

Implementation of Intellectual Property Laws and Socio-Economic Growth: Inferences from Selected Countries and the Case of Pakistan

Ghulam Murtiza*, Justice Ghous Muhammad**

Abstract

The weak implementation of intellectual property laws encourages the counterfeiting and piracy and hence causes huge losses to socio-economic growth of a country. The inference from twenty countries has been drawn and the results reveal that IP laws implementation contributes considerably to socio-economic growth and the influence is found to be more powerful in countries with strong implementation of intellectual property laws. In Pakistan, the implementation ability is unsatisfactory and accordingly socio-economic development is at lower stage. The powerful implementation of IP laws in Pakistan is need of the hour.

Key Words: Intellectual property, Implementation, Piracy, counterfeiting, Socio-economic growth.

Introduction

The various factors play their role in enhancing the socio-economic growth in a specific country. IP is also considered in one of those factors. Whether it can be called a factor which enhances the socio-economic growth in a specific country or not? A lot has been written about IPRs protection and socio-economic growth. On both sides, ample literature is available. A lot has been written also with regard to one important component of IP protection that is implementation of IP. When we talk about the calculation of preservation of IPRs, this component is of much importance as without this component, the concept of IP protection is incomplete. In this context, in assessing national performance in protecting IP, the measurement of implementation segment is mandatory.

The inclination for this research comes from the fact that no work has been done so far regarding this question that what level of implementation of IP laws is required for socio-economic growth. Whether any interconnection exists between level of implementation of IP laws and level of socio-economic growth? Whether IP laws implementation standard affects the standard of socio-economic growth? Whether volume of implementation determines the volume of socio-economic growth in a specific country? Whether the strength of implementation of intellectual property laws has any impact on strength of socio-economic growth?

*Assistant Professor, College of Law, Government College University, Faisalabad
E-Mail: murtiza1@hotmail.com

**Dean, School of Law, University of Karachi E-Mail: ghousjustice786@yahoo.com

Data Description and Methodology

To draw the inference whether any link exists between level of implementation of IP laws and level of socio-economic growth and Whether IP laws implementation standard affects the standard of socio-economic growth, this study selects twenty countries including Peru, Russia, Turkey, Argentina, Thailand, Malaysia, South Africa, Colombia, South Korea, Brazil, Mexico, U.S, Singapore, Canada, Switzerland, U.K, Japan, France, Australia and New Zealand. These countries have been selected because these countries have experience of strengthening their IP systems.

To gauge the level of implementation of IP laws in these selected countries, this study employs U.S. Chamber of Commerce, Global Intellectual Property Center International IP Index for the duration of 2014-2017. The reason to take this IPR protection measure is that it is as per provisions of TRIPS and the reason for this time period (2014-2017) is to take up to date data. There are many other IPR protection measures including Rapp & Rozek Index (1990), Seyoum Index (1996), Sherwood Index (1997), Ginarte and Park Index (1997), Property Rights Alliance's International Property Rights Indexes and Global IP Index by Taylor Wessing. Most of them are outdated whereas others do not comprehensively cover the IP protection standards as mandated by TRIPS.

First, overall IP protection level of selected countries would be observed and after that level of implementation of IP laws in these countries will be judged.

The counterfeiting and piracy have result in decreased innovation, low level of foreign direct investment, financial resources' increased flow to criminal networks, health and safety risks as well as negative environmental effects due to substandard products, reduction in firm level investment, lower tax and related payments, increased risk of going out of business, adverse implications for R&D and other creative activities, higher rates of unemployment as well as poorer working conditions, loss of trade revenues and overall slower socio-economic growth. Table # 7 taken from Frontier Economics' The Economic Impacts of Counterfeiting and Piracy (2016) clearly elaborates this instance.

The social and economic growth of a country is badly damaged by counterfeiting and piracy. In countries where counterfeiting and piracy are at lower level, socio-economic growth in those countries is at higher level and in countries where counterfeiting and piracy is at higher level, socio-economic growth in those countries are at lower level.

What is the level of counterfeiting and piracy in selected countries? To observe the counterfeiting volume, data has been taken from U.S. Chamber of Commerce, Measuring the Magnitude of Global Counterfeiting (2016) and to detect the piracy strength in those countries, data has been taken from BSA Global Software Survey (2016).

To draw the inference whether level of implementation of IP laws affects the level of socio-economic growth, we will compare the level of IP laws implementation with the level of counterfeiting and piracy in selected economies.

What would be the result? In light of taken result, it will be observed whether in Pakistan there should be strong IP laws implementation mechanism for better socio-economic growth or not.

To observe the IP laws implementation level in Pakistan, U.S. Chamber of Commerce, Global Intellectual Property Center International IP Index has been utilized. To discover the level of counterfeiting in Pakistan, data has been achieved from different well recognized studies. To inspect the volume with regard to piracy, data has been taken from BSA Global Software Survey (2016).

The focus of this study is on the legal and socio-economic issues with regard to world of IP. This paper therefore does not touch those matters that strictly fall within the domain of elementary economics.

Table #1 List of Selected Countries

Argentina	South Korea
U.S	Peru
U.K	Columbia
France	Russia
Brazil	Singapore
Australia	Turkey
Malaysia	Japan
New Zealand	South Africa
Thailand	Canada
Switzerland	Mexico

Now this paper will be divided into two portions. In first portion, the implementation of IP laws in the above mentioned countries will be observed and in the second portion, the impact of this implementation on socio economic growth of these countries will be measured.

Implementation Capacity

Under this heading, it will be judged that what is the position and status of implementation of intellectual property laws in these countries? For this purpose, the study utilizes the U.S. Chamber International IP Index reports over the period of 2014-2017. In these reports, a lot of countries have been taken for assessment. Among those countries, we have taken only our selected economies and discussed their score with regard to their performance in protecting IP.

Before looking at these reports, let us take a view of construction of International IP index.

Table #2 Construction of International IP Index

1	Patents, Related Rights, and Limitations Category	Maximum Score	Minimum Score
	Indicators		
1	Patent protection term	1	0
2	Requirements of patentability	1	0
3	Computer-implemented inventions patentability	1	0
4	Enforcement and resolution mechanism of pharmaceutical-related patent	1	0
5	Use of compulsory licensing of patented products and technologies	1	0
6	and legislative criteria	1	0
7	Patent term restoration for pharmaceutical products	1	0
8	Protection term of regulatory data	1	0
	Patent opposition		
		Total Score: 8	
2	Copy Rights, Related Rights, and Limitations Category	Maximum Score	Minimum Score
	Indicators		
1	Copyrights and related rights protection term	1	0
2	Legal measures providing necessary exclusive rights that prevent infringement of copyrights and related rights (including web hosting, streaming, and linking)	1	0
3	Frameworks availability that promote cooperative action against online piracy	1	0
4	Scope of limitations and exceptions to copyrights and related rights	1	0
5	Management legislation of digital rights	1	0
6	Clear implementation of policies and guidelines requiring proprietary software used on Govt. ICT systems to be licensed software	1	0
		Total Score: 6	
3	Trademarks, Related Rights, and Limitations Category	Maximum Score	Minimum Score
	Indicators		
1	Trademarks protection term (renewal periods)	1	0
2	Non-discrimination/non-restrictions on the use of brands in packaging of different products	1	0
3	Ability of trademark owner to protect their trademarks: requisites for protection	1	0
4	Legal measures available that provide necessary exclusive rights to redress unauthorized uses of trademarks	1	0
5	Availability of frameworks that promote action against online sale of counterfeit goods	1	0
6	Industrial design protection term	1	0
7	Availability of legal measures that provide necessary exclusive rights to redress unauthorized use of industrial design rights	1	0
		Total Score: 7	

4	Trade Secrets and Market Access Category	Maximum Score	Minimum Score
	Indicators		
1	Trade secrets protection	1	0
2	Non-barriers to market access	1	0
3	Regulatory as well as administrative barriers to the commercialization of IP assets	1	0
		Total Score: 3	
5	Enforcement Category	Maximum Score	Minimum Score
	Indicators		
1	Physical counterfeiting rates	1	0
2	Software piracy rates	1	0
3	Civil as well as procedural remedies	1	0
4	Pre-established damages or mechanisms for determining the amount of damages generated by infringement	1	0
5	Criminal standards including minimum imprisonment and minimum fines	1	0
6	Effective border measures	1	0
7	Transparency and public reporting by custom authorities regarding trade-related IP infringement	1	0
		Total Score: 7	
6	Membership and Ratification of International Treaties Category	Maximum Score	Minimum Score
	Indicators		
1		1	0
2	WIPO internet treaties	1	0
3	Singapore Treaty on the law of trademarks	1	0
4	Patent Law Treaty	1	0
	At least one free trade agreement with substantive or specific intellectual property provisions such as chapters on intellectual property and separate provisions on IP rights provided it was signed after WTO/TRIPS membership		
		Total Score: 4	

Source: Global Intellectual Property Centre [GIPC] Index: Categories and Indicators (2017)

In international IP index, there are 6 categories and 35 indicators. Each of the indicators has 1 score. 1 is maximum score whereas 0 is minimum score. In this sense 35 is total score. In 2017, 5 new indicators were included in the index namely patent opposition in category 1, industrial design protection term and legal measures available that provide necessary exclusive rights to redress unauthorized use of industrial design rights in category 3, regulatory and administrative barriers to the commercialization of IP assets in category 4 and transparency and public reports by customs authorities of trade related IP infringement in category 5.

Now, first of all, overall IP score of the mentioned countries will be observed. It would be helpful to judge the status of intellectual property in each country. After then, the enforcement category score will be looked at to analyze the IP enforcement condition in each economy.

Table #3 GIPC International IP Index 2014-2017 Overall Economy Score

Economy	2017 (Total Score 35)	2016 (Total Score 30)	2015 (Total Score 30)	2014 (Total Score 30)
Peru	14.3	12.30	12.68	-----
Russia	15.5	13.06	13.54	13.28
Turkey	15.8	11.87	11.9	12.38
Argentina	10.1	8.91	9.2	9.45
Thailand	9.5	7.40	7.1	7.34
Malaysia	17.2	14.78	14.62	14.36
South Africa	12.7	11.74	11.86	11.6
Colombia	15.2	13.77	13.67	13.66
South Korea	28.3	23.32	23.33	-----
Brazil	13.2	10.41	10.86	10.83
Mexico	16.9	13.83	14.55	14.27
U.S	32.6	28.61	28.53	28.52
Singapore	28.6	25.63	25.38	25.12
Canada	21.4	18.17	17.92	17.4
Switzerland	29.9	24.90	24.76	-----
U.K	32.4	27.53	27.61	27.59
Japan	31.3	23.34	23.26	23.24
France	30.9	27.22	27.16	27.15
Australia	27.1	24.79	24.7	24.18
New Zealand	24.1	21.38	21.34	21.32

Source: U.S. Chamber of Commerce, GIPC International IP Index 2014-20

Table #4 GIPC International IP Index 2014-2017 Enforcement Category Score

Economy	2017 (Total Score 7)	2016 (Total Score 6)	2015 (Total Score 6)	2014 (Total Score 6)
Peru	2.7	1.81	1.94	-----
Russia	2.44	1.97	2.2	1.94
Turkey	2.71	1.78	1.81	1.79
Argentina	1.57	1.78	2.07	2.07
Thailand	2.35	1.12	1.07	1.06
Malaysia	2.66	2.5	2.34	2.33
South Africa	2.92	2.96	3.08	3.07
Colombia	3.23	2.68	2.58	2.57
South Korea	4.92	4.73	4.49	-----
Brazil	3.1	2.28	2.48	2.45
Mexico	3.48	3.29	3.51	3.23
U.S	6.27	5.36	5.28	5.27
Singapore	5.03	4.89	4.64	4.63
Canada	3.11	3.24	3.09	2.82
Switzerland	5.73	4.77	4.63	-----
U.K	6.51	5.65	5.48	5.46
Japan	6.16	5.26	5.18	5.16
France	6.38	5.48	5.42	5.41

Australia	5.29	4.66	4.57	4.3
New Zealand	4.79	4.22	4.18	4.16

Source: U.S. Chamber of Commerce, GIPC International IP Index 2014-2017

Analyzing the overall score as well as enforcement category score, it can clearly and easily be observed that in South Korea, U.S., Singapore, Canada, Switzerland, U.K, Japan, France, Australia, New Zealand, IP implementation mechanism is strict as compared to other countries including Peru, Russia, Turkey, Argentina, Thailand, Malaysia, South Africa, Colombia, Brazil and Mexico.

Impact on Socio-Economic Growth

If the implementation sector of intellectual property laws is weak in a specific country, counterfeiting and piracy sector in that country would be at higher level.

Harms (2005) observes that although regarding illegal seizure of different forms of IP, term of counterfeiting is used, but only that term is technically accurate in trademark area. A trademark which is not dissimilar with respect to its features from a registered trademark, that trademark is a counterfeit trademark because it violates the rights of the owner. The word piracy is used with regard to copyright and related rights. If there is infringement of sound recordings, computer software, printed and audio-visual works, it is said that offence of piracy has been committed. Through piracy, the rights of right holder are violated because no consent is taken from the owner.

The counterfeiting and piracy badly damage the ratio of innovation, ratio of trade wealth, ratio of employment and on the whole ratio of socio-economic growth. Let us observe the impact of implementation of IP laws on socio-economic growth in context of selected countries.

In U.S Chamber of Commerce, Measuring the Magnitude of Global Counterfeiting (2016), a lot of countries have been taken and their share in Global physical counterfeiting has been discussed. Among those countries, we have taken only our selected economies and discussed their share and percentage in global physical counterfeiting.

Table # 5 Selected Economies' Share of Global physical counterfeiting

		Global counterfeiting \$461,000,000,000		physical	
				20 selected economies' share \$ 20,787,118,930	
Serial No.	Economy	Share (in USD) of global physical counterfeiting	Percentage of the sampled economies' share of global physical counterfeiting	Percentage of total global physical counterfeiting figure	
1	Peru	\$ 1,518,685,756	7.30%	0.33%	
2	Russia	\$ 1,727,389,244	8.30%	0.37%	
3	Turkey	\$ 1,720,857,842	8.27%	0.37%	
4	Argentina	\$ 1,714,143,665	8.24%	0.37%	
5	Thailand	\$ 1,679,629,489	8.08%	0.36%	
6	Malaysia	\$ 1,355,385,035	6.52%	0.29%	
7	South Africa	\$ 1,299,689,384	6.25%	0.28%	
8	Colombia	\$ 1,207,409,361	5.80%	0.26%	
9	South Korea	\$ 1,151,431,914	5.53%	0.25%	

10	Brazil	\$ 1,079, 153,78 1	5.19%	0.23%
11	Mexico	\$ 1,022, 712,62 3	4.91%	0.22%
12	U.S	\$ 871,69 7,061	4.19%	0.19%
13	Singapore	\$ 858,93 8,548	4.13%	0.19%
14	Canada	\$ 804,02 4,681	3.86%	0.17%
15	Switzerland	\$ 611,27 4,133	2.94%	0.13%
16	UK	\$ 510,42 9,274	2.45%	0.11%
17	Japan	\$ 494,80 2,934	2.38%	0.11%
18	France	\$ 416,06 2,532	2.00%	0.09%
19	Australia	\$ 398,64 2,539	1.91%	0.09%
20	New Zealand	\$ 344,75 9,134	1.65%	0.07%

Source: U.S Chamber of Commerce, Measuring the Magnitude of Global Counterfeiting

Table # 6 Rates and Commercial Values of Unlicensed PC Software Installations

Serial No.	Economy	Rates Unlicensed Software Installation				Commercial Value of Unlicensed Software			
		2015	2013	2011	2009	2015	2013	2011	2009
1	Peru	63%	65%	67%	70%	\$ 210	\$ 249	\$ 209	\$ 124
2	Russia	64%	62%	63%	67%	\$1341	\$2658	\$3227	\$2613
3	Turkey	58%	60%	62%	63%	\$ 291	\$ 504	\$ 526	\$ 415
4	Argentina	69%	69%	69%	71%	\$ 554	\$ 950	\$ 657	\$ 645
5	Thailand	69%	71%	72%	75%	\$ 738	\$ 869	\$ 852	\$ 694
6	Malaysia	53%	54%	55%	58%	\$ 456	\$ 616	\$ 657	\$ 453
7	South Africa	33%	34%	35%	35%	\$ 274	\$ 385	\$ 564	\$ 324
8	Colombia	50%	52%	53%	55%	\$ 281	\$ 396	\$ 295	\$ 244
9	South Korea	35%	38%	40%	41%	\$ 657	\$ 712	\$ 815	\$ 575
10	Brazil	47%	50%	53%	56%	\$1770	\$2851	\$2848	\$2254
11	Mexico	52%	54%	57%	60%	\$980	\$1211	\$1249	\$1056
12	U.S	17%	18%	19%	20%	\$9095	\$9737	\$9773	\$8390
13	Singapore	30%	32%	33%	35%	\$290	\$344	\$255	\$197
14	Canada	24%	25%	27%	29%	\$893	\$1089	\$1141	\$943
15	Switzerland	23%	24%	25%	25%	\$ 448	\$469	\$514	\$344
16	U.K	22%	24%	26%	27%	\$1935	\$2019	\$1943	\$1581
17	Japan	18%	19%	21%	21%	\$994	\$1349	\$1875	\$1838
18	France	34%	36%	37%	40%	\$2101	\$2685	\$2754	\$2544
19	Australia	20%	21%	23%	25%	\$579	\$743	\$763	\$550
20	New Zealand	18%	20%	22%	22%	\$ 66	\$78	\$99	\$63

Source: Business Software Alliance [BSA] Global Software Survey 2016

The ratio of installation of unlicensed software and their commercial value has been discussed.

Table #7 Estimates of Counterfeiting and Piracy in the World

Serial No.	Estimate	2013	2022 (forecast)
1	Total international trade in counterfeit and pirated goods	\$461 Billion	\$ 991 Billion
2	Total domestic production and consumption of counterfeit pirated goods	\$249-\$456 Billion	\$ 524-\$ 959 Billion
3	Digital piracy in movies, music and software - Digital piracy in film - Digital piracy in music - Digital piracy in software Total value of counterfeit and pirated goods	\$213 Billion \$ 160 Billion \$ 29 Billion \$ 24 Billion \$ 923 Billion- 1.13 Trillion	\$384-\$856 Billion \$ 289-\$ 644 Billion \$ 53-\$ 117 Billion \$ 42-\$95 Billion \$1.90-\$2.81 Trillion
4	Wider economic and social costs - Displacement of legitimate economic activity - Estimated reduction in FDI - Estimated fiscal losses - Estimated costs of crime Total wider economic and social costs	\$470-\$597 Billion \$ 111 Billion \$ 96-\$ 130 Billion \$ 60 Billion \$ 737-898 Billion	\$980-\$ 1244 Billion \$231 Billion \$ 199-\$ 270 Billion \$ 125 Billion \$1.54-\$1.87 Trillion
5	Estimated employment losses	2-2.6 Million	4.2-5.4 Million
6	Foregone economic growth in OECD region 2017	\$ 30 Billion-\$54 Billion	

Source: Frontier Economics, The Economic Impacts of Counterfeiting and piracy

An overall estimate of counterfeiting and piracy in the world has been taken. It is important to note that the counterfeiting data in Table 5 indicates only global distribution of counterfeit goods. It does not mention the counterfeit products which are produced and consumed at local level. It can clearly be analyzed that in South Korea, U.S., Singapore, Canada, Switzerland, U.K, Japan, France, Australia, New Zealand, the implementation is strict and the counterfeiting and piracy are at lower level whereas in Peru, Russia, Turkey, Argentina, Thailand, Malaysia, South Africa, Colombia, Brazil and Mexico, the implementation of IP laws is weak and in this sense, the piracy and counterfeiting are at higher level. The counterfeiting and piracy badly damage the social and economic growth of a country.

The Case of Pakistan

Implementation Capacity

Under this heading, it will be judged that what is the position and status of implementation of intellectual property laws in Pakistan? For this purpose, the study utilizes the U.S Chamber International IP Index for the period of 2017 because Pakistan was assessed only in 2017 report. For the construction of International IP Index, Please see Table 2.

According to U.S. Chamber of Commerce, GIPC International IP index 2017, overall IP score in Pakistan is 8.4 whereas the enforcement category score is 1.09.

Analyzing the overall score as well as enforcement category score, implementation condition of IP in Pakistan can well be judged.

Impact on Socio-Economic Growth

If the implementation sector of intellectual property laws is weak in Pakistan, obviously the counterfeiting and piracy sector in that country would be at higher level. Counterfeiting and piracy play a great role in high rates of unemployment, loss of trade revenues, decreased innovation and overall slower social and economic growth.

As “Counterfeit Goods Become Serious Problem” (2014) stated that regarding size of counterfeit drug market in Pakistan, there is no formal research or study present. No one can say how large and big this market is. It is believed that counterfeiting costs government over Rs.12 billion a year.

As a result of counterfeiting and trademark violation, IPRs infringement leads to damage worth Rs.10 billion per annum in terms of direct and indirect profit (“IPR Violation”, 2009).

Overseas Investors Chamber of Commerce & Industry (2012) observed that it is estimated that over Rs. 21 billion is lost in Pakistan each year because of counterfeiting, plagiarism and IP theft (Seminar on Intellectual property Rights and Counterfeiting).

Due to counterfeit cigarette manufacturing, Pakistan suffers an annual loss of Rs. 10 billion (Counterfeit Cigarette, 2008).

Table #8 Rates and Commercial Value of Unlicensed PC Software Installations in Pakistan

Rates Unlicensed Software Installation				Commercial Value of Unlicensed Software			
2015	2013	2011	2009	2015	2013	2011	2009
84%	85%	86%	84%	\$276	\$344	\$278	\$166

Source: BSA Global Software Survey 2016

It can clearly be analyzed that in Pakistan, implementation of IP laws is weak and in this sense, the piracy and counterfeiting are at higher level. The social and economic growth of a country is badly damaged by counterfeiting and piracy. A strong relationship exists between implementation of IP laws and socio-economic growth.

Conclusion

Concluding the discussion, it can rightly be said that the level of implementation of IP laws determines the level of socio-economic growth in a specific country. The weak implementation of intellectual property laws encourages the counterfeiting and piracy and hence causes huge losses to economic sector as well as social sector of a country. The inference from twenty countries has been drawn and the results reveal that IP laws implementation contributes considerably to socio-economic growth and the influence is found to be more powerful in countries with strong implementation of intellectual property laws. In Pakistan, the implementation ability is unsatisfactory and accordingly socio-economic growth is at lower stage. The powerful implementation of IP laws in Pakistan is need of the hour.

References

Business Software Alliance (2016). Seizing Opportunity through License Compliance: BSA Global Software Survey May 2016.

Counterfeit Cigarette Manufacturing: Pakistan Suffers Rs.10 Billion Loss Annually (2008). Retrieved on 28-09-2017 from <http://www.pakissan.com/english/news/newsDetail.php?newsid=17361>

Counterfeit Goods Become Serious Problem, 65% Consumer Products Sold in Pakistan are Fake. (2014, September 2). Tribune International (Australia) Retrieved on 28-09-2017 from <http://tribune-intl.com/65-consumer-products-sold-in-pakistan-are-fake/>.

Frontier Economics (2016). The Economic Impacts of Counterfeiting and Piracy: Report Prepared for BASCAP and INTA. Retrieved on 22-08-2017 from https://www.inta.org/Communications/Documents/2017_Frontier_Report.pdf

Global Intellectual Property Centre Index (2017). Categories and Indicators. Harms, L. T. (2005). *The Enforcement of Intellectual Property Rights: A Case Book*: World Intellectual Property. IPR Violation causes Loss of Billion to Government. (2009, January 14). The News. Retrieved on 28-09-2017 from <https://www.thenews.com.pk/archive/print/155695-ipr-violation-causes-loss-of-billions-to-government>.

Overseas Investors Chamber of Commerce & Industry (2012). Seminar on Intellectual Property Rights and Counterfeiting. Retrieved on 28-09-2017 from <http://oicci.org/index.php/news/seminar-on-intellectual-property-rights-and-counterfeiting/>.

U.S. Chamber of Commerce Global Intellectual property Center (2016). Measuring the Magnitude of Global Counterfeiting: Creation of a Contemporary Global Measure of Physical Counterfeiting. Retrieved on 24-08-2017 from http://www.theglobalipcenter.com/wp-content/themes/gipc/map-index/assets/pdf/2016/GlobalCounterfeiting_Report.pdf

U.S. Chamber of Commerce Global Intellectual Property Center (2014). Charting the Course, GIPC International IP Index, 2nd Edition.

U.S. Chamber of Commerce Global Intellectual Property Center (2015). UP: Unlimited Potential, GIPC International IP Index, 3rd Edition.

U.S. Chamber of Commerce Global Intellectual Property Center (2016). Infinite Possibilities, GIPC International IP Index, 4th Edition.

U.S. Chamber of Commerce Global Intellectual Property Center (2017). The Roots of Innovation, GIPC International IP Index, 5th Edition.