



INTELLECTUAL PROPERTY RIGHTS AND HUMAN CAPITAL DEVELOPMENT

-Dr. Raghuvir Singh¹

ABSTRACT

This chapter discusses the human development approach to intellectual property (IP). The innovation literature suggests that the protection of intellectual property rights (IPR) is a key determinant of innovation. Recent studies suggest that IPR protection encourages innovation only under certain conditions. In this paper, we consider that IPRs have a positive effect on technological innovation only in countries with high levels of human capital. The purpose of this study is to examine the relationship between intellectual property rights, human capital and technological innovation in the context of emerging and developing countries. To measure innovation, we use the number of patents granted to inventors in a country by the United States Patent and Trademark Office. The IPR variable is the Ginart and Park index, while the stock of human capital is measured by the percentage of total enrollment among the school-aged population over 15 years at the tertiary level. Panel threshold regression is applied to data from 46 developing countries for the period 1980–2009. The estimation results provide evidence for the existence of a non-linear relationship between intellectual property rights and innovation depending on the initial level of human capital. This study examines the single and combined effects of intellectual property rights (IPR) and human capital on types of entrepreneurship in emerging and developing countries. For this purpose, we use the Global Entrepreneurship Monitor data for entrepreneurial activity, while IPR is assessed based on the World Economic Forum's IPR index and human capital is measured by the gross enrollment ratio for secondary school. Linear regression is applied to the data for 15 countries during the period 2009–2013. The findings suggest that reforming intellectual property rights has no effect on opportunity-driven entrepreneurship and negatively affects need-driven entrepreneurship. Furthermore, improving education levels allows for increased opportunity-driven entrepreneurship in emerging and developing countries. However, this need does not allow entrepreneurship to flourish. Furthermore, countries with high human capital levels benefit more from the growth of the IPR system than countries with low human capital. In sum, our study recognizes the complementary

¹ Assistant Professor, G. S. Law College Auraiya U.P.

role of intellectual property rights and human capital in enhancing high-quality entrepreneurship. We conclude that both intellectual property rights and human capital are effective tools of industrial policy in emerging and developing countries.

The present paper focuses on institutional barriers to development and their effects on individuals' decision to enter entrepreneurship. Thus, our study aims to shed some light on how human capital, especially institutional framework, intellectual property rights and the interaction between these two aspects affect different types of entrepreneurship and secondary new domestic product. Conducts a survey to identify product-based and foreign-imported entrepreneurs and examines the implications of the two types of entrepreneurial opportunities for the relationship between intellectual property rights, human capital, and opportunity-driven entrepreneurship.

Keywords - Intellectual Property Rights, Innovation Non-Linear Relationship, Opportunity Driven and Necessity Driven Entrepreneurship, Human Capital, Emerging Developing Countries.

INTRODUCTION

In today's knowledge-based economy, intellectual property plays an important role in fostering innovation, driving economic growth, and protecting the rights of individuals. Intellectual property rights (IPRs) serve as a framework that protects and encourages creators and innovators, while human capital serves as the driving force behind the development and use of these rights. Intellectual property is an intangible asset derived from human creativity and includes inventions, literary and artistic works, industrial designs, trademarks, and trade secrets. By providing exclusive rights to the creators and owners of these intangible assets, intellectual property rights encourage innovation and creativity. These rights allow individuals and businesses to monetize and commercialize their creations, giving them a financial incentive to continue producing new ideas, products, and services.

Human capital, on the other hand, refers to the collective knowledge, skills, and abilities possessed by individuals in a society. It represents a reservoir of competencies and capabilities that can be utilized and developed to contribute to economic productivity and growth. Human capital is essential in the creation, application, and protection of intellectual property rights. It is the knowledge and skills of individuals that drive the development of innovative ideas and technologies, converting them into valuable intellectual property.

The relationship between intellectual property rights and human capital is symbiotic. On the one hand, intellectual property rights protect and reward human capital, ensuring that creators and innovators are rewarded for their efforts. It provides incentives for individuals to invest time, effort

and resources in research, development and innovation. Without the protection of intellectual property rights, individuals may be discouraged from engaging in creative endeavors because of the risk of their creations being appropriated or exploited by others.

Intellectual property rights play an important role in attracting and retaining human capital. Countries that have strong intellectual property protection regimes attract investment and highly skilled individuals, promoting innovation and economic growth. Strong intellectual property rights provide a favorable environment for research and development activities, encourage businesses to invest in new technologies, and increase demand for skilled workers.

It is necessary to strike the right balance between intellectual property rights and human capital. Excessive protection or overly restrictive intellectual property regimes can stifle competition, hinder innovation, and limit access to knowledge. Striking the right balance involves ensuring that intellectual property rights are enforced while allowing the free flow of information, knowledge sharing and collaboration, which are fundamental to human capital development.

HISTORICAL BACKGROUND

The idea of human capital dates back to the 18th century. Adam Smith referred to this concept in his book “An Inquiry into the Nature and Causes of the Wealth of Nations” in which he explored the wealth, knowledge, training, talents, and experiences of a nation. Adams suggested that improving human capital through training and education leads to more profitable enterprise, which adds to society's collective wealth. According to Smith, this makes it a win-win for everyone.² In modern times, the term was used to describe the labor required to produce manufactured goods.

But the most modern theory was used by several different economists, including Gary Becker and Theodore Schultz, who invented the term in the 1960s to reflect the value of human capabilities. Schultz believed that human capital was just as capable of improving the quality and level of production as any other form of capital. This will require investment in the education, training and increased benefits of the organization's employees.³

The term "human capital" was not widely used until the 20th century, when economists such as Arthur, Cécile, Pigou, Gary Becker, Jacob Mincer, and Theodore Schultz developed and popularized it in their works and the concept of human capital. Applicable to a variety of subjects such as education, training, health, migration, labor market, income distribution and economic development. He also developed methods for measuring and analyzing human capital and its returns.

² World Bank. "Building Human Capital." Cited from <https://www.investopedia.com/terms/h/humancapital.asp>

³ Schultz, Theodore W. "Investment in Human Capital." The American Economic Review, vol. 51, no. 1, 1961, pp. 1-17.

Today, human capital is considered one of the most important factors for economic and social progress. Many organizations and institutions invest in human capital development through various policies and programs, such as education, health care, social security, innovation, and entrepreneurship. The World Economic Forum publishes an annual Human Capital Report that ranks countries based on their human capital potential and performance. The report aims to provide a comprehensive framework for measuring and enhancing human capital around the world.

INTELLECTUAL PROPERTY RIGHTS

Intellectual Property can be defined as inventions of the mind, innovations, literary and artistic work, symbols, names and images used in commerce. The objective of intellectual property protection is to encourage the creativity of the human mind for the benefit of all and to ensure that the benefits arising from exploiting a creation benefit the creator. This will encourage creative activity and give investors a reasonable return on their investment in research and development. *The development of any society directly depends on the intellectual property rights and its policy framework. Lack of intellectual property rights awareness results in death of inventions, high risk of infringement, economic loss and collapse of intellectual era in the country.*

The rights granted to individuals in the context of their intellectual creation are called intellectual property rights. In fact, it is understood that if a person does any kind of intellectual creation (such as creation of a literary work, research, invention etc.), then first of all that person should have exclusive rights over it. Since this right is given only for intellectual creation, it is called intellectual property right.

According to Article 2 of the WIPO (World Intellectual Property Organization) – Central organizations for the protection of Intellectual Property Laws and the expert organization of the UN, “Intellectual Property shall include the rights relating to literary, artistic and scientific works, inventions in all fields of human endeavor, scientific discoveries, industrial designs, trademarks, service marks and commercial names and designations, protection against unfair competition, and all the other rights resulting from intellectual activity in the industrial, scientific, literary or scientific fields”

Intellectual property refers to morally and commercially valuable intellectual creation. Granting of intellectual property rights should not be taken to mean that only and only its creator will have the right forever and ever. It is necessary to mention here that intellectual property rights are given in view of a fixed time period and a fixed geographical area. The basic purpose of granting intellectual property rights is to encourage human intellectual creativity. Due to the wide scope of intellectual property rights, it was considered necessary to make arrangements for its relevant

rights and related rules etc. for the particular sector.

INTELLECTUAL PROPERTY RIGHTS SYSTEM IN INDIA

India's intellectual property rights system has its origins in the British colonial rule, when the state, as a colony, created various regulations and enforcement mechanisms relating to intellectual property rights. After independence, India retained elements of these structures while updating some guiding rules and other bureaucratic structures. As India moved towards liberalization, privatization and globalization in the 1990s and onwards, Indian policy makers made further adjustments to meet the growing needs of domestic and international stakeholders. Indian IPR laws are fully compliant with the Convention on Trade Related Aspects of Intellectual Property Rights under the aegis of WTO.

NEED OF INTELLECTUAL PROPERTY RIGHTS

- I. **Encourages Innovation:** Legal protection of new creations encourages the commitment of additional resources to further innovation.
- II. **Economic Development:** The promotion and protection of intellectual property promotes economic growth, creates new jobs and industries, and enhances the quality and enjoyment of life.
- III. **Protect the rights of creators:** IPR is needed to protect creators and other producers of their intellectual goods, goods and services by providing certain time-limited rights to control the use of the created goods.
- IV. **Ease of doing business:** It promotes innovation and creativity and ensures ease of doing business.
- V. **Transfer of Technology:** It facilitates transfer of technology in the form of foreign direct investment, joint ventures and licensing.

INTELLECTUAL PROPERTY RIGHTS POLICY

The Intellectual Property Rights Policy adopted in May 2016 is a giant leap by the Government of India to foster creativity and encourage innovation. It presents a roadmap for the future of intellectual property rights in India. The policy seeks to strengthen the Intellectual Property Rights framework in the country, create awareness about the economic, social and cultural benefits of Intellectual Property Rights among all sections of the society, encourage production and commercialization of Intellectual Property Rights, will promote service-oriented intellectualism. Modernize and strengthen the judicial system to deal with property administration IPR violations.

The policy states seven objectives which have been elaborated along with the steps to be taken by the identified nodal ministry/department. The objectives of the policy are:

- I. Intellectual Property Rights Awareness:** Outreach and Publicity - To create public awareness about the economic, social and cultural benefits of IPR among all sections.
- II. Creation of Intellectual Property Rights** - To encourage creation of IPR: India has a large pool of scientific and technological talent spread across R&D institutes, enterprises, universities and technical institutions. There is a need to harness this fertile knowledge resource and encourage creation of IP assets.
- III. Legal and Legislative Framework** - Creating strong and effective IPR laws, which balance the interests of rights owners with the larger public interest.
- IV. Administration and Management** - To modernize and strengthen service oriented IPR administration.
- V. Commercialization of Intellectual Property Rights** - Get the value of IPR through commercialization.
- VI. Enforcement and Adjudication** - Strengthening the enforcement and adjudication mechanism to deal with IPR infringement.
- VII. Human Capital Development:** To strengthen and expand human resources, institutions and capacities for teaching, training, research and skill building in IPR.

The current IPR policy aims to integrate IPR as a policy and strategic tool in national development plans. This emphasizes the need for a coordinated and integrated development of the IP system in India and a holistic approach to IP legal, administrative, institutional and enforcement related matters.

HUMAN CAPITAL

“Human capital represents two-thirds of the assets for the average person – and work experience contributes about half of that value.”

-G. M. Meier

The term human capital refers to the economic value of a worker's experience and skills. Human capital includes assets such as education, training, intelligence, skills, health, and other things that employers value such as loyalty and punctuality. As such, it is an intangible asset or quality that is not (and cannot be) listed on a company's balance sheet. Human capital is believed to increase productivity and thus profitability. The more a company invests in its employees, the more likely it is to be productive and successful.

It is often said that an organization is only as good as the people it has from top to bottom, which

is why human capital is so important to an organization. It is typically managed by an organization's human resources (HR) department, which oversees workforce acquisition, management, and optimization. Its other directions include workforce planning and strategy, recruiting, employee training and development, and reporting and analysis.

The concept of human capital recognizes that not all labor is equal. But employers can improve the quality of that capital by investing in employees. This can be done through the education, experience and abilities of the employees. All of these have huge economic value to employers and the economy as a whole. Human capital is a concept used by economists to specify individual characteristics considered useful in the production process. This includes employee knowledge, skills, information, good health and education.

Human capital has a substantial effect on personal income. Research indicates that human capital investment has high economic returns during childhood and young adulthood.⁴

Thus human capital includes the knowledge, skills and health that people accumulate throughout their lives, helping them to realize their potential as productive members of society. We can end extreme poverty and create more inclusive societies by developing human capital.

HUMAN RESOURCES CAPITAL

Human capital, also known as human resources, is the backbone of any nation. These human resources mainly consist of students who gradually become accountants, engineers, doctors, lawyers, businessmen or administrative officers. These students become human assets for the country on the basis of their efficiency and capability. Human capital formation aims at converting human resources into human assets.

Physical Capital: All the inputs like tools, machinery, gadgets required for the development and growth of physical assets like buildings, bridges, factories etc. are called physical capital.

Human Capital: The skills, educational qualifications, subject knowledge, abilities and expertise present in the human resources of a nation at a point of time are called human capital.

DIFFERENCE BETWEEN PHYSICAL AND HUMAN CAPITAL

- Physical Capital are tangible in nature and can be easily traded or sold in the open market like any other commodity whereas human capital is intangible in nature, created in the mind and body of the owner and not marketable in the market , Only the services related to it can be sold.
- Physical capital can be created through import from other areas but human capital can only be done through internal conscious moral formation.

⁴ Goldin, Claudia. "Human Capital" (PDF). In Claude Diebolt; Michael Hauptert (eds.). *Handbook of Cliometrics*. Cited from https://en.m.wikipedia.org/wiki/Human_capital

- The benefits of physical capital are only for private individuals while the benefits of human capital are social and personal.
- Physical capital is fully transportable between countries but human capital cannot be transferred due to restrictions of culture and nationalities.

FORMATION OF HUMAN CAPITAL

"Human capital formation is the process of obtaining and increasing individuals who have the education and experience necessary for the economic and political development of a country"

-G. M. Meier

To further the process of recruiting and receiving candidates who are best suited for their skills, educational qualifications and professional experience, which is vital to the political and economic development of the country.

SOURCES OF HUMAN CAPITAL FORMATION⁵

The most important source of human capital formation is investment in education. There are many other sources such as on-the-job training, investment in health, information and migration are other sources of human capital formation which are as follows –

I. Expenditure on Education

The most effective way to increase the productive workforce in the country is by spending on strengthening the education system. It is considered the best source of human capital formation. The motive of nation and individuals behind investing in education is –

- To increase future income.
- Creating manpower and inculcating their technical skills, which are suitable for improving labor productivity and thus leading to sustainable rapid economic growth.
- Controlling the population growth rate which can be done by reducing the birth rate. As a result, more resources are available per person.
- Education can be passed on to others, resulting in social benefit.

II. Health Investment

Another important source of human capital formation is health. An employee who is not well will certainly affect productivity. Health expenditure takes various forms, providing clean and safe drinking water, preventive and curative medicines, etc.

III. Migration

People migrate from their native place to another place to find better jobs to get advantage of location and earn higher wages. Migration from rural area to urban area is the most

⁵ <https://www.toppr.com/guides/economics/human-capital-formation-in-india/sources-of-human-capital/>
IP Bulletin Volume IV Issue I Jan- June 2023

prominent. Rural areas do not have areas to provide good jobs, so people migrate, while technically qualified professionals migrate from one country to another.

IV. Investment on The Job Training

Many organizations provide on-the-job training to increase labor productivity. It is another source of human capital which sometimes proves very costly. Companies spend heavily on on-the-job training. This can take various forms, such as training under a skilled supervisor, off-campus training or in-house training.

V. Intellectual Property Rights and Human Capital

When intellectual property rights were included in WTO trade agreements, it primarily emphasized the notion of intellectual property rights as economic products. The 1994 Agreement on Trade-Related Aspects of Intellectual Property (the TRIPS Agreement) was the first international intellectual property rights agreement to harmonize minimum standards of intellectual property rights protection for all WTO member countries. Since the TRIPS Agreement, intellectual property rights have been treated as important trade-related economic assets, and increasingly, intellectual property rights are being treated as investments under bilateral investment treaties.⁶

When it comes to intellectual property rights, this particular concern for developing and least developed countries does not mean that human capital is irrelevant for industrialized societies.

Human capital is relevant to all countries, but those classified as less developed have a greater need to ensure that their intellectual property rights policies promote human capital development. Several countries classified as least developed countries by the United Nations are located on the African continent. The African Union Science Technology and Innovation Strategy for Africa, for example, underlines the importance of achieving sustainable socio-economic development, reducing poverty, achieving food security, promoting public health and protecting the environment.⁷ However, human development is not exclusively a developing country concern. For example, the most recent WTO dispute concerning intellectual property rights and human capital involved a challenge to the law in Australia, an industrialized country.⁸ The case involved a conflict between Australian public policy designed to protect human health, which is a measure of human development, and cigarette manufacturers' interest in using their own trademarks.

⁶ Cynthia M. Ho, *Sovereignty Under Siege: Corporate Challenges to Domestic Intellectual Property Decisions*, 30 *BERKELEY TECH. L.J.* 213, 219 (2015).

⁷ *Science, Technology and Innovation strategy for Africa 2024*, AFRICAN UNION 1, 6 (27 December 2014), <https://au.int/en/documents/20141227>.

⁸ *Australia—Certain Measures Concerning Trademarks, Geographical Indications and Other Plain Packaging Requirements Applicable to Tobacco Products and Packaging—Report of the Panels*, WT/DS435/R/WTDS441/R WT DS458/R WT/DS467/R (28 June 2018).

HUMAN CAPITAL FOCUSED INTELLECTUAL PROPERTY

Although intellectual property rights may not be the most important factor in promoting human capital development, they – as the debate on access to medicines has shown – can have some impact. Beyond medicine and health, there are many potential areas of exploration where one could apply a human capital development lens to intellectual property analysis. This section discusses three examples: gender, technology and the corporation. For each example discussed, there may be a counterexample. The purpose of this chapter is not to provide a comprehensive analysis of human capital development-focused intellectual property, but to describe the framework and suggest some potential applications or areas for further research and exploration.

I. Gender

A human capital development framework for intellectual property rights can consider ways in which intellectual property rights can help promote gender equality. The relationship between gender and intellectual property has been explored in legal studies.⁹ However, gender and intellectual property from a human development perspective may warrant further research and analysis. For example, several of the United Nations' Sustainable Development Goals ('SDGs') are relevant to this topic. These include the SDGs on eradicating poverty, achieving gender equality, driving economic growth and promoting innovation.

Women are often small business owners in developing and industrialized countries. In some African countries, such as Ghana, many women entrepreneurs sell their products in the market or on the side of the road. But they are usually not knowledgeable about how they can use intellectual property rights to their advantage. When consumers buy products from companies like Apple or Payless Shoes, they have certain expectations because these companies have developed their own brands. For example, if African 'market women' can use a trademark to effectively differentiate their goods or services from those of other enterprises, they can efficiently communicate information about their businesses to potential buyers, so that their brand can grow. From a human development perspective, trademarks, used strategically, can provide these women with the ability to expand their clientele and build their businesses. Women entrepreneurs contribute to the economy and create jobs. Furthermore, if all other factors are held constant, it is reasonable to expect that a society with a greater number of economically independent women will be one with fewer gender inequalities.

⁹ Ann Bartow, *Fair Use and the Fairer Sex: Gender, Feminism and Copyright Law*, 14 AM. U. J. GENDER, SOCIAL POL'Y & L. 551 (2006), UN SDGs, *supra* note 8, at 1, 5, 8, 9.

II. Technological innovation

One can also apply a human capital development lens to intellectual property, to consider whether intellectual property promotes human capital development by facilitating technological innovation. The relationship between human capital development and innovation in the field of medical research and development is quite evident because health care innovations can improve the quality of life of people, or even extend their lives. But, technologies that allow people to read books and other materials, technologies that facilitate the free creation and distribution of creative works, technologies that facilitate cross-border communication via video-chat, and technologies that make it easier for people to send money. For their relatives abroad, all of these can be seen as technologies that promote human capital development. Such technological innovations contribute to the development of human beings in various ways. These can be measured by objective factors, such as measures of income, as well as subjective factors, such as improved psychological well-being when families are able to keep in touch even when they are far apart. Arguably, any intellectual property – whether patents, trademarks, copyrights, or other forms of intellectual property that facilitate the creation and distribution of such technologies – can be viewed as IP that promotes human capital development.

III. Corporate social responsibility

The human capital approach can be used to analyze the intellectual property rights owed by corporations. When discussing intellectual property rights and human capital development, it is important to acknowledge that corporations, although they are not creators, hold a significant portion of intellectual property. For example, corporations enjoy certain rights and can also protect their intellectual property rights interests under human rights law in Europe.¹⁰ However, a corporation is not a human person, so a corporation does not thrive nor is human capital development a concept that supports corporate economic interests.

Ownership of intellectual property rights may be good for corporate profits, but the question is whether these corporate owned intellectual property rights are furthering human progress and development. For example, intellectual property protection can be vital to revenue generation in particular industries and can lead to job creation, which helps improve lives. Furthermore, for example, intellectual property rights can have a positive effect on corporate profits. However, one may ask what corporate profits means for the common citizen.

For example, if a pharmaceutical company experiences an increase in profits due to maintaining

¹⁰ Laurence R. Helfer, *Toward a Human Rights Framework for Intellectual Property*, 40 U.C. DAVIS L.

high drug prices on patented drugs, intellectual property rights will hinder access to drugs for those most in need. In this context, an increase in profitability may appear to be an indicator of success as patent protection enables the company to enjoy financial rewards, thereby encouraging further innovation. However, when viewed through the prism of human development, intellectual property rights are only partially effective. To the extent that patent rights encourage the company to engage in research and development of drugs that improve human health, or to the extent that trademarks and branding encourage the company to uphold its standards, any One could also say that intellectual property rights are helping to promote human capital development. On the other hand, if the intellectual property right enables the company to engage in activity that limits human progress by pricing the drug in a way that makes the drug largely inaccessible to those who need it, then it will be harmful to human capital development.

STATUS OF BHARAT ON IPR AND HUMAN CAPITAL

India has been ranked 42 out of 55 countries in the latest International Intellectual Property Index report. India enjoys a good position in terms of presence of global R&D companies as knowledge partners with Cornell University and INSEAD¹³ Confederation of Indian Industry and others far better than comparable groups of low- and upper-middle-income economies Is. India also outpaces most other middle-income economies on science and engineering graduates, gross capital formation, gross expenditure on research and development undertaken by business, on the input side; quality of scientific publications, GDP growth rate per employee, exports of high-tech and ICT services, exports of creative goods, high-tech manufacturing and IP receipts on the output side.

PROBLEMS OF HUMAN CAPITAL FORMATION IN INDIA

The main problems of human capital formation in India are;

- I. Growing Population:** The increasing population in underdeveloped and developing countries like India adversely affects the nature of human capital. Hence, it reduces per capita availability of existing resources like sanitation, jobs, drainage, water purification system, city planning, hospitals, education centers, training centers, food supply, nutrition, roads, power, electricity etc.
- II. Brain Drain:** The exodus of highly talented workers is 'brain drain'. As a result, it proves to be a hindrance in the process of human capital formation in the country.
- III. Unqualified Manpower Planning:** There is immature labor planning in developing countries where no efforts have been made to raise the standard of training at various stages to keep up with the demand and supply of technical labour. It is a sad reflection of the

waste of local power and local talent.

IV. Long Term Process: The process of human development is a long term approach as skill development requires some period of time. The process of generating talented labor is thus moderate. It also reduces our competitiveness in the global market for human capital.

V. High Poverty Level: A large proportion of the population lives below the poverty line and lacks access to basic well-being and education. Therefore, a large section of the society cannot afford to receive advanced education or costly health treatments for major diseases.

CONCLUSION

Intellectual property rights and human capital are integral to promoting innovation, economic growth and social development. The interaction between these two pillars promotes knowledge creation, facilitates technology transfer and encourages investment in human capital. However, the right balance has to be struck

In conclusion, intellectual property rights and human capital are intertwined in promoting innovation, economic growth and protecting the rights of individuals. Intellectual property rights provide the legal framework to protect and encourage creators, while human capital drives the creation, development and use of these rights. To advance society and economy in the knowledge-based era, it is necessary to promote a harmonious relationship between the two.

Merely promoting a conducive environment for IPR is not enough to attract investment. Promotion of IPR must be balanced with national interest and public health obligations. "Make in India" should not compromise with "Atmanirbhar Bharat", and the latter should be given priority. Human capital refers to the economic value of a worker's abilities and skills. Companies can increase their human capital by recruiting or training as well as by implementing management techniques that optimize the productivity of their existing employees. Maintaining and improving the value of human capital is usually the responsibility of a company's human resources department.
