveals universities' impact on the U.S. economy (2009) http://www.autm.net/AM/Template.cfm?Section=Licensing_Surveys_AUTM&CONTENTID=4513&TEMPLATE=/CM/ContentDisplay.cfm.

36. Interbrand, Best Global Brands (2010), <http://www.interbrand.com/en/best-global-brands/Best-Global-Brands-2010.aspx>.

37. Interbrand, Methodology, <http://www.interbrand.com/en/bestglobal-brands/best-global-brands-methodology/Overview.aspx>; see also Granstrand (1999), supra note 45, pp. 8-9.

38. Magazzini, L., Pammolli, F., Riccaboni, M. and Rossi, M.A., Patent disclosure and R&D competition in pharmaceuticals, Economics of Innovation and New Technology, 18:5, 467-486, p. 482 (2009), <http://www.informaworld.com/smp/content~db=all?content=10.1080/10438590802547183>.

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Recent studies have come up with product development and entry of new creators and firms for trademark protection as stated in a survey in Lebanon has provided evidence as they have extensive and weak intellectual property³⁹. This problem was faced more in the food producers' sector this effected the food production sector in Middle East and Lebanon due large number of trademark infringement thus they shifted to domestic enterprises⁴⁰.

Similar problem exists in China, it suggested that trademark infringement affected the Chinese enterprises, problems like consumer goods, soft drinks, processed food etc. the companies who got their trademark also gained many counterfeit products⁴¹. According to various survey there are different effect on entries development and prevent interregional marketing as a result there were less economic growth as there was trademark infringement on products which have low capital requirement and high labor intensity as these were areas in which China had strong advantage in market. There is also a great number of growths in the software area in China which grow rapidly for business⁴².

IPR also stimulate acquisition of new technology and information. Enterprise and creators apply for patent, in the USA 10-12 months' time period takes for the application process. With certainty it would induce more trade, license, and product in the growing economy⁴³.

Comparing the same with developing countries they hope to attract stronger IPR⁴⁴. There are about three channels through which technology is transferred all around the world (developing countries)⁴⁵. It is recognized that by many economists that goods, products and technology are

39. Id., p. 103. See also Maskus, K., Will Stronger Copyright Protection Encourage Development of Copyright Sectors in Indonesia? in Krumm&Kharas (2004), supra note 57, pp. 149-154 (noting that impact was heaviest on local music firms). 60 WIPO, About Patents: Frequently Asked Questions, http://www.wipo.int/patentscope/en/patents_faq.html#patent_role.

⁴⁰ 6 Jensen, P. and Webster, E., Firm Size and the Use of Intellectual Property Rights, *Economic Record*, 82:256, 44-55, p. 46 (Mar. 2006), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=889138.

⁴¹Luthria, M. and Maskus, K., Protecting Industrial Inventions, Authors' Rights, and Traditional Knowledge: Relevance, Lessons, and Unresolved Issues, in Krumm, K. and Kharas, H., *East Asia Integrates: A Trade Policy Agenda for Shared Growth*, p. 103 (2004), http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2004/03/04/000090341_20040304142642/Rendered/PDF/280410PAPER0East0Asia0Integrates.pdf

⁴² This discussion is summarized from OECD, *Enhancing the Competitiveness of SMEs through Innovation*, pp. 6-8 (2000), <http://www.oecd.org/dataoecd/20/1/2010176.pdf>.

43. 5 WIPO, *Trademark Applications by Origin and Office* (February 2010), http://www.wipo.int/export/sites/www/ipstats/en/statistics/marks/xls/52_tm_appln_by_office_by_origin.xls.

44. 5 Id., Table 4. When weighted by each sector's employment, the average number of all IP registrations per 1,000 employees for SMEs versus large companies, respectively, was .288 versus .242 for patents, 2.743 versus 1.835 for trademarks, and .339 versus .162 for design rights

45. Ryan, M., *Intellectual Property, Trade and Foreign Direct Investment*, p. 3 (May 2004), WIPO Arab Regional Meeting on Intellectual Property as a Power Tool for Economic Growth, http://www.wipo.int/edocs/mdocs/arab/en/wipo_reg_ip_amm_04/wipo_reg_ip_amm_04_7.pdf; citing OECD, *Technology Licensing: Survey Results* (1987); United Nations Commission on Transnational Corporations (UNCTNC), *New Issues in the Uruguay Round of Multilateral Trade Negotiations*, E.90.II.A.15 (1989); UNCTNC,

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imported which would directly reduce the production cost⁴⁶. Example, there is one percent increase in import of products, technology, and goods like Coe, Helpman etc so the import price would be around 0.5%- 1%⁴⁷. Thus, the volume of impact is important to a developing country that need a revision in the IPR protection. The impact on the volume of trade depends on the revision and level of patent protection available in the said country, the target market size and the level of infringement which adhere to the guidelines of TRIPS⁴⁸. Countries like USA and Switzerland are not required revise their IPR protection levels when importing goods, technology and products from China, Thailand, Indonesia, and Mexico for which they need to adopt a much more IPR protection level⁴⁹. Example in Mexico, updated their IPR regime in the NAFTA due to this there was a substantial increase in the manufacturing, import and export of goods, products and technology in the late 2000s from countries like India, Bangladesh and were also able to protect their patents from countries like Brazil and Argentina. It has also been shown in various studies that the stronger the patent protection there is lesser infringement and more increase in the import by almost 10% in the late 2000s. Seeing this almost 150 US firms applied for patent in over 20 countries from the FDI in 1990s⁵⁰. Even various pharmaceutical companies, over 50% firms applied for IPR protection, especially the Research and development firms 100% of the companies applied for IPR protection⁵¹. In India, chemical industry indicate that they transfer 90% of their surveyed indicate that they could not differentiate between joint and subsidiary

The Determinants of Foreign Direct Investment: A Survey of Evidence, E.92.II.A.2 (1990); Mansfield, E., Intellectual Property Protection, Direct Investment, and Technology Transfer: Germany, Japan, and the United States, International Finance Corporation/World Bank Group Discussion Paper #27 (1995); Lee, J.-Y. and Mansfield, E., Intellectual Property Policy and U.S. Foreign Direct Investment, Review of Economics and Statistics, 78:181-186 (1996); Maskus, Keith, Intellectual Property Rights in the Global Economy, pp. 197, 232 (2000).

46. 7 Rogers, M., Helmers, C. and Greenhalgh, C., An analysis of the characteristics of small and medium enterprises that use intellectual property, pp. 36-39, Tables 12-13 (Oct. 2007), <http://users.ox.ac.uk/~manc0346/SMEReport1.pdf>; see also Rogers, M., Helmers, C. and Greenhalgh, C., A comparison of the use and value of patents and trademarks in large and small firms (undated), www.oiprc.ox.ac.uk/EJWP0108.ppt

47. 5 WIPO, Trademark Applications by Origin and Office (February 2010), http://www.wipo.int/export/sites/www/ipstats/en/statistics/marks/xls/52_tm_appln_by_office_by_origin.xls.

48. 3 Id., citing Arundel and Kabla (1998). Acs and Audretsch (1988) also found evidence in the US that patents are higher in industries where the share of innovations held by large firms is higher. However, the US definition of a small firm

49. World Intellectual Property Organization (WIPO), Economic Contribution of Copyright Industries, http://www.wipo.int/ip-development/en/creative_industry/pdf/eco_table.pdf; Tera Consultants, Building a Digital Economy: The Importance of Saving Jobs in the EU's Creative Industries (Mar. 2010), http://www.teraconsultants.fr/assets/publications/PDF/2010-MarsEtude_Piratage_TERA_full_report-En.pdf; Japan Copyright Institute, Copyright Research and Information Center (CRIC), Copyright White Paper – A view from the perspective of copyright industries, JCI Series No. 19, Vol. 3 (Aug. 2009), http://www.cric.or.jp/cric_e/cwp/cwp.pdf.

50. Dr. Angela Merkel, Policy Statement on the G8 World Economic Summit (24 May 2007), http://www.bundesregierung.de/Content/EN/Regierungserklaerung/2007/05/2007-05-24-regierungserkl_C3_A4rung-merkel_layoutVariant=Druckansicht.html.

51. OECD, The Economic Impact of Counterfeiting and Piracy (2008), p. 134, <http://www.oecd.org/document/4/0,3>

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ventures⁵². Apart from chemical industry there is also transfer of products in the machinery industry however not in other industries because of weak IPR protection⁵³.

Many firms are taking up FDI for licensing in product, goods and technology which has high licensing costs⁵⁴. IPRS are upgraded because it makes it easy to discipline the application and avoid infringement of any patent or trademark⁵⁵. It also makes the application and enforcement of contracts easy by and on multinational companies⁵⁶. Thus, if IPRS are strong and upgraded he is licensing cost will come down making more growth and development in the field of IPR. Example in the US between 1980s and 1990s they affiliated themselves with many manufacturing companies in developed and developing countries⁵⁷. Due to this the asset equation had a negative effect on the patent, trademark rights which brought a realization that there is a need for stronger IPR protection in order to have positive and efficient impact on the nations⁵⁸.

Thus, in order to analysis the above statements made, first countries with weak IPR would not cause issues for countries to experiment or deal with new technology, knowledge and stop the growth in the given field⁵⁹. Secondly, countries would obtain less economic growth. Thirdly, countries will have outdated goods, products, and technology⁶⁰. Finally, they will have limited initiative, less innovation, and less technological transfers from other counties⁶¹. Countries like China also support this, as many countries showed their reluctance in the research and

52. Tregear, A., F. Arfini, G. Belletti and A. Marescotti (2007) 'Regional Foods and Rural Development: The Role of Product Qualification'. *Journal of Rural Studies* 213(1): 12– 22

53. WIPO, Guide on Surveying the Economic Contribution of the Copyright-Based Industries (2003), http://www.wipo.int/export/sites/www/ip-development/en/creative_industry/pdf/893.pdf. 5 Raymond, Christopher, Intellectual Property Institute, *The Economic Importance of Patents* (1996).

54. Branstetter, L., Fisman, R., Foley, C.F., Saggi, K., *Intellectual Property Rights, Imitation, and Foreign Direct Investment: Theory and Evidence*, NBER Working Paper 13033, p. 1 (Apr. 2007), <http://www.nber.org/papers/w13033>.

55. Park, W. and Lippoldt, D., *Technology Transfer and the , Economic Implications of the Strengthening of Intellectual Property Rights in Developing Countries*, OECD Trade Policy Working Paper No. 62 (25 Jan. 2008), [http://www.oecd.org/officialdocuments/displaydocumentpdf/?cote=tad/tc/wp\(2007\)19/final&doclanguage=en](http://www.oecd.org/officialdocuments/displaydocumentpdf/?cote=tad/tc/wp(2007)19/final&doclanguage=en).

56. Prime Minister Dr. Manmohan Singh, Speech to the India Caucus, Washington, DC (19 Jul. 2005), http://www.indianembassy.org/press_release/2005/July/25.htm, reprinted at <http://www.outlookindia.com/printarticle.aspx?227989>.

57. Vandebussche, J., P. Aghion and C. Meghir (2006) 'Growth, Distance to Frontier and Composition of Human Capital'. *Journal of Economic Growth* 11(2): 97–127.

58. Cullen, S.E., *Alternative Energy Powers Up: Staking Out the Patent Landscape for Energy from Wind, Sun, and Waves* (2009), <http://ip.thomsonreuters.com/media/pdfs/altenergy.pdf>; see also Jervelund et al. (2009), supra note 114, p. 17.

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development facilities provided by China stating that their technology was five years old compared to other countries. Due to this they do not like to give full processing facilities to them to avoid the complete level of technology⁶². Widespread distribution of goods, technology and products which are copied or counterfeit effect the image and also there is no quality assurance, example food products, technological products, cosmetics, medicines etc. cause various hazards for the suppliers and consumers⁶³.

With the new regimes introduced in patent, trademark by TRIPS would change the situation. With the increase in research and development to help in various sectors of medicines, technology in developing countries specifically would be helpful⁶⁴. However, there is a large amount of uncertainty regarding the outcome and its practical significance. As even with strong IPR protection the ability to improve and encourage people to buy goods, products or technology may not rise much for a certain or long period of time⁶⁵.

NEGATIVE IMPACT OF INTELLECTUAL PROPERTY RIGHTS ON ECONOMIC DEVELOPMENT

IPR has many potentials for the growth and development in many circumstances⁶⁶. However, it may also cause many economic issues. In developing economies, as they would experience overall net welfare loss because of the cause of protection causes as discussed. Thus, it is difficult to organize interest in developing countries. In most developing countries there is a large amount of labor employment in unauthorized products and goods. As they try to upgrade their laws and various activities as they find an alternative employment⁶⁷. Example in Lebanese in 1998 the employment and price impact the IPR in their industry. The copyright software reduces the piracy by almost 40% which lowers the infringement the rate among the

62. Watal, J. (2000) 'Pharmaceutical Patents, Prices and Welfare Losses: Policy Options for India Under the WTO TRIPS Agreement'. *World Economy* 23(5): 733–52.

63. WIPO, Guide on Surveying the Economic Contribution of the Copyright-Based Industries (2003), http://www.wipo.int/export/sites/www/ip-development/en/creative_industry/pdf/893.pdf. 5 Raymond, Christopher, Intellectual Property Institute, The Economic Importance of Patents (1996).

64. Schwiebacher, F. and Müller, E., How Companies Use Different Forms of IPR Protection: Are Patents and Trademarks Complements or Substitutes? DRUID-DIME Academy Winter 2010 PhD Conference (Nov. 2009), <http://www2.druid.dk/conferences/viewpaper.php?id=500648&cf=44>.

65. WIPO, Global Financial Crisis Hits International Trademark Filings in 2009 (18 Mar. 2010) (describing profile of goods and services for which trademarks were registered in 2009), http://www.wipo.int/pressroom/en/articles/2010/article_0006.html.

66. 8 Markenverband, Statistisches Bundesamt (2005), cited in Perry, J., McKinsey & Co., The Significance of Brands, and the Branded Goods Industry: An Economic Perspective (2007), http://www.aim.be/Documents/Insight%20&%20innovation/growth/mckinsey_germany_2007.pdf. These industries were also found to represent 1.5 million jobs and €46 billion (5%) of direct and indirect tax revenues in Germany. See also ESADE, The Economic and Social Impact of Manufacturers' Brands in Mass Consumption Markets (Apr. 2010), http://www.aim.be/Documents/Insight%20&%20innovation/growth/spain_ESADE_study_2010.pdf.

67. OECD, The Economic Impact of Counterfeiting and Piracy (2008), p. 134, <http://www.oecd.org/document/4/0,3>

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employment. Many evidence via interview state that many skilled and unskilled workers find employment in non-infringement companies. There was a rise in the software price by 19% than the earlier price which was 16%. This was only in Lebanon; they would have a strong copyright in experience⁶⁸.

There is loss in the printing, publishing music, books, video etc and the infringement reduced. There was increase in the books price by almost 8% and increase in video price by 12%⁶⁹.

However, in food products, pharmaceuticals, technology, and cosmetics which are subject to patent and trademark⁷⁰. There was increase in the patent fee price by 50% which was 30% in the beginning. This impacts the infringement which raises the cost by many companies. There was fall in employment rate by almost 15% in large companies⁷¹.

Another concern is the potential of IPR to support the monopoly⁷². Products, goods, technology, etc. companies might lower the sales to reduce the monopoly price in the market, there is an evidence that patent generates higher price to protect drugs, goods, and other pharmaceutical products⁷³. However, the increase in the price will depend on many factors like the type of

68. OECD, *The Economic Impact of Counterfeiting and Piracy* (2008), p. 134, <http://www.oecd.org/document/4/0,3>

69. O SandroMendonça, Tiago Santos Pereira and Manuel Mira Godinho, *Trademarks as an Indicator of Innovation and Industrial Change*, DRUID Summer Conference 2004 on Industrial Dynamics, Innovation And Development (May 2004), http://www.druid.dk/uploads/tx_picturedb/ds2004-1406.pdf; Smith, P. and Amos, J., *Brands, Innovation and Growth: Evidence on the contribution from branded consumer businesses to economic growth* (Apr. 2004), http://www.aim.be/Documents/Insight%20&%20innovation/growth/PIMS_brands_innovation&%20growth_2004.pdf; Clayton, T. and Turner, G., *Brands, Innovation and Growth: The Role of Brands in Innovation and Growth for Consumer Businesses*, in Tid, J. (ed.), *From Knowledge Management to Strategic Competence: Measuring Technological, Market and organizational Innovation* (2006)

70. Yaqub, O. (2009b) 'Knowledge Accumulation and Vaccine Innovation: Lessons from Polio and HIV/AIDS', DPhil thesis, University of Sussex.

71. 9 Alliance Against IP Theft, *Economic Contribution of Intellectual Property* (2009), <http://www.allianceagainstiptheft.co.uk/downloads/campaign-pdfs/economic%20contribution.pdf>. An estimated 1 million people are employed in the UK in creating and building brands delivering an estimated £15 billion in investment in the UK economy. UK Intellectual Property Office, *Branding in a Modern Economy*, p. 6 (2009), <http://www.ip.gov.uk/branding-confreport.pdf>.

72. Rogers, M., Helmers, C. and Greenhalgh, C., *An analysis of the characteristics of small and medium enterprises that use intellectual property*, pp. 36-39, Tables 12-13 (Oct. 2007), <http://users.ox.ac.uk/~manc0346/SMEReport1.pdf>; see also Rogers, M., Helmers, C. and Greenhalgh, C., *A comparison of the use and value of patents and trademarks in large and small firms* (undated), www.oiprc.ox.ac.uk/EJWP0108.ppt

73. While some consumers are looking for what they believe to be bargains, knowingly buying counterfeit and pirated products, others may purchase counterfeit and pirated products believing they have purchased genuine articles. In both cases, products are often sub-standard and carry health and safety risks that range from mild to life threatening. Sectors where health and safety effects tend to occur include: car parts (brake pads, hydraulic hoses, engine and chassis parts, suspension and steering components, airbags, spark plugs, filters), electrical components (circuit breakers, fuses, switches, batteries), food and drink (tea, rice, vodka, raw spirits, baby formula), chemicals, toiletry, household products and tobacco products."

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pharmaceutical product, its production, the patent obtained. Many evidences in India show that there is large amount of infringement of the said products⁷⁴. When there is an introduction to the patent in the market there is an increase in the price of that product causing an imbalance in the economy. Example in counties like Beijing, Shanghai etc there was an increase in the price of the said product by almost 5% between the years 1990-1995. This economic impact was also tested and proved in counties like Chile, Argentina etc. however the observation was made only on the basis of quality and not quantity⁷⁵.

There are no studies on software will vary between counties⁷⁶. It's necessary that the price is higher when compared between retail and copied programs. Example, in Hong Kong between 1995-2000 they purchased windows 97 was bought by them for \$7 and was copied all around⁷⁷.

Another concern about this is that the monopoly price which supports the IPR could be valid⁷⁸. IPR introduced many competitive markets. Due to infringement there would be diminished or less access to technological information. Patents on pharmaceutical goods and products raise the costs and pressure on the developing countries. Whereas trade secrets are concerned it makes it more difficult to get latest technology⁷⁹.

The cost explains many ways to strengthen the economy. First, the economy could be balanced by transfer through trade and licensing. Many markets, companies take advantage of the products

74. See, e.g., IDC/BSA, *The Economic Benefits of Reducing PC Software Piracy* (Sept. 2010) (estimate that a 10-percentage point reduction in business software piracy would generate \$142 billion in economic growth, 500,000 jobs, and \$43 billion in additional taxes world-wide over 4 years), www.bsa.org/idcstudy.

75. Id., Table 4. When weighted by each sector's employment, the average number of all IP registrations per 1,000 employees for SMEs versus large companies, respectively, was .288 versus .242 for patents, 2.743 versus 1.835 for trademarks, and .339 versus .162 for design rights.

76. Yaqub, O. (2009a) 'Knowledge Accumulation and the Development of Poliomyelitis Vaccines'. STEPS Working Paper 20. Brighton: STEPS Centre.

77. WIPO, *World Intellectual Property Indicators*, Table ST.1 (2009), http://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/pdf/wipo_pub_941.pdf; see also WIPO, *Patent Applications by Patent Office and Country of Origin (1995-2008)*, http://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/xls/wipo_pat_appl_by_office_origin_table.xls.

78. Yang, C.-H. and Y.-J. Huang (2009) 'Do Intellectual Property Rights Matter to Taiwan's exports? A Dynamic Panel Approach'. *Pacific Economic Review* 14(4): 555–78.

79. Strong domestic IPRs may spur domestic innovative activity, and thus affect ... patented (from an ethical point of view—these ethical issues are ... www.wiwi.uni-magdeburg.de/bwl2/Lehre/WTO/WTO-L6_2004

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and goods⁸⁰. Second, IPR would help developing countries to enter developed countries. Third, cost imitation need not be damaging into many competitive economies for various technology⁸¹.

The worry for a developing country is the higher cost in intellectual property rights which makes the overall profit very low⁸². In 2000s there was an impact of stronger patent rights according to TRIPS. Firm's profits depend on the degree of IPR protection in that country. In the pre-TRIPS the level of changes induced were not accounted⁸³. Also, the stocks which depended on the patent were also affected. In 1990s the national GDP was also affected in the exchange rate. In the United States the GDP growth by almost 9 million dollars per year⁸⁴. However, as TRIPS is concerned, the rules it is up to the countries to apply according to their law system however United States did not make any changes. In most countries experience net outflow of patent because of significant changes and technological imports⁸⁵.

Finally, it was noted that administration could be a burden in developing countries' economies example in countries like Chile the GDP increased by almost one million. Similarly, in Bangladesh there was increase in the GDP⁸⁶.

80. Wilson, N., A. Fearn and K. van Ittersum (2000) 'Co-operation and Co-ordination in the Supply Chain: A Comparison between the Jersey Royal and the OpperdoezerRonde Potato'. In B. Sylvander, D. Barjolle and F. A. Versailles (eds) *The Socioeconomics of Origin Labelled Products in Agri-food Supply Chains: Spatial, Institutional and Coordination Aspects*, Vol. 2, pp. 95–102. Versailles: INRA-Editions.

81. 3 Kamiyama, S., Sheehan, J. and Martinez, C., Valuation and Exploitation of Intellectual Property, OECD STI Working Paper 2006/5, pp. 20-22 (2006), <http://www.oecd.org/dataoecd/62/52/37031481.pdf>; Kortum, S. and Lerner, J., Does Venture Capital Spur Innovation?, National Bureau of Economic Research, Working Paper 6846 (1998), <http://www.nber.org/papers/w6846>

82. Guellec and van Pottelsberghe (2007), supra note 44, pp. 88- 94, citing European Patent Office, Applicant Panel Survey 2004 (internal report) (2005); Gambardella, A., Assessing the 'Market for Technology' in Europe: A Report to the European Patent Office (2005).

83. Yaqub, O. (2009b) 'Knowledge Accumulation and Vaccine Innovation: Lessons from Polio and HIV/AIDS', DPhil thesis, University of Sussex.

84. Whyte wolf 2010. Is Intellectual Property Itself Unethical? http://www.iacis.org/iis/2007_iis/PDFs/Peslak.pdf

85. 4 Haeussler, C., Harhoff, D. and Mueller, E., Centre for European Economic Research, To Be Financed or Not... - The Role of Patents for Venture Capital Financing (Centre for European Economic Research, Jan. 2009), <http://www.cepr.org/pubs/new-dps/dplist.asp?dpno=7115.asp>; citing Baum, J.A. and Silverman, B.S., Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology start-ups, *Journal of Business Venturing*, 19:411-436 (2004); Mann, R.J. and Sager, T.W., Patents, venture capital, and software start-ups, *Research Policy*, 36:193-208 (2007); Hsu, D. and Ziedonis, R.H., Patents as quality signals for entrepreneurial ventures, *Academy of Management Best Paper Proceedings* (2008); Lerner, J., The importance of patent scope: an empirical analysis, *RAND Journal of Economics*, 25:319-333 (1994)

86. The IP Roadmap published by ICC provides a guide to the roles of business and government in ensuring that IP protection performs its important function effectively. This Roadmap includes an overview of the policy debate on IP issues and addresses many of these issues in detail. See International Chamber of Commerce, *Current and emerging intellectual property issues for business: A roadmap for business and policy makers* (2010),

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If there is a fixed price country which a developing, small, or poor to here will not be enough significant growth. First, the IPR office may make changes in the application fee⁸⁷. Second, poor countries may file petition on various factors like technical and financial help in industrial country and with the help of WIPO and WTO help in the proper use of the cost⁸⁸. Third, they make get cooperation from many international agreements and treaties⁸⁹.

CONCLUSION

Finally, one can claim that strengthening the IPR system can help to rise the GDP, more technological growth, and economic growth of a country⁹⁰. Studies have shown that economic growth access would help to strengthen the patent and other intellectual properties. The direct effect of patent and IPR growth there was an important openness in the trade⁹¹. With strong patent protection here was overall growth by 1%⁹². In open economies the experience in competition, being it even the FDI and requirement for a strong technology for better product quality. There was no relation between patent strength and growth and development of the goods, product etc.⁹³It was in 2000s the IPR growth and investment is not fund in direct correlation between patent strength and growth and there was a strong impact on physical and on research and development⁹⁴. Many economic theories have stated that IPR could play both positive and negative role in the overall growth and development of the economy and many evidences have depend on many factors as stated to promote IPR⁹⁵. It may pose problem for which we can get a solution and many policies which are complementary and might maximize the profit or might affect the losses in the growing competition and these policies would include

[http://www.iccwbo.org/uploadedFiles/ICC/policy/intellectual_property/pages/IP%20Roadmap-%202010-%20FINAL%20Web+cover \(5\).pdf](http://www.iccwbo.org/uploadedFiles/ICC/policy/intellectual_property/pages/IP%20Roadmap-%202010-%20FINAL%20Web+cover%20(5).pdf)

87. World Bank (2008) World Development Indicators. Washington DC: World Bank.

88. World Health Organization (WHO) (2002a) Infectious Diseases Report. Geneva: WHO.

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90. Branstetter, L., Fisman, R., Foley, C.F., Saggi, K., Intellectual Property Rights, Imitation, and Foreign Direct Investment: Theory and Evidence, NBER Working Paper 13033, p. 1 (Apr. 2007), <http://www.nber.org/papers/w13033>

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92. Wong, E.V. (2002) 'Inequality and Pharmaceutical Drug Prices: An Empirical Exercise'. University of Colorado at Boulder Working Papers.

93. WIPO. Intellectual property and bioethics-An overview.

94. Alan RP 2007. information technology intellectual property ethics; issues and analysis. Issue in Information system, 8(2).

95. Smale, M., M.P. Reynolds, M. Wharburton, B. Skovmand, R. Trethowan, R.P. Singh, I. Ortiz-Monasterio and J. Crossa (2002) 'Dimensions of Diversity in Modern Spring Bread Wheat in Developing Countries from 1965'. Crop Science 42: 1766–79

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human capital, skills and flexibilities, organization, market and to have a non-discriminatory effective competition⁹⁶.

IPR also plays a very important role in becoming a relevant of the policy making in developing economies for negotiation and private sector research and development example many IPR policies may affect the lives of millions who are low income farmers and developing world influence the pace I biotechnology⁹⁷.

However, these developments pose threat in many significant ways⁹⁸. The legal standard of protection, discuss many other variables that determine the economic growth and development that factor the judicial system and macroeconomics and micro economics, also to have a pro-competitive approach toward IPR which regulate and help in the innovation process in many developing countries⁹⁹.

There are many ambiguities in IPR protection of how the countries will get effected¹⁰⁰. The IPR protection will be supported by TRIPS which will redistribute the income between developed and developing countries¹⁰¹. There will additionally market power that would harm various

96. Ryan, M., Intellectual Property, Trade and Foreign Direct Investment, p. 3 (May 2004), WIPO Arab Regional Meeting on Intellectual Property as a Power Tool for Economic Growth, http://www.wipo.int/edocs/mdocs/arab/en/wipo_reg_ip_amm_04/wipo_reg_ip_amm_04_7.pdf; citing OECD, Technology Licensing: Survey Results (1987); United Nations Commission on Transnational Corporations (UNCTNC), New Issues in the Uruguay Round of Multilateral Trade Negotiations, E.90.II.A.15 (1989); UNCTNC, The Determinants of Foreign Direct Investment: A Survey of Evidence, E.92.II.A.2 (1990); Mansfield, E., Intellectual Property Protection, Direct Investment, and Technology Transfer: Germany, Japan, and the United States, International Finance Corporation/World Bank Group Discussion Paper #27 (1995); Lee, J.-Y. and Mansfield, E., Intellectual Property Policy and U.S. Foreign Direct Investment, Review of Economics and Statistics, 78:181-186 (1996); Maskus, Keith, Intellectual Property Rights in the Global Economy, pp. 197, 232 (2000).

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98. Cavazos Cepeda, R., Lippoldt, D. and Senft, J., Policy Complements to the Strengthening of IPRs in Developing Countries, OECD Trade Policy Working Paper No. 104, pp. 21-22 (14 Sept. 2010), http://www.oecd-ilibrary.org/trade/policy-complements-to-the-strengthening-of-iprs-in-developing-countries_5km7fmwz85d4-en.

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100. Maskis K 2000. Intellectual property Rights and global economy. Institute for international economic, Washington DC

101. Park, W. and Lippoldt, D., Technology Transfer and the , Economic Implications of the Strengthening of Intellectual Property Rights in Developing Countries, OECD Trade Policy Working Paper No. 62 (25 Jan. 2008), [http://www.oecd.org/officialdocuments/displaydocumentpdf/?cote=tad/tc/wp\(2007\)19/final&doclanguage=en](http://www.oecd.org/officialdocuments/displaydocumentpdf/?cote=tad/tc/wp(2007)19/final&doclanguage=en).

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information and help in growth and development in various importing countries to get some improvement. The range of various policies can be divided into in four criteria's¹⁰².

First, IPR growth and development helps to open the economy¹⁰³. With coming of liberalization, free entry and exist will help in the removal of monopolies in the market¹⁰⁴.

Second, having enough supplies of various labor skills to help promote growth in the areas of technology and innovation¹⁰⁵.

Third, it helps in economic growth which helps in innovation in the market area¹⁰⁶.

Finally, due to various consumers and customers it helps in protection of abuse of IPR and various authorities to be able to investigate the various complaints and to give proper remedies¹⁰⁷. By the regulation of competition in developing countries it helps to strengthen the IPR and helps to avoid abuse of licensing, monopoly price etc.¹⁰⁸

102. Prime Minister Dr. Manmohan Singh, Speech to the India Caucus, Washington, DC (19 Jul. 2005), http://www.indianembassy.org/press_release/2005/July/25.htm, reprinted at <http://www.outlookindia.com/printarticle.aspx?227989>.

103. Roderick RL 1995. The libertarian case against intellectual Property Rights. Liberal National foundation. <http://www.libertariannation.org/a/f3111.html>

104. WIPO, World Intellectual Property Indicators, Table ST.1 (2009), http://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/pdf/wipo_pub_941.pdf; see also WIPO, Patent Applications by Patent Office and Country of Origin (1995-2008), http://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/xls/wipo_pat_appl_by_office_origin_table.xls.

105. Cavazos Cepeda, R., Lippoldt, D. and Senft, J., Policy Complements to the Strengthening of IPRs in Developing Countries, OECD Trade Policy Working Paper No. 104, pp. 21-22 (14 Sept. 2010), http://www.oecd-ilibrary.org/trade/policy-complements-to-the-strengthening-of-iprs-in-developing-countries_5km7fmwz85d4-en

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108. WIPO, World Intellectual Property Indicators, Table ST.1 (2009), http://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/pdf/wipo_pub_941.pdf; see also WIPO, Patent Applications by Patent Office and Country of Origin (1995-2008), http://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/xls/wipo_pat_appl_by_office_origin_table.xls.

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