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ON INNOVATION, CREATIVITY AND INTERNATIONAL TRADE

Theoretical linkages, empirical evidence, and the database on IPRs in Trade Agreements

Teemu Alexander Puutio

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The originality of this publication has been checked in accordance with the University of Turku quality assurance system using the Turnitin OriginalityCheck service.

ISBN 978-951-29-8812-9 (PRINT)
ISBN 978-951-29-8813-6 (PDF)
ISSN 0082-6987 (Print)
ISSN 2343-3191 (Online)
Painosalama, Turku, Finland 2022

UNIVERSITY OF TURKU
Faculty of Law
International Law
TEEMU ALEXANDER PUUTIO: On Innovation, Creativity, and International Trade: Theoretical linkages, empirical evidence, and the database on IPRs in Trade Agreements
Doctoral Dissertation, 363 p.
Doctoral Programme in Law
March 2022

ABSTRACT

This study was motivated by a simple question: do international intellectual property norms affect the development trajectories of developing nations and if so, in what ways? While hunting an answer to this query, a multitude of interconnected questions were unearthed: some were answered, while others were left for future researchers to explore. All told, ten independent articles were published, of which six have been selected for inclusion in the work at hand. Together, these articles explore the theoretical linkages between creativity, innovation, intellectual property rights (IPRs) and trade, assess the role of trade agreements in creating and transplanting international IPRs norms, map out the topography of IPRs norms in modern trade agreements, and chart a path towards policies with which developing countries can ensure that the IPRs norms that they choose to adopt are for their own benefit. The study focuses on the countries of the Asia-Pacific and it explores how creative economies can be established, fostered, and sustained in the presence of IPRs norms and institutions. The study's main focus of analysis became trade agreements in all of their forms, through which the majority of recent international IPRs norms have been established, transplanted, and spread across the Asia-Pacific region. In terms of results, the study shows that IPRs norms have clear theoretical pathways through which they impact economic, social, creative, and environmental development trajectories. The database complied by the author, "*IPRs in Trade Agreements: An assessment of strength and complexity,*" best demonstrates how these pathways are utilized in action and encompasses all publicly available trade agreements, including IPRs provisions. Each agreement was carefully assessed against an objective framework of analysis, according to which the relative strength of each provision was established. The work to further develop and utilize the database continues with the assistance of collaborative partners such as the United Nations and WTO. The study concludes with a handbook on negotiating development-oriented IPRs-inclusive trade agreements, issued for the benefit of policymakers, legal researchers, and trade negotiators from developing countries in the Asia-Pacific.

KEYWORDS: Intellectual property rights, trade agreements, creativity, innovation, economic development, international law and norms

TURUN YLIOPISTO
Oikeustieteellinen tiedekunta
Kansainvälinen oikeus
TEEMU ALEXANDER PUUTIO: On Innovation, Creativity and International Trade: Theoretical linkages, empirical evidence and the database on IPRs in Trade Agreements
Väitöskirja, 363 s.
Oikeustieteen tohtoriohjelma
Maaliskuu 2022

TIIVISTELMÄ

Tämä teos pyrkii vastaamaan yksinkertaiselta kuulostavaan kysymykseen: vaikuttavatko kansainväliset immateriaalioikeudelliset säännökset kehittyvien maiden kehitysmahdollisuuksiin, ja jos, niin millä tavoin? Vastauksen etsimisen lomassa heräsi useita uusia toinen toistaan mielenkiintoisempia kysymyksiä, joista osaan tämä teos tarjoaa vastauksen ja osa on jätetty tulevia tutkimuksia varten. Kaiken kaikkeaan tämä teos koostuu kuudesta erikseen julkaistusta artikkelista, jotka on valittu tätä teosta varten kymmenen tutkimuksen aikana julkaistun artikkelin joukosta. Yhdessä nämä artikkelit selvittävät luovuuden, innovaation sekä immateriaalioikeuksien yhteyksiä, kartoittavat kansainvälisten kauppasopimusten immateriaalioikeussisältöjä sekä etsivät polkuja joita pitkin kehittyvät maat voivat kulkea kohti tulevaisuutta missä immateriaalioikeudet tukevat kansallista kestävää kehitystä. Tutkimuksen kohteeksi valikoitui Aasian ja Tyynenmeren valtiot, ja mukaan otetut teokset käsittelevät erityisesti kysymystä siitä, miten näiden maiden ‘luovia talouksia’ on mahdollista tukea kansainvälisten immateriaaliokeusnormiston kautta. Multilateraalisten immateriaalioikeus foorumien viimeaikaisen heikon toimintakyvyn johdosta tämä tutkimus keskittyi kansainvälisiin kauppasopimuksiin joiden kautta suurin osa kansainvälisistä immateriaalioikeusnormeista on löytänyt tiensä Aasian ja Tyynenmeren kehittyviin maihin. Tämän teoksen tärkein lopputulos on “*IPRs in Trade Agreements: An assessment of strength and complexity*” niminen tietokanta, mihin on kodifioitu jokaisen saatavilla olevan kansainvälinen kauppasopimuksen immateriaalioikeussisältö. Tietokanta perustuu objektiiviseen arviointiviitekehykseen, ja työ sekä tämän viitekehyksen että tietokannan kehittämiseksi jatkuu mm. YK:n sekä Maailman Kauppajärjestön kanssa. Tämä teos päättyy Aasian ja Tyynenmeren kehittyvien maiden immateriaalioikeussääntelyn tueksi kehitettyyn käsikirjaan, jonka tarkoituksena on auttaa päättäjiä, tutkijoita sekä kauppaneuvottelijoita löytämään teitä entistä kestävimpien immateriaalioikeus-normien luokse kansainvälisten kauppasopimusten kautta.

ASIASANAT: Intellectual property rights, trade agreements, creativity, innovation, economic development, international law and norms

Acknowledgements

This study would not have been possible without the generous support, advice, and mentorship of a group of colleagues and friends too numerous to enumerate in the confines of these acknowledgments. I will remain eternally grateful to Dr. Mia Mikic for believing in the topic of this study and making my research plan a core activity of the United Nations' Asia-Pacific Research and Training Network on Trade. Likewise, without the trust and support of Professor Tuomas Mylly, this study would never have progressed beyond a first draft of a dissertation plan. Professors Bryan Mercurio, Henning Grosse Ruse-Khan, and Kimberlee Weatherall will forever have my thanks for their support at various stages of this study, as will the USPTO's former Asia-Pacific trade attaché, Peter Fowler, who has been a continuous source of mentorship and support over the past years. Of the many collaborators, facilitators, and assistants who took part in the workshops, panel discussions, and supporting research, Mr. Panit Buranawijarn and Mr. Luca Parisotto hold a special place both in this study as well as my heart as my close friends. A larger cadre of collaborators and supporters is listed at the beginning of each article, all of whom helped me stay on the path and for whom I have only my sincere gratitude to offer. ***Thank you***.

30 June 2021
Teemu Alexander Puutio
New York

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List of Original Publications

This dissertation is based on the following original publications:

Artikkeli 1
Puutio, T. Alexander. 2014. "United States' Unfair Competition acts and software Piracy– Which Asia-Pacific countries are at risk and recourse do they have?" United Nations, Asia-Pacific Research and Training Network on Trade, Policy Brief No. 38.
Osuus: Ensimmäinen ja ainoa kirjoittaja

Artikkeli 2
Puutio, T. Alexander. 2012. "*An Assessment of the Anti-Counterfeiting Trade Agreement and Its effects in the Asia-Pacific Region.*" United Nations, Asia-Pacific Research and Training Network on Trade, Alerts on Emerging Policy Issues, No 8.
Osuus: Ensimmäinen ja ainoa kirjoittaja

Artikkeli 3
Puutio, T. Alexander. 2013. "*Intellectual property rights in regional trade agreements of Asia-Pacific economies."* Asia-Pacific Research and Training Network on Trade, Working Paper Series, No.124.
Osuus: Ensimmäinen ja ainoa kirjoittaja

Artikkeli 4
Puutio, T. Alexander and Luca Parisotto. 2015. "*Intellectual property rights in the Asia-Pacific trade context."* United Nations Trade, Investment and Innovation Working Paper Series, No. 02.
Osuus: Ensimmäinen kirjoittaja. L. Parisotto avusti ekonometristen laskelmien sekä taulukkojen, graafien sekä piirrosten valmistamisessa.

Artikkeli 5
Puutio, T. Alexander. 2020. "*IPRs, creative economies and localized development initiatives"* Asia-Pacific Research and Training Network on Trade, Working Paper Series, No. 202.
Osuus: Ensimmäinen ja ainoa kirjoittaja

1. Henning Grosse Ruse-Khan and T. Alexander Puutio, 2018. "*A Handbook on Negotiating Development Oriented Intellectual Property Provisions in Trade and Investment Agreements.*". Economic and Social Commission for Asia and the Pacific, Bangkok.

In addition, this dissertation resulted in the following database:

1. "IPRs in Trade Agreements: An assessment of strength and complexity."

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1 Introduction and research aim

It is no longer controversial to claim that intellectual property rights (IP/IPRs) are some of the most significant enablers of trade, economic performance, and overall development. At the time of writing, a subset of IPRs – patents – have taken center stage in global discourse as a growing number of WTO member states aggressively advocate waiving IP protection for several COVID-19 related medical products,[1] highlighting the centrality of IPRs for modern societies and health care systems. However, this was not always the case. In fact, the introduction of IPRs into the trade context was initially subject to fervent criticism and opposition from many who felt that the patents, copyrights, and their several siblings, did not belong to GATT, or more recently, the WTO.[2]

As time have gone on, so too have the piquant bouts of criticism turned into a more mature and nuanced set of assessments, analyses, and policy positions. Public attitudes over IPRs have also shifted from guarded distrust to wider acceptance. For example, according to the European Commission's public outreach materials, IPRs are essential for the protection of intangible rights, to support creativity and innovation, spur growth and competitiveness, and create employment and economic opportunities in the European region.[3] To a large extent, these assertions are correct.[4]

IPRs are utilized in virtually every sector of modern economies. For example, according to 2016 estimates from the United States Commerce Department, more than 80 IPRs-intensive industries account for approximately 30 percent of U.S. employment while contributing 38.2 percent of gross domestic product.[5] Although more recent figures are not available, it is safe to assume that the role IPRs play in

1 World Trade Organization, "Members discuss TRIPS waiver request, exchange views on IP role amid a pandemic", 23 February 2021

2 Tully, L. Danielle, "Prospects for Progress: The Trips Agreement and Developing Countries After the Doha Conference", Boston College International & Comparative Law Review.

3 European Commission, "EU trade policy and intellectual property"

4 As long as we are careful about choosing the right context, i.e., developed countries that are host to IPRs-intensive industries.

5 United States Patent and Trademark Office, "Intellectual Property and the U.S. Economy: 2016 Update".

the local economy has only grown larger during the fourth industrial revolution, which in turn has benefitted high-tech industries at the expense of more analogue sectors. In particular, the most IPRs-intensive industries such as software and entertainment,[6] have grown globally by more than 30%,[7] and it is not at all unlikely that the growth rates have been even greater in the United States.

Recent statistics tell a similar story for the European Union. During the 2014-2016 period, IPRs-intensive industries provided 63 million jobs, accounting for 29.2 percent of the country block's total employment figures.[8] Once we loosen the analytic scope slightly so that both direct and indirect employment effects are accounted for, the share of IPRs-intensive industries rises to 83.3 million jobs, reflecting 38.9 percent of the entire economy.[9] IPRs-intensive employment opportunities (such as software programming), tend to require comparatively higher educational backgrounds, which explains how IPRs-intensive wages offer a whopping premium of 47 percent over comparable industries in the European Union.[10]All told, a total of 45 percent of the European Union's gross domestic product, i.e., EUR 6.6 trillion, is generated by IPRs-intensive industries alone.[11]

While the above statistics about IPRs-intensive industries' contributions to local economies are undeniable, there is more to the story at hand.[12] To begin with, there are many who remain deeply skeptical regarding the long-term benefits of IPRs, and it is not at all unusual to come across commentary describing IP solely as a source of artificial scarcity that generates dubious returns for society.[13] Another popular strand of criticism casts IPRs as "Western," or "developed-world-centric" institutions, doing little to benefit countries in other categories – assertions that are largely correct.

6 Ibid.

7 Statista, "Value of the global entertainment and media market from 2011 to 2024" and Statista, "Revenue of the software market worldwide from 2016 to 2025, by segment"

8 European Union Intellectual Property Office, "Intellectual property rights and firm performance in the European Union"

9 Ibid.

10 Ibid.

11 Ibid.

12 While critical discourse and analysis of, e.g., the definitions of IPRs-intensive industries, the categorization of direct and indirect impacts, and the accuracy of employment effects — notoriously difficult to pinpoint, are much needed, formal assessments on this matter will be saved as material for future research proposals for our more econometrically enlightened colleagues. The author is grateful to the U.S. and EU authorities for their data-generating efforts but remains suspicious of the absolute accuracy of the above-referenced outputs, which have been found wildly useful by vocal proponents of IPRs and trade agreements over the past year.

13 May, C. and Sell, S. K., "Intellectual Property Rights: A Critical History"

Philip McCalman's 2005 analysis[14] showed that while all countries can reasonably expect to reap benefits from IPRs, developed countries stand to gain far more in comparison to countries that are more dependent on technology imports due to imbalances in the initial parameters of production and trade. The Commission on Intellectual Property Rights report from 2002 goes even further by asserting that developing countries with weak technological capacities are unlikely to see any meaningful impact from IP protection and that the costs of protection are likely to outweigh any benefits for the foreseeable future.[15] The Commission further notes that while an increasing amount of dynamic gains can be achieved as the technological capacities of a country grow, IP protection will always come at a cost to consumers and other industries.[16] Even though these counter-arguments against the wider adoption of increasingly strong IPRs provisions are almost two decades old at the time of writing, they nonetheless remain popular and widely used to this day.

If anything, the perceived divide between the interests of the developed and developing countries has only grown larger over the course of the intervening years, as evidenced by the recent standoff on COVID-19 waivers at the WTO. Where do these diverging views on the benefits of IPRs come from? For one, they cannot be explained by developing nations' lower economic growth rates post-TRIPS. In fact, a recent study by Patel et. al. shows that developing countries have in fact reached an era of "unconditional convergence," spurred by accelerating growth, which has proven to be more persistent than previously estimated.[17]

A more reasonable explanation for the misgivings over IPRs emerging from the developing world can be found when we contrast their IP institutions with their current development stages, against which many international standards appear more like poorly-timed legal transplants and hegemonial constrictions on sovereign policy space rather than well though-out policymaking. Shortly after the TRIPS agreement took force, several authors lamented the reduction of developing countries' policy-making autonomy and so-called development space,[18] a concept that essentially maps out the "adjacent possibles" for each starting position in which development is portrayed as a grand game of chess with literally everything on the line. Trade

14 Phillip McCalman, "Who Enjoys 'Trips' Abroad? An Empirical Analysis of Intellectual Property Rights in the Uruguay Round"

15 Commission on Intellectual Property Rights (CIPR), "Integrating Intellectual Property Rights and Development Policy: Executive Summary"

16 Ibid.

17 Dev Patel, Sandefur, J., Subramanian, A., "The New Era of Unconditional Convergence"

18 Wade, R, "What strategies are viable for developing countries today? The World Trade Organization and the shrinking of 'development space"

agreements – the focus of this study – are counted among the key culprits and main drivers behind the tightening of developing countries' ability to chart out the kinds of policies and development trajectories that other countries have successfully utilized in the past.[19]

Trade agreements (TAs)[20] have proliferated during the past decades to the point where more than 700 compacts have been identified by scholars at the time of writing.[21] A growing amount of these TAs incorporate IPRs provisions of various strength, as demonstrated and discussed in several of the articles (in particular, Articles 3,4, and 6) included in this study. Moreover, the number, strength, and complexity of these provisions has grown significantly over the past decades; a central finding of this study.[22] Other widely discussed phenomena, such as "ratcheting up"[23] and "MFN-spread"[24] are also evident from the data generated during this research project.

With these preliminary findings at hand, we can turn our attention to the tangible effects IPRs provisions have when included in TAs. In particular, we need to ask: do IPRs provisions promote trade between the parties, and do they have a positive

19 Although it is an ardent defender of IPRs today, many forget that the United States was once belligerently against time-bound monopolies on intangibles, particular those hailing from its former master, the United Kingdom.

20 NB: Shorthand references in this study include free trade agreements (FTAs), regional trade agreements (RTAs), bi-lateral trade agreements (BTAs). However, for the purposes of this summary publication, the term trade agreements (TAs) will be loosely defined to cover the entire group within which important distinctions can be made across different categories.

21 This figure includes only the RTAs reported to the WTO. For more realistic estimates about TAs in force globally see e.g., Frédéric Morin, Surbeck, J. "Mapping the New Frontier of International IP Law: Introducing a TRIPs-Plus Dataset", where more than 700 TAs are assessed.

22 Brief definitions may be in order. "Number" refers to the absolute number of provisions that can be meaningfully categorized in different manners (e.g., patents vs. copyrights vs. enforcement rights). "Strength" refers to the discernible intent, and potential impact, to provide enforceable rights and obligations with concrete and tangible impacts (e.g., criminal liability provisions, the establishment of coordination mechanisms, etc.). "Complexity" refers in part to i. the growth in strength of provisions in the same categories over time and ii. the introduction of an increasing number of cross-dependencies and substance matter that has not been widely approached in the TA context before.

23 I.e., the process of increasing IPRs provision strength over time when holding the treaty partners and/or subject matter constant.

24 I.e., the spread of a new form of IPRs provision through various TAs over time, largely due to the most favored nation principle that extends coverage to all trading parties under WTO rules. For a thorough discussion on this topic see e.g., Keith Maskus, Ridley, W., " Intellectual Property-Related Preferential Trade Agreements and the Composition of Trade"

impact on development trajectories? As with most things in life, the answer turns out to be complicated and more context specific than many policymakers and TA proponents let on.

To be clear, the inclusion of IPRs in TAs is not an *un*impactful event. As shown in Articles 3, 4 and 5, there is a wide range of tangible activities and effects that can be attributed to the signing of certain TAs depending on the strength of IPRs provisions. These post-signing effects range from the non-consequential to institutional shifts and include: i. acceding to IPRs treaties (such as the Berne Convention); ii. providing new forms of IP protection (e.g., to genetic resources) or enhancing existing ones (e.g., by extending patent protection terms or the subject matter eligible for patenting); iii. establishing mechanisms for enhanced cooperation and collaboration (e.g., standing bilateral IP committees); iv. establishing and modulating the technology transfer processes; v. creating enforceable private rights against the state for IP holders; and vi. establishing rules and norms for IP enforcement.

What is less clear, however, is to what extent the above, in practice, modulate a country's trade terms or paths of development . Articles 3-5 of this study corroborate what many other authors have earlier assumed: TAs with stronger IPRs provisions seem to correlate with higher performance in several indicators of economic activity and development, including patent activity, technological capacity, gross domestic product, and foreign direct investment flows.[25] Other studies have demonstrated the discernible impacts on innovation and creativity corresponding to private actions such as patent filing, whereby accession to e.g., the European Patent Convention led to direct and persistent substitution effects between European Patent Office patents and domestic patents filed by foreign inventors.[26] IPRs-inclusive TAs have also been shown to promote bilateral trade to varying degrees. Prior studies have demonstrated that strengthened IP protection correlates particularly strongly with trade in

25 NB: Correlation does not imply causation and, in view of the numerous codependences involved (e.g., growth in patent quality, GDP, and technological capacities, are all interconnected and tend to rise in tandem as a country's overall state of development improves), it is difficult to demarcate the direct impact of IPRs in TAs. However, the correlations remain, even with lagged variables for TA signature, (allowing time for implementation) indicating a potentially valuable future area of research. For more analysis on FDI impacts see e.g., Ricardo Cavazos, Lippoldt, D., Senft, J., "Policy Complements to the Strengthening of IPRS in Developing Countries," which shows that a 1 percent increase in the Patent Rights Index correlates with a 2.8 percent increase in inward FDI flows.

26 Bronwyn H. Hall, "The impact of international patent systems: Evidence from accession to the European Patent Convention"

manufactured non-fuel goods and high-technology products.[27] However, according to other studies, the positive effect on trade seems to be higher where TAs contain no IPRs at all.[28] This is most likely explained by the fact that, according to our database, TAs that had little to no IPRs content tend to be signed between equally less developed countries where the TAs are most likely the first overall acts of bi/multilateral trade opening, leading to a disproportionate impact on trade upon entry into force when compared to later TAs in which strengthened provisions on e.g. tariffs and sanitary-phytosanitary measures are often marginal improvements in general. Positive trade impacts are also dependent on the IPRs-intensity of the industries affected by the TA as well as to what extent the IPRs provisions of the TA are aligned with those industries.[29] The amount and sophistication of technological and human capital (e.g., number of production studios and software programmers) combine to create another parameter that becomes critical in deciding how significant of an impact a TA with IPRs provisions can have. In short, a country that does not have IPRs-intensive industries with ready-to-export products in the immediate or short-term, is unlikely to reap significant benefits from signing TAs with strong IP protections, which explains why virtually all studies to date have generally shown a greater positive effect for developed countries.[30] A related phenomena has been identified by e.g., Maskus and Ridley 2019,[31] who note that TAs with strong IPRs seem to impose a "sorting effect" whereby developing countries that sign such TAs see significant reductions in non-IPRs-intensive trade flows in comparison to similarly positioned countries that remain outside of the TAs' ambit. These findings are further corroborated by post-TRIPS studies such as Ivus 2010[32], who found that developing countries that were required to adopt stronger patent reforms underwent significant high-technology import flow increases in comparison to similarly positioned countries that were not obligated to conduct the same reforms.

At this juncture, it is important to clarify one important matter concerning proportions. Following the above narrative, whereby developed nations benefit from

27 Carsten Fink, Braga, P. "The Relationship Between Intellectual Property Rights and Foreign Direct Investment"

28 Mercedes Campi, Duenas, M. "Intellectual property rights, trade agreements, and international trade"

29 An example of misalignment would be a TA that does not include trade-promoting IPRs clauses for copyrights even though the signatory has a significant entertainment industry with immediate export potential.

30 Supra, 28.

31 Keith Maskus, Ridley, W., "Intellectual Property-Related Preferential Trade Agreements and the Composition of Trade"

32 Olena Ivus, "Do Stronger Patent Rights Raise High-Tech Exports to the Developing World?"

IPRs-inclusive TAs disproportionally over developing countries; it is easy to be misled to thinking that the benefits are exceedingly large overall. On the contrary, while the IPRs-intensive industries themselves arguably contribute 20-40 percent of the gross domestic product for the United States, estimates of the direct impacts of TAs are negligible in comparison. According to estimates by the United States International Trade Commission, had the Trans-Pacific Partnership[33] agreement entered into force with the United States as a signatory in 2010, it would have resulted in approximately USD 5 billion of additional revenue, representing a miniscule 0.00034 percent of the United States' gross domestic product,[34] reflecting how IPRs provisions account for an exceedingly modest portion of the overall additional receipts that could be obtained under modern and ambitious trade agreements.

The potential impacts of signing an agreement like TPP remain meaningful in absolute terms, and it is no surprise that pressure from IPRs-intensive industries has been a significant driver behind the growing importance of IPRs on trade agendas.[35] This somewhat laconic view that IPRs are only introduced into TAs to serve vested corporate interests in developed countries is difficult, if not impossible, to prove beyond a doubt. However, datasets such as the one presented in this study, show that when developed nations enter into IPRs-inclusive TAs with each other, the IPRs provisions tend to generally be fewer in number, weaker in terms of strength, and lower in complexity. Indeed, the explosive growth of IPRs-inclusive TAs discussed in the above-mentioned articles has been triggered by a handful of developed countries such as the United States, Australia, and Japan, as well as the European Union, with developing countries opting for significantly lower levels of IP protection in their TAs when dealing within their own groups.

And yet, avoiding modern global hegemonies and their IPRs-laden trade agendas is not exactly a viable strategy in the modern world, which is interconnected by increasingly complex value chains. Developing countries will inevitably find themselves head-to-head with trade partners that are more adept and aggressive in terms of IPRs, and it is unlikely that they will be able to change the balances of realpolitikal power any more than they can push global ideological and intellectual boundaries of IPRs on their own.

33 As is now well known, the TPP ended up being signed without its progenitor, the United States, included. When the agreement was still being negotiated in earnest, it was clear that the United States was pushing for cutting edge IPRs provisions in return for valuable market access to areas such as agriculture.

34 United States International Trade Commission, "Trans-Pacific Partnership Agreement: Likely Impact on the U.S. Economy and on Specific Industry Sectors"

35 Iain Osgood, Feng. Y, "Intellectual Property Provisions and Support for US Trade Agreements"

After the author's graduate studies concluded in 2012, this study began as a nobly intended but ill-fated attempt at defining a "freedom to develop," striving to confer this right to all countries yet to attain economic convergence and a satisfactory state of development. What contemporary realities ultimately produced was a research agenda that sought to fulfill a much more humble and significantly more practical goal: establishing a clear view of the landscape of IPRs-inclusive TAs and providing instructions for developing countries to navigate its perils.

As the following pages will show, much remains to be done before this goal can be considered fully met. However, this study will hopefully serve as a salient landmark for future research that can orient prospective studies defending countries' right to develop, independent of any unilaterally beneficial obligations that poorly contribute – if at all – to domestic policy objectives.

2 Research objectives

From the outset of this study, it was clear that the research question would need to be broken down into two distinct sub-research questions that would answer the following: "what is the status quo" and "where to next?"

Overarching research aim

Establish a clear view of the landscape of IPRs-inclusive TAs and provide instructions for developing countries to navigate its perils

Establishing a clear view of the landscape of IPRs-inclusive TAs	What is the status quo
→	
Providing instructions for developing countries to for navigate its perils	Where to next

When the study was first commenced, no publicly available information sources existed for answering the first sub-question in a meaningful manner. Certainly, entities such as the WTO[36] and United Nations[37] had already made great strides in collating and assessing the contents of TAs for public use. However, none of the existing databases or platforms focused specifically on IPRs, and even when IPRs-related contents were covered, it was often done in a cursory manner not conducive of deeper analysis. In order to meet the immediate data needs of the study, establishing a database for IPRs-inclusive TAs was designated as the first research objective (**Objective 1: Create and populate an IPRs-inclusive TAs database**). In addition to database design and hosting, the subobjectives under Objective 1 included the search, acquisition, translation, data-entry, and verification of all TAs

[36] I.e., the WTO Regional Trade Agreements Gateway, available at https://www.wto.org/english/tratop_e/region_e/region_e.htm

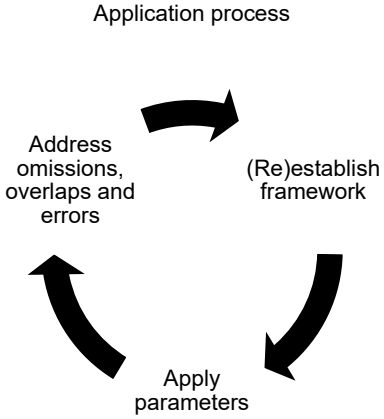
[37] E.g., the Asia-Pacific Trade and Investment Agreement Database – APTIAD, available at https://www.unescap.org/content/aptiad

within the scope of the study. What became evident during the first months of this project is that TAs are rather mercurial by nature. Promulgation, accession, signing, entry into force, and withdrawal of a TA, can all happen at a moment's notice, rendering previous dataset versions obsolete. As a result, it became necessary to revisit Objective 1 at multiple stages of the study.

After the dataset was established, it became necessary to establish the parameters for deeper analysis of the IPRs-inclusive TAs. Utilizing prior intellectual frameworks and statistical methods, to the extent possible, was determined as the ideal way forward to the meet the dual goals of systemic consistency and internal coherence. However, the attention given to assessing IPRs in TAs had been sporadic and a general consensus on how to assess this subject matter in a rigorous and standardized manner never emerged.[38] As a result, creating an objective framework for assessing IPRs-inclusive TAs was designated as the second objective of the study (**Objective 2: Create an objective framework for assessing the TAs**). Systemic consistency and internal cohesion were promoted to the extent possible by ensuring that the framework expanded on previously available studies.[39] At the same time, it was clear that the framework needed numerous additions. These additions in turn would need to be i. objectively established, ii. lead to data-entries that are measurable, verifiable, and accessible, and iii. ensure that the resulting framework is capable of reflecting the complexity of IPRs-inclusive TAs in an effective and research-friendly manner. Once the framework was established and committed to, it was time to apply it to the database of IPRs-inclusive TAs (**Objective 3: Apply the framework to the TAs**). Notable first-order subobjectives included assessment planning and result verification in addition to the assessment itself. However, it was quickly noted that while Objectives 2 and 3 could be considered conceptually separate, in practice, they formed a three-pronged feedback loop where the application of any particular parameter often highlighted errors, omissions, overlaps, or room for clarification, which in turn necessitated a reconstitution of the framework.

[38] In fact, consensus is still far from being accomplished and follow-up research, jointly conducted with the WTO, aims to address this issue.

[39] Most importantly, Raymundo Valdes, McCann, M. "Intellectual property provisions in regional trade agreements: Revision and update"



As will be explained in further detail in the research methods section of this study, the finetuning and finalization of the assessment framework was by far the most intellectually stimulating task and took considerable resources and time to complete. The reward for completing each round of assessments was a dataset with row upon row and column after column of data derived from the TAs. While a marvelous sight in its own right, this dataset (*initially an excel sheet*) did little more than activate the author's neurological reward pathways. This short coming in the dataset was due to two simple reasons: it was neither accessible nor comprehensible to others in its initial state; and, accordingly, it became necessary to promulgate the results of the assessment in a manner that would support further research and assist policymakers and trade negotiators in their tasks (**Objective 4: Make results available in a sustainable and accessible manner)**. Meeting this objective necessitated the fulfillment of numerous subobjectives, including identifying publication venues and co-authors, promulgating results in seminars and workshops, and ensuring continued accessibility to the results and dataset.

The above objectives, 1–4, were developed to meet the overarching research aim of mapping out the status quo. As will be explained in the article-specific summaries, additional ad hoc objectives were attached to each article for numerous reasons, including to ensure the timeliness and relevance of the results by tying each main objective to a wider and (at the time) current context. Further considerations were given to specific "client"[40] needs and the practical opportunities that presented themselves, according to which the final objectives of each article were determined.

[40] These studies were published under various United Nations peer-reviewed sources and as such, specific topics were carefully guided by e.g., topics of discussion at various committees, workshops, and colloquia.

Charting out the next steps required a wholly different set of objectives. In essence, where objectives 1–4 concerned themselves with legal analysis, data-generation, and statistics, the final two objectives needed to be focused on making sense of realpolitikal balances of power and establishing realistic, actionable, and development-oriented policy guidelines. Both objectives would also have to support the data-centric body of research in this study and ultimately build on the results achieved through objectives 1–4. Accordingly, assessing and presenting the development implications of the data and results was designated as the next objective (**Objective 5: Assess the development implications of IPRs in TAs in the local institutional context).** This objective was in turn supported by several subobjectives, including a thorough analysis of the theoretical linkages between IPRs and economic, social, cultural, and environmental development as well as an assessment of the normative and institutional pathways through which TA-IPRs provisions manifest their impact locally.

Finally, if this study were to succeed in assisting developing countries in navigating the complex landscape of IPRs-inclusive TAs in their trade negotiations, it was deemed necessary to provide actionable policy-guidance and guidelines (**Objective 6: Provide policy-guidance for maximizing benefits and minimizing the disbenefits of IPRs in TAs).** The subobjectives included herein were weighing potential impacts of different policy proposals, defining actionable policies to maximize desired development outputs, and presenting outputs to the correct audience.

The following table summarizes objectives 1–6 alongside their main subobjectives.

The six principal research objectives

OBJECTIVE	*SUBOBJECTIVE*
Objective 1: Create and populate an IPRs-inclusive TAs database	Conduct search, acquisition, translation, data-entry, and verification of all TAs within the scope of the study. Proceed with data entry and data sanitation.
Objective 2: Create an objective framework for assessing the TAs	Ensure systemic consistency and internal cohesion to the extent possible. i. Create a cohesive assessment framework that is objectively established, ii. leads to data-entries that are measurable, verifiable, and accessible, and iii. that is capable of reflecting the complexity of IPRs-inclusive TAs in an effective and research-friendly manner.
Objective 3: Apply the framework to the TAs	Apply parameters to the TAs acquired. Address omissions, overlaps, errors, and provide clarifications. Reconstitute and reapply the framework.
Objective 4: Make results available in a sustainable and accessible manner	Identify publication venues and co-authors, promulgate results in seminars and workshops. Ensure continued accessibility of results and dataset. Make dataset available in machine-readable versions.
Objective 5: Assess the development implications of IPRs in TAs in the local institutional context	Analyze the theoretical linkages between IPRs and economic, social, cultural, and environmental development. Assess the normative and institutional pathways through which TA-IPRs provisions will express their impact locally. Identify the critical development implications of IPRs in TAs in their respective contexts, assessing the likelihood and potential impact of each ramification.
Objective 6: Provide policy-guidance for maximizing benefits and minimizing the disbenefits of IPRs in TAs	Weigh the potential impacts of different policy proposals. Define actionable policies to maximize desired development outputs and present outputs to the correct audience. Establish recommendations for developing nations to follow.

As noted in the introduction, the original goal of the study was to define a concept of freedom to develop vis-à-vis the development-space constricting nature of IPRs in TAs. The original research objectives (long-since revised and recast into objectives 1–6 above) are as anachronistic as they are amusing to the author, who quite obviously had yet to learn the art of narrowing one's research scope at the time of first drafting his research proposal.[41]

[41] Better yet, in his youthful fervor the author had the audacity to include the following poorly aged statement concerning data in his research proposal: "Due to wide availability of data and sources on the topic of the research and the desk-research based approach, no significant risks that endanger the acquiring of the prerequisite materials and data are foreseen."

Superseded research objectives contained in the original research proposal

i.	*What are the current innovation capacities and opportunities for innovation-driven development on the part of developing countries;*
ii.	*To what extent do modern human rights, economic, and social theories prescribe developing countries the freedom to develop, and to what extent is imitation required to fulfill this freedom;*
iii.	*How have modern free trade agreements influenced developing countries' freedom to develop, both in terms of the definition of the concept itself and the practical fulfillment thereof on a national level; and*
iv.	*In light of the answers to the above sub-questions, what form of intellectual property rights related legal frameworks should be adopted, in the fora of free trade agreements inter alia, to ensure the primacy of economic and social development?*

3 Methods and theoretical framework

3.1 Theoretical framework and theory of change

The theoretical framework that underpins this study is built from an amalgamation of modern legal approaches to international law, IP, and development economics in an inter-disciplinary manner.

To date, numerous "theories" of IP have been established with many more being developed at the time of writing. Recent meta-level assessments tend to demarcate two distinct strands of thought under "utilitarian" and "non-utilitarian" theories of IP. To summarize the field of utilitarian theories in extremely broad strokes, William Fisher[42] has proposed a quadrupedal construct that covers; theories that maximize net social value, theories espousing Lockean ideals based on the benefits-of-labor, suppositions that seek to protect personal expression, and finally, concepts that foster righteous and flourishing cultures. This study has planted itself firmly in the latter. More concretely, this work has taken on a positive analysis of IPRs in line with e.g., Olson[43], Litman[44], and Sterk,[45] who decades ago already established the now well-trodden research paths for examining institutions, their stakeholders, and the (dis)benefits they generate. Towards the end of this study (e.g., in Articles 5 and 6), the approach begins to slightly diverge from traditional utilitarian IP theories and moves closer to a "social planning theory" or "social utility theory" of IP in line with e.g., Netanel.[46]

This study's approaches to matters of international law and development economics are deeply influenced by the classical thoughts of political realism and realpolitikal analysis. It is the sincerely held view of the author that international law, more than many other areas of law, is fundamentally a product of political arbitrage

42 See e.g., Peter Menell, "Intellectual Property: General Theories", William Fisher, "Theories of Intellectual Property" and Neil Wilkof, "Theories of intellectual property: Is it worth the effort?"

43 Thomas P. Olson, "The Iron Law of Consensus: Congressional Responses to Proposed Copyright Reforms Since the 1909 Act"

44 Jessica Litman, "Copyright Legislation and Technological Change"

45 Stewart E. Sterk, 'Rhetoric and Reality in Copyright Law'

46 Neil Netanel, "Copyright and a Democratic Civil Society"

and remains a function of objectively identifiable parameters such as economic development, geopolitical power, ideological stances, and the political relationships operating at any given time. To be sure, these parameters do not decide the outcome of negotiations of TAs or their ultimate implementations as "objective laws" in line with Morgenthau's classical views of political realism.[47] However, it is clear that equipped with salient facts and statistics about two countries soon to engage in negotiations, it is more than possible for a legal researcher to make accurate assumptions of the commitments, obligations, and concessions that will be offered by each. This is particularly so with TAs, which are nothing if not the joint outputs of political, economics, legal, and international affairs experts employed by governments to maximize the utility of the TA in their particular trade and development context. Accordingly, it can be assumed that in the case of IPRs-inclusive TAs, there are objective and predicable ways in which sovereign nations will proceed to attempt to maximize the utility of their engagement, with significant asymmetries between the parties being typical. This study's realpolitikal analysis of TAs is further dependent on an emerging theory of modern international relations as strategic competition.[48]Nowhere is this mode of analysis more applicable than trade negotiations, where rationality and the goal of economic and political utility maximization reign supreme.

Finally, meeting the study's research objectives requires a model of economic development to anchor expectations and to inform policy and regulatory guidance and advice. In this area, the greatest influence has been wielded by Rostow's Stages of Growth model and its more modern adaptations.[49] According to these theories, countries undergo specific and, to an extent, externally verifiable stages of development in a certain order as they progress. For Rostow, these stages were traditional society, pre-conditions to take-off, take-off, drive to maturity, and age of high mass consumption.

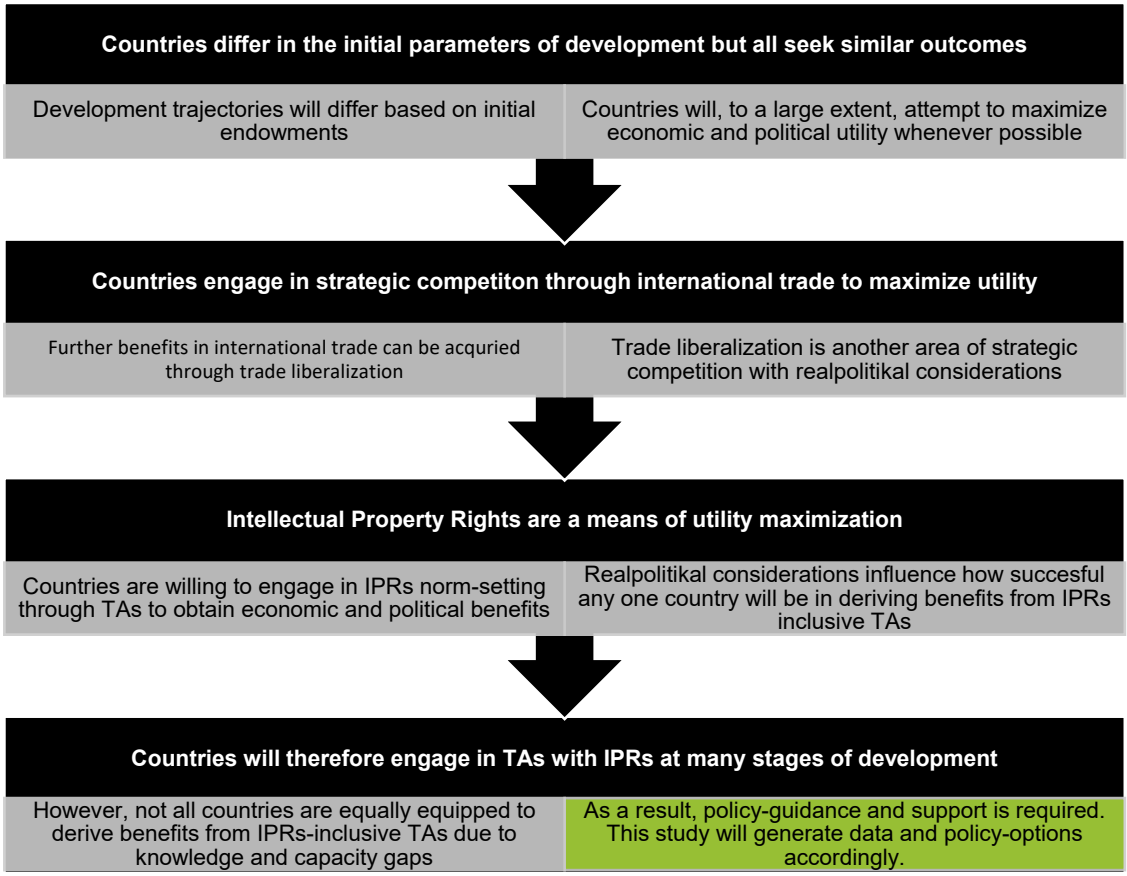
More than half a century after Rostow's pioneering work, it has become clear that his development stages are in fact much more nuanced, greater in number, and less orderly, with significant variation from country to country depending on a variety of initial parameters such as factor endowments, institutional and political foundations, and the immediate external geopolitical environment.[50] However, the underlying theory of progress and global convergence, remains relevant and has guided this study. The study also echoes Myrdal's edict in Asian Drama, whereby

47 Hans J. Morgenthau, "Politics Among Nations: The Struggle for Power and Peace"
48 See e.g., RAND Corporation, "Understanding the Emerging Era of International Competition"
49 W. W. Rostow, "The Stages of Economic Growth"
50 See e.g., Daron Acemoglu et al, "Institutions, Human Capital and Development"

"economic problems cannot be studied in isolation but only in their own demographic, social and political setting."[51] Had Myrdal been a legal scholar, he would have likely included legal problems in the same category.

The second part of this study's research aim (*providing instructions for developing countries to navigate the perils of the IPRs-inclusive TA landscape*) imposes the need to define a theory of change, through which the study intends to fulfil its original goal.

Theory of change



[51] Gunnar Myrdal, "Asian Drama: An Inquiry into the Poverty of Nations, Volumes I–III"

3.2 Methods, objectives, and articles

This study utilized various research methods across its constituent articles. Dominant among these were firsthand legal research and analysis, conducted through desk research. Expert panels, interviews, and discussions with trade negotiators informed the conclusions, and preliminary results were refined and improved based on valuable feedback received from seminar sessions. Several articles (e.g., Articles 3 and 4) include conclusions based on economic analysis and econometrics. Where present, policy-guidance (e.g., in Articles 5 and 6) was informed and guided by several workshops, working group meetings, and expert panels on international law, trade, and economic development.

The below table provides a mapping of the study's objectives and its constituent articles. Subsequently, an article-by-article exposition of the main utilized methods will be presented in this Chapter. Articles 3 and 4 will be presented in particular detail, taking into account the need to capture and disseminate the lessons learned in preparing the dataset underlying the main analytical points of this study.

Mapping of Objectives and Articles

Article	**Most relevant objective(s)**
1. Puutio, T. Alexander. 2014. "*United States' Unfair Competition acts and software Piracy– Which Asia-Pacific countries are at risk and recourse do they have?*" United Nations, Asia-Pacific Research and Training Network on Trade, Policy Brief No. 38.	Objective 5 Objective 6
2. Puutio, T. Alexander. 2012. "*An Assessment of the Anti-Counterfeiting Trade Agreement and Its effects in the Asia-Pacific Region.*" United Nations, Asia-Pacific Research and Training Network on Trade, Alerts on Emerging Policy Challenges, No 8.	Objective 5 Objective 6
3. Puutio, T. Alexander. 2013. "*Intellectual property rights in regional trade agreements of Asia-Pacific economies."* Asia-Pacific Research and Training Network on Trade, Working Paper Series, No.124.	Objective 1 Objective 2 Objective 3
4. Puutio, T. Alexander and Luca Parisotto. 2015. "*Intellectual property rights in the Asia-Pacific trade context."* United Nations Trade, Investment and Innovation Working Paper Series, No. 02.	Objective 1 Objective 2 Objective 3 Objective 4
Puutio, T. Alexander. 2020. "*IPRs, creative economies and localized development initiatives"* Asia-Pacific Research and Training Network on Trade, Working Paper Series, No. 202.	Objective 5 Objective 6
Henning Grosse Ruse-Khan and T. Alexander Puutio, 2018. "*A Handbook on Negotiating Development Oriented Intellectual Property Provisions in Trade and Investment Agreements.*". Economic and Social Commission for Asia and the Pacific, Bangkok.	Objective 5 Objective 6

3.3 Article 1: United States' Unfair Competition acts and software Piracy– Which Asia-Pacific countries are at risk and recourse do they have?

3.3.1 Objectives, methods, and summary

The first article included in this study, titled "*United States' Unfair Competition acts and software Piracy– Which Asia-Pacific countries are at risk and recourse do they have?*", was published as a policy brief for the United Nation's Asia-Pacific Research and Training Network on Trade. The main objectives of the article were to assess the implications of IPRs-related legislation imposed by certain states in the United States and to provide actionable policy-guidance for developing nations in the Asia-Pacific region. As with the remainder of the articles, the geographical focus was chosen for two reasons: i. to reflect the fact that the majority of IPRs-inclusive TAs were being negotiated in the region, and, due to the need to narrow the scope of the study, ii. to keep the results applicable and useful for policy-guidance. This scope was maintained throughout the study.

The study topic was chosen in response to an emerging need for legal analysis and policy-guidance in response to IPRs-adjacent legislation established by several states,[52] including the Washington State Stolen or Misappropriated Information Technology Law.[53] In short, these laws targeted "unfair competition" and established strict liabilities for goods or services sold in the state where misappropriated or stolen IP was utilized. Jointly, these legislations posed several difficult questions concerning their applicability and potential consequences for Asia-Pacific countries in particular, many of which are significant trade partners with the United States.

First, the Article presents independent legal analysis of the various venues through which these state laws would have direct or indirect impacts on exports from Asia-Pacific countries. From there, the article produces "exposure indexes" that can be used to ascertain how deeply exposed certain countries in the Asia-Pacific region are to these legislations by virtue of the components of their trade, trade volumes, and alternative trading partners in key sectors. The study found that China, Sri Lanka, Viet Nam, Thailand, and India had the highest exposure, and as such, had the largest incentive to ensure that their trade flows remain compliant. The provided policy advice focused on compliance, industry education, and, if necessary, export diversions in case compliance could not be reached. The main findings and the

[52] See e.g., Gibson Dunn, "Washington State Passes New Unfair Competition Law to Crack Down on Pirated Software"

[53] Wash. Rev. Code § 19.330 et seq

"exposure indexes" of the article were based on firsthand desk research. The primary information sources included the UNCTAD Trade Statistics database[54], Business Software Alliance's[55] piracy data, and the WTO's trade dispute statistics.[56]

The Article's main contribution to the study is three-fold. First, it serves as an entry-point to the realm of IPRs and trade, and it establishes the context in which the remainder of the study will be articulated. Second, the Article explores the legal consequences and realpolitikal implications of trade in IPRs-related goods from a developed nation perspective. Finally, it provides actionable policy-guidance for avoiding consequences in support of sustaining critical trade flows to the United States, which continues to serve as a significant trading partner for many Asia-Pacific countries.

In addition to the above, the Article foreshadows the overall findings of the study by identifying the countries most exposed to United States' internal IPRs-adjacent legislation. As will be shown in Articles 3 and 4,[57] these same countries have been subjected to political pressures to enter into particularly asymmetrical IPRs-inclusive TAs in response to concessions on e.g., agricultural trade and FDI inflows. In many cases, the pressures have resulted in the IPRs-inclusive TAs that are now in force. Interestingly, the findings of Article 1 demonstrate that the countries with the least exposure to the unfair competition acts in question (such as New Zealand, Japan, and Singapore) have also entered into IPRs-inclusive TAs with the United States. However, upon closer examination, these TAs tend to be more symmetrical and more codifying, instead of revisionist or obligation-establishing in nature,[58] reflecting the fact that the trade partners share largely similar IP institutions and levels of development.

3.4 Article 2: An Assessment of the Anti-Counterfeiting Trade Agreement and Its effects in the Asia-Pacific Region

3.4.1 Objectives, methods, and summary

The second article included in this study is titled "*An Assessment of the Anti-Counterfeiting Trade Agreement and Its effects in the Asia-Pacific Region.*" The Article was published as a working paper in the United Nations' Asia-Pacific

54 UNCTAD, "Development Globalization: Facts and Figures 2021"
55 Business Software Alliance, "Software Management: Security Imperative, Business Opportunity"
56 World Trade Organization, "Dispute Settlement"
57 Albeit not known at the time of writing any of the aforementioned articles.
58 These terms will be discussed further in Chapter 3 where a final discourse on the study's impact will be presented.

Research and Training Network on Trade's publication, Alerts on Emerging Policy Challenges. Similar to Article 1, the objectives of this Article were to assess the direct development and trade implications of IPRs in the Asia-Pacific context. However, instead of assessing the impact of an exogenous set of legislations, this Article was the first of this study to focus solely on IPRs-inclusive TAs and their legal consequences.

In large part, the exact topic of this Article was chosen in response to an evident demand for an in-depth assessment of an emerging topic that had the potential to have significant consequences on IP institutions and trade flows in the Asia-Pacific region. At the time, the Anti-Counterfeiting Trade Agreement (ACTA) was considered controversial for several reasons, the principal of which was the less than transparent negotiation process, which led to a fundamental erosion of public trust. Indeed, the now notorious ACTA, coupled with its failure to reach full ratification after intense protests and public opposition, remains a stark reminder of the fact that TA and treaty formation are ultimately subject to the same realpolitikal context-specific limitations as any other piece of legislation, even though trade negotiators may feel entitled to disagree.

The Article is included in this study for a simple reason: it explores the treaty negotiation process in the abstract by means of an ad hoc analysis of ACTA and the controversies surrounding it. Concepts such as stakeholder consultations, now widely accepted, were, at the time, novel, and public ex-ante discourse on multilateral treaties was limited if not non-existent in formal terms. The Article recognizes the valid justifications for maintaining "quietude in negotiations" during the technocratic parts of the TA formation process, during which time, interactions with the general public may be counterproductive. However, neither trade negotiators nor politicians should forget that the TA formation process begins and ends with a fundamentally political decision to establish, accede to, or sustain a certain legal order within the sovereign borders of a country. Accordingly, transparency and stake-holder consultations are critical for creating the necessary value-alignment for political acceptance.

The five stages of TA formation

Pre-negotiation	Informal	Political
Negotiations	Formal	Technocratic
Ratification	Formal	Political
Implementation	Formal	Administrative/Legislative
Continued maintenance status quo	Informal	Political

The Article also examined the concept of "forum shopping." Although academic interest concerning the topic has faded from its earlier peaks, at the time, the decision of the negotiating parties (including the EU, Japan, and the United States) to negotiate ACTA outside the auspices of the WTO – specifically without the inputs of the TRIPS council, which would have secured wider participation and stakeholder inputs globally, caused some controversy. Several academics also noted that working outside the auspices of the WTO (or any other widely recognized multilateral organization for that matter) would undermine the checks and balances inherent in agreements such as TRIPS or the Information Technology Agreement.[59] The Article expanded the scope of these earlier contributions by analyzing whether ACTA should be considered a TA or an IPRs enforcement agreement. In view of explicit statements by negotiating parties such as the EU that ACTA was motivated by the need to defend comparative advantages in research-intensive sectors of production, it is clear that ACTA was never intended as a traditional trade facilitation instrument. As the Article shows, ACTA would nonetheless have had direct trade and development implications. One particular area of concern then was the agreement's potential impact on access to medicines, specifically to generic pharmaceuticals for which ACTA's commingling of trademark counterfeiting and infringements, as well as lack of direct public health safeguards, were sources of legal threat.

The Article found that ACTA would have had two noteworthy impacts on trade flow and future TA formation. First, given that ACTA was never truly a TA in the traditional sense, its main trade flow impacts would have been indirect and arisen from implementation-contingent foreign direct investment flows. Second, it was then thought that ACTA was destined to escalate the "ratcheting up" effect whereby IPRs provisions in TAs would grow increasingly stringent over time as countries continued to build upon the established edifices of past TAs. In fact, ACTA was a clear and dedicated attempt to create an increasingly ambitious, TRIPS-plus, set of widely applied IP norms. Alas, none of these concerns came to fruition. A tidal wave of public protests and a growing clamor from non-parties such as Brazil and India stalled the ratification process. To date, the agreement has not been ratified by a sufficient number of members to enter into force and ACTA's body of text will soon be nothing more than a historical curiosity for legal scholars. In a sense, ACTA's story did not, however, end with the ratification process. In fact, as Articles 3 and 4 will illustrate, the signatory states have successfully introduced TRIPS-plus norms by shifting forums once again, this time to bilateral TAs.

[59] See e.g., Eddan Katz, Hinze, G. "The impact of the Anti- Counterfeiting trade agreement on the knowledge economy: The accountability of the office of the U.S. Trade Representative for the creation of IP enforcement norms through executive trade agreements."

3.5 Article 3: Intellectual property rights in regional trade agreements of Asia-Pacific economies

3.5.1 Objectives, methods, and summary

The third Article of this study marks a decided change of methods and objectives in comparison to Articles 1 and 2. In fact, the Article, titled "*Intellectual property rights in regional trade agreements of Asia-Pacific economies,*"[60] was the first entry in this work that devoted itself to the creation of a database of IPRs provisions in TAs as well as a deep assessment of the trends, correlations, and potential consequences thereof. In terms of immediate objectives, the Article responded to the goals of i. creating and populating a IPRs-inclusive TAs database, ii. creating an objective framework for assessing the TAs, and iii. applying the framework to the TAs. To accomplish this, it was necessary to establish a fully-fledged research project, complete with independent advisors, technological support structures, and more. Even more pressingly, the author faced a sudden and unavoidable need to learn the data management and analysis methods that were typically used in quantitative economic research rather than legal descriptive analysis. The Article also provided an opportunity to deepen the author's understanding of how to create indexes, indicators, and present them in a manner that remains accessible to a wider audience, unfamiliar with the distinct pleasure of working hundreds of hours on the underlying database.

As the reader may note, the Article was formulated in a setting where the stagnation of the WTO's Doha Round had engendered renewed interest, if not pressure, to engage in bilateral and multilateral TAs. The concept of "ratcheting up," briefly discussed in Article 2, was becoming increasingly evident, and as Article 3 notes, there had been a verifiable surge of TAs with IPRs components since the turn of the millennium. In hindsight, it is clear that Article 3 was written at a time in which "western" frustrations over the antiquatedness of TRIPS led to increasing waves of opposition in more developing countries where the benefits of IP institutions remained ephemeral at best. After the failure of ACTA, bilateral and multilateral TAs offered a largely unexplored venue for pushing incrementally stronger IP provisions, albeit at the cost of doing so one TA at a time. Although assuming these costs remains a plausible strategy for developed countries such as the United States, as Articles 3 and 4 show, the vast majority of Asia-Pacific countries were not equally equipped to proceed with IPRs-regime development on these fora.

[60] Published under the United Nations' Asia-Pacific Research and Training Network on Trade's Working Paper Series, No. 124.

Article 3 explored this phenomenon, referred to as "forum shifting" in greater detail. Of the two "traditional" international IPRs norm-setting forums, namely the WTO and WIPO, neither was able to proceed at the pace and to the lengths some of their more ambitious member states had hoped for. For example, in neither forum would a TA such as ACTA have been conceivable. Further, many of the more far-reaching provisions (e.g., on enforcement) that had been successfully introduced in bilateral TAs would have ever made it past initial plenary discussions. The effectiveness of (largely) developing nations' opposition to further strengthening of IPRs norms at the WTO and WIPO was, to an extent, a novel phenomenon. In fact, as e.g., Kwa[61] and many others note, opposition to TRIPS during the WTO's Uruguay round was vocal but ultimately ineffective.

What exactly had changed in the intervening years? To begin with, the pressure to introduce stronger IPRs norms post-TRIPS from the European Union and the United States' private sector had grown, and as initiatives like ACTA illustrated, trade representatives were setting their agendas accordingly. However, a growing number of developing nations, led by countries such as India and Thailand, had simultaneously found stronger footing from which to oppose the continuing strengthening of international IPRs norms. At the same time, global awareness of IPR standards was growing, which in turn led to both wider understanding and greater opposition from the general public, even in developed nations, as the ACTA controversy proved. Another reason that would be preliminarily discussed in Articles 4 and 6 and will hopefully be addressed in more detail in future studies, is that the introduction of IP institutions and stronger IPRs regimes can have diminishing as well as negative returns, particularly in developing nation settings.

IPRs are highly context-specific legal instruments compared to other similar legal institutions such as the ownership of private property[62], and whether their presence benefits or hinders development within a sector, industry, or a nation is dependent on a wide range of variables that can broadly be referred to as "readiness to use." For example, in a solely agrarian society, introducing an IP provision to protect software copyrights will not provide any tangible benefits in the short or medium-term if there are no developers or end-users available. However, in the trade context, these concerns are often side-stepped by noting that introducing these provisions will now enable foreign direct investment to flow securely into the country, allowing the nation to benefit from external inventions and leapfrog to a higher stage on Rostow's ladder of development. While not discussed in Article 3,

61 Aileen Kwa, "The WTO and Developing Countries: a Foreign policy in Focus Brief on WTO"

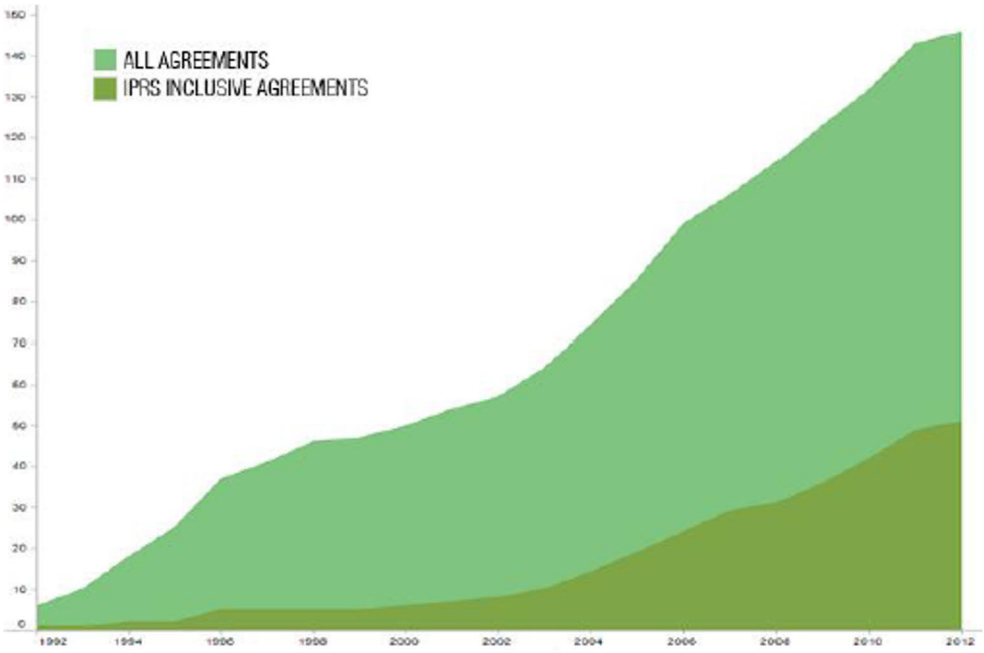
62 In fact, IPRs are often correctly referred to as private ownership rights on intangible goods.

it is clear that such arguments are rather one-sided and stand to benefit the country exporting IPRs more than those nations importing the technologies and investments. From the importer's perspective, the ideal set of circumstances would be to have imports without IPRs norms, allowing for free adaptation, application, and build-on growth under local terms. While it would be naïve to assume that without a basic level of IP protection such imports would even be possible, it would also seem unlikely that until such time as the local production of goods and services of similar sophistication is possible, longer protection terms, the evergreening of patent rights, and stronger enforcement benefit parties other than those directly accruing the receipt of the exports. Herein lies the underlying tension between developed and developing nations, which explains why progress with IPRs in multilateral fora has not been made over the past years. Forums such as the WTO and WIPO are fundamentally consensus driven, and agreements of any sort require multilateral concessions as well as a shared understanding that one's own concessions are worth the benefits to be reaped. In the case of agriculture and many other sectors, the fundamental conditions of most countries are aligned to a greater extent that they are with regards to technology and other forms of goods and services protected by modern IPRs. Accordingly, finding a mutually acceptable set of concessions among 100+ members, after low-hanging trade facilitation measures in areas of shared interest have already been made, is difficult at best. For example, consider the deep mismatches between what types of IP provisions would provide tangible benefits for incumbent companies such as Disney and what level of IP protection would allow countries such as Cambodia or Nigeria to develop their fledgling entertainment production industries, and it becomes clear that further progress in multilateral forums where developed countries can aggregate their concerns and voices will be difficult until more meaningful economic and technological convergence is achieved.

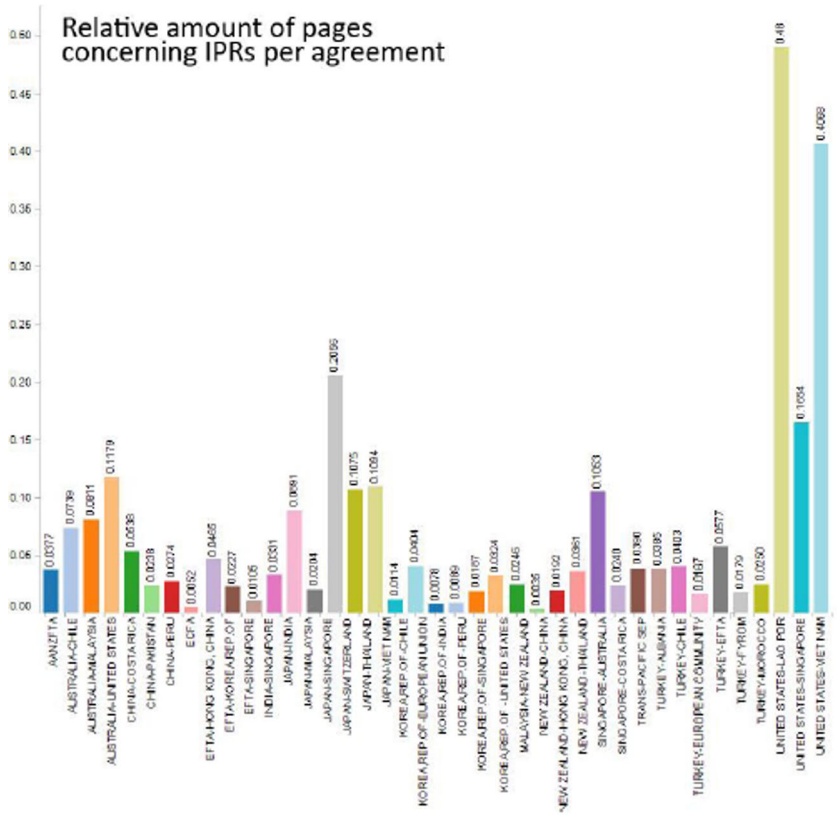
The above discussion explains the main findings of Article 3, which recorded the explosive proliferation of TAs in the Asia-Pacific region, as well as their IPRs-inclusive variants, since the turn of the millennium. Of the countries in the region, Australia, China, India, New Zealand, Japan, and the Republic of Korea were the most active signatories in line with the results of Article 1 concerning the exposure of these countries to IP exports. Georgia, Kyrgyzstan, Myanmar, and Pakistan had signed only one IPRs-inclusive TA, while Viet Nam was "leading" the developing nation group with five such agreements. The data gathered for Article 3 confirmed the widely held beliefs that IPRs-inclusive TAs were, from the perspective of the Asia-Pacific countries, "western" transplants. In fact, the very first IPRs-inclusive TA to include an Asia-Pacific partner was signed between Turkey and EFTA in 1992, after which numerous western-eastern pair TAs were negotiated and entered into force. It would take 11 years until the first intra-regional IPRs-inclusive TA,

after which IPRs-inclusive TAs would become increasingly common place between countries in the region. In the case of the Asia-Pacific region, these legal transplants quickly took root and the inclusion of IPRs into bilateral TAs became a "learned behavior" that was self-propagated in intraregional TAs, even in the absence of "western" signatories. However, as the dataset generated for Article 3 shows, the extent to which IPRs-provisions were included, as well as their relative strength, remained lower in the case of intraregional TAs. In addition, intraregional IPRs-inclusive TAs devoted fewer pages to IPRs, both in absolute and relative terms.

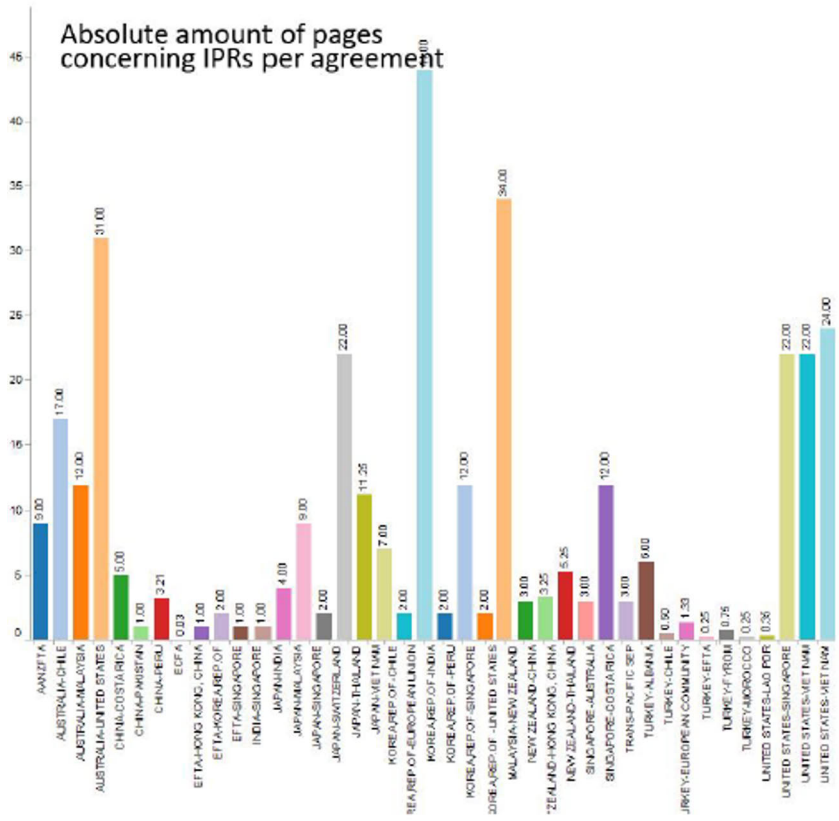
The proliferation of IPRs-inclusive Tas 1992–2012, Authors data



Relative and absolute amount of IPRs content in select Asia-Pacific Tas 1992–2012, Author's data



Absolute amount of IPRs content in select Asia-Pacific Tas 1992–2012, Author's data

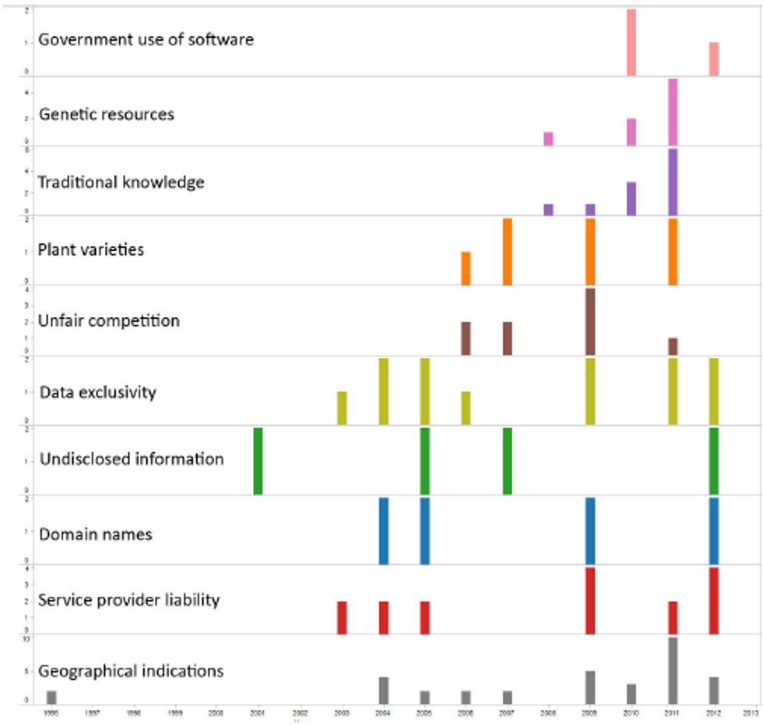


While relative and absolute content calculations are crude measures at best, they nonetheless provide important insights into the overall topography of IPRs in TAs. The findings in Article 3 clearly demonstrate that IPRs are only included in TAs in significant amounts when developed countries are involved. The data also show that for certain TAs, the relative amount of IPRs content can reach as high as 25-46 percent. The fact that IPRs have been included in bilateral TAs by "western" powers after the failure of the Doha Round, ACTA, and others, seems to indicate that forum shopping is indeed a real phenomenon to be taken seriously.

The data gathered for Article 3 allowed for a deeper analysis of the evolution of subject-matter in IPRs-inclusive TAs as well. Overall, 38 "issues" were identified, ranging from the affirmation of past IP-treaties to different categories of IPs such as patents and copyrights. The data showed that the most common IPRs provisions included were reaffirmations of TRIPS as well as commitments to further cooperation within the broad area of IP. Concerning IP subject matter itself,

geographical indications were the most prevalent with trademarks, copyrights, and patents following suit in terms of prevalence. This somewhat surprising finding is easily explained by the fact that geographical indications are not as thoroughly covered by international IP-treaties as the other, more established, areas of IP law, increasing the pressure to establish norms on geographical indications bilaterally. Enforcement was also a common topic, with border measures being the most prevalent type of commitment established. The data also introduced a handful of "newcomers," including provisions concerning the government use of software, genetic resources, traditional knowledge, and folklore, for which scant international norms existed previously and only later entered IPRs-inclusive TAs as time progressed.

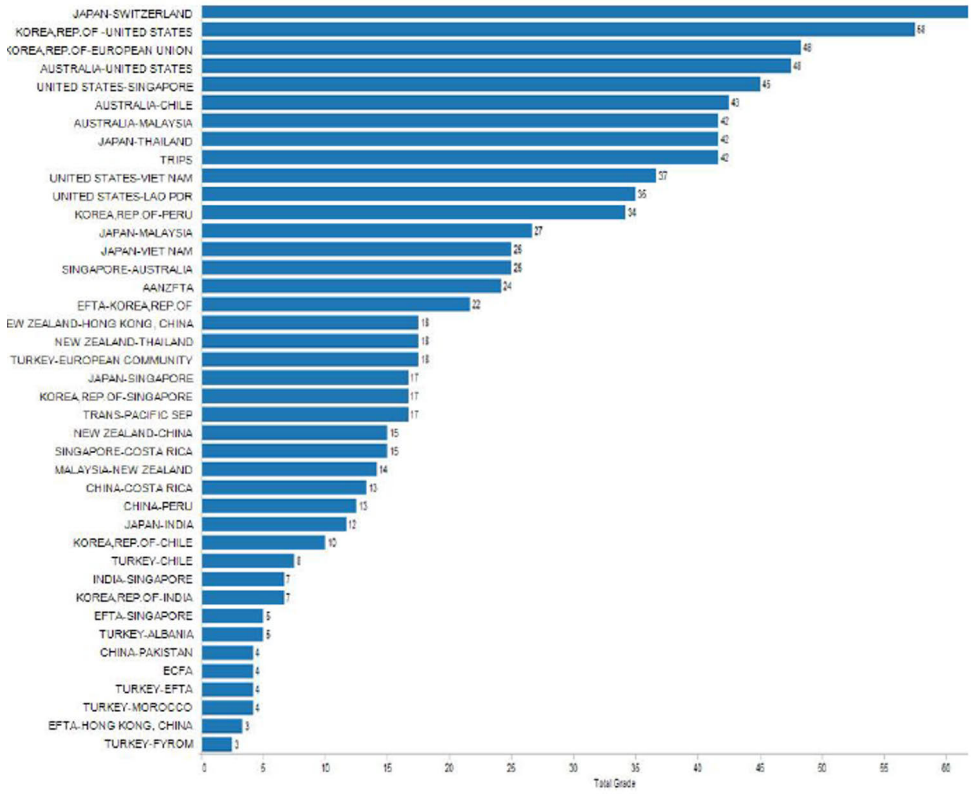
A temporal analysis of the prevalence of certain subject matter in IPRs-inclusive Tas 1992–2012, Author's data



Perhaps the most important contribution of Article 3 was its indexing of the relative strength and complexity of IPRs-inclusive TAs. This was accomplished by the creation and diligent application of an objective assessment framework based on

which each TA was reviewed, and every instance of IPRs-related content was codified. The details of this procedure, and the framework itself, will be presented in full when Article 4 is discussed to avoid the unnecessary duplication of methodological details. The indexing corroborated prior assumptions that the strongest and most far-reaching IPRs provisions would be included in TAs where developed countries negotiate as a pair. From there, the relative "IPRs' strength" declines from developed-developing into developing-developing pairs, with the exclusion of the Turkey-EFTA agreement, which had become, in many a sense, antiquated as an IPRs-inclusive TA by the time of the original assessment.

The relative strength and complexity of select Asia-Pacific IPRs-inclusive Tas 1992–2012, Author's data



Article 3 concludes with an assessment of the development indications of IPRs-inclusive TAs. The fact that the economic effects of IP-institutions vary greatly from

one context to another[63] was highlighted, and previous findings indicating a lack of evidence of strong positive correlations between stronger IPRs-regimes and development[64] were discussed. The above notwithstanding, it remains clear that IP-institutions are critical support pillars for economic performance in modern economies. However, it seems that developing nations have only limited opportunities to fully benefit from IP-institutions and the IPRs-provisions that provide robust gains in developed settings. At the same time, developed countries face growing industry pressures to establish higher IP norms abroad. Article 3 notes that this is particularly problematic for developing countries given their limited bargaining power, relative unfamiliarity with IPRs, and their lack of the indigenous industrial capacity needed to establish strong negotiating positions based on the needs of their local context. Finally, Article 3 explores inter-temporal differences in the emergence of the benefits and disbenefits from IPRs-inclusive TAs, whereby benefits often take time to fully manifest while disbenefits are felt more acutely. These findings provide the author's primary motivations for expanding the scope of inquiry in Article 4 into indicators of economic development.

3.6 Article 4: Intellectual property rights in the Asia-Pacific trade context

3.6.1 Objectives, methods, and summary

In many ways, Article 4 took the initial strands of research laid down in Articles 1-3 and built on them with increasing methodological rigor, while also widening the accessibility of results for future researchers. After the success of the IPRs in TAs database created for Article 3, it was decided that an expanded version would be developed to provide even deeper insights into how IPRs-inclusive TAs have evolved and promote understanding of what their impact on developing nations might be. The work was published under the United Nations' Trade, Investment and Innovation Working Paper Series and was presented to the United Nations' Asia-Pacific member states in May 2016 under the title "Intellectual property rights in the Asia-Pacific trade context."

In terms of the overarching objectives of this study, Article 4 aimed to meet Objectives 1-4 concerning the creation of an IPRs-inclusive TAs database and making the results available in a sustainable and accessible manner. This was

63 Fabio Montobbio, Primi, A., Sterzi, V. "Meet me after the TRIPs. Does IPRs Reinforcement Facilitate International Technological Cooperation?"

64 Lindstrom Beata "Scaling Back TRIPS-Plus: An Analysis of Intellectual Property Provisions in Trade Agreements and Implications for Asia and the Pacific"

successfully accomplished, and the database remains in active use and development with e.g., UN and WTO partners, as will be explained in the final chapter.

In addition, Article 4 aimed to provide a fuller understanding of how developed countries engage in IPRs-inclusive TAs and what the relationships between the study's findings and well-established indexes are, such as the Global Innovation Index and the Ginarte-Park IPRs index. To accomplish this, three separate hypotheses concerning how IPRs-inclusive TAs have evolved were established for Article 4 with the aim of generating the necessary data to test these hypotheses accordingly.

The three testable hypotheses of Article 4

H1	The complexity of IPRs components will increase in accordance to both the pace of technological progress and the growth rate of absorptive capacities in emerging markets.
H2	In the absence of multilateral treaties governing IPRs, FTAs, IIAs and other flexible treaty instruments dealing with international trade and investment will continue to include IPRs with an increasing rate.
H3	Increasing globalization and digitalization of markets will lead to further harmonization of IPRs within countries in similar development stages and will cause a tendency for increasing stringency of IPRs provisions within all country groups with most developed countries leading the process.

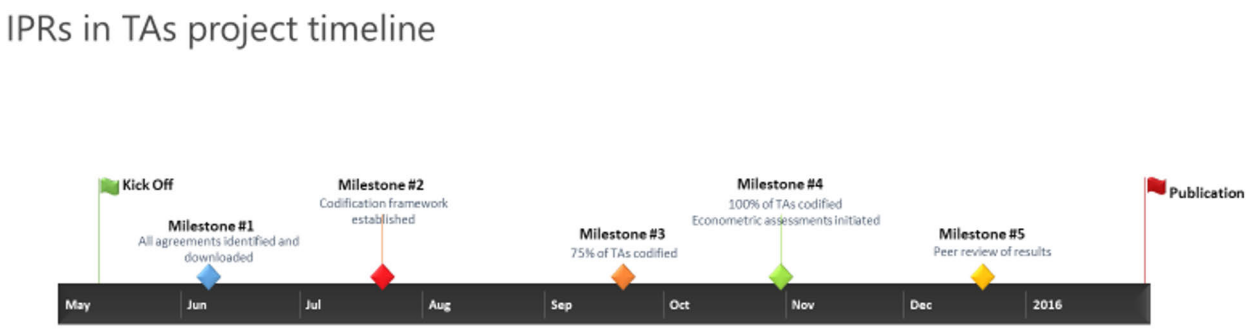
Before moving ahead to a discussion of the main findings of Article 4, we must first address the methodological and technical processes behind the IPRs-inclusive TAs database upon which the bulk of this study rests. The first version of this database was created for the purposes of Article 3, but after an extremely positive response and an evident need for accessible empirical legal analysis on the IPRs contents of TAs, it was decided that the database would be expanded to cover all globally active TAs, all of which would be subjected to an increased number of categories for assessment. Ultimately the database would come to cover 422 TAs that were found to include IPRs. All these TAs were then accessed in their original languages and hand-codified against an objective criterion containing 104 distinct codification categories. The technical, methodological, and administrative matters concerning this process were not discussed at length in any of the study's articles to ensure the relevance of the contents and make them accessible to a wide range of policymakers and end-users, and these findings will now be presented here in detail for those wishing to expand on the findings of this study in the future.

3.6.2 Project management considerations

Codifying and assessing every TA with IPRs-contents globally is an administratively challenging endeavor that requires rigorous advanced planning. Obtaining copies of

TAs, reviewing each one, and ensuring consistency across assessments in a timely manner necessitated the establishment of a Prince2-compliant research plan with dedicated milestones for deliverables and timelines for each. In this process, numerous Gantt charts were created, adopted, and modified, and the patience of supervisors, mentors, and peers alike was tested through what may have felt like incessant feedback-requests during the project's first stages.

Example of a Gantt chart that would soon be supplanted by newer versions



In addition to a clear plan, conducting an ambitious research project such as the task set out for Article 4, requires a robust academic and intellectual support structure. Luckily for the author, such a structure was handily available at the Trade and Investment Division of UNESCAP, wherein the Asia-Pacific Trade and Investment Agreement Database (APTIAD) was hosted. While earlier versions of APTIAD included cursory remarks on IPRs, no serious efforts were made to include thorough assessments of IPRs in TAs. However, APTIAD served as the most accurate source of in-force and under-negotiation TAs for the region, and the staff and researchers behind APTIAD provided an excellent intellectual framework for the author to utilize for his project. More importantly, the author was able to tap into the research assistance of several interns who had supported APTIAD in various capacities, all of whom have been heartily thanked in the acknowledgements for their patience, support, and friendship. The connection with APTIAD also provided an opportunity to tap into a vast network of trade and IP experts, some of whom became co-authors of later articles in the study. Having access to such a fertile intellectual ground was essential for ensuring that the project driving Article 4 maintained its momentum and reached a successful conclusion in a timely manner. In addition to broadening the study's scope, collaboration with APTIAD also created the opportunity to narrow the scope of the study and its articles, leading to its focus on the countries of the Asia-Pacific region. While the dataset itself covers all TAs globally, working with

APTIAD provided the impetus to focus on a narrower spectrum of end-users for whom direct policy-access was possible via different means throughout the study. This proved to be essential for both sustaining the project's momentum as well as delivering impactful results to a well-defined set of policymakers.

3.6.3 Data generation process

The main results of Articles 3 and 4, as well as a significant portion of Article 6, are based on the approximately 43,888 individual cells of data contained in the current version of the IPRs in TAs dataset. Each cell was hand coded first in Excel, from which further format manipulations for Python, R, and Stata -based assessments could be made.

Arriving at the 43,888 cells worth of data necessitated a lengthy period of firsthand research and a series of data-management and data-sanitization steps of varying complexity. The first steps were needed to determine the outer bounds of the "observable universe" of IPRs-inclusive TAs that could be identified, accessed, and verified to be true and accurate copies of the TA. This process was greatly aided by the existence of the WTO's and United Nations' datasets, including APTIAD. However, it was quickly determined that each of the utilized sources contained discrepancies, missing entries, and TAs that could not be accessed or verified to have been enacted. In addition, the study did not benefit from the valuable work that DESTA was conducting contemporaneously, which would have greatly facilitated data generation.

Shortly after project initiation, it became evident that even if all available datasets were to be combined and fully utilized, it was likely that a significant number of TAs would still be overlooked due to reasons such as i. lack of notification to the WTO, ii. the age of the TA and lack of online records from the period in question, and iii. a lack of English (or other "mainstream") language versions that could be identified via typical online searches. As such, it is necessary to concede that the database, as well as all other similar databases, are likely to contain only a subset, albeit a significant one, of the entire set of IPRs-inclusive TAs. The study also made a clear delineation between TAs and investment treaties that were excluded from the list. In addition, TAs that included an Asia-Pacific trading partner were given preference in the search, leaving room for expanding the scope to TAs without Asia-Pacific partners and to Bilateral Investment Treaties (BITs) in future studies.

After PDF copies of the TAs were obtained, they were sanitized (i.e., rotated, de/zoomed, and made searchable by running text recognition algorithms when necessary) for further processing. Once each TA was searchable, initial queries with identifying key terms (such *as IP, intellectual property, intangible, patent,*

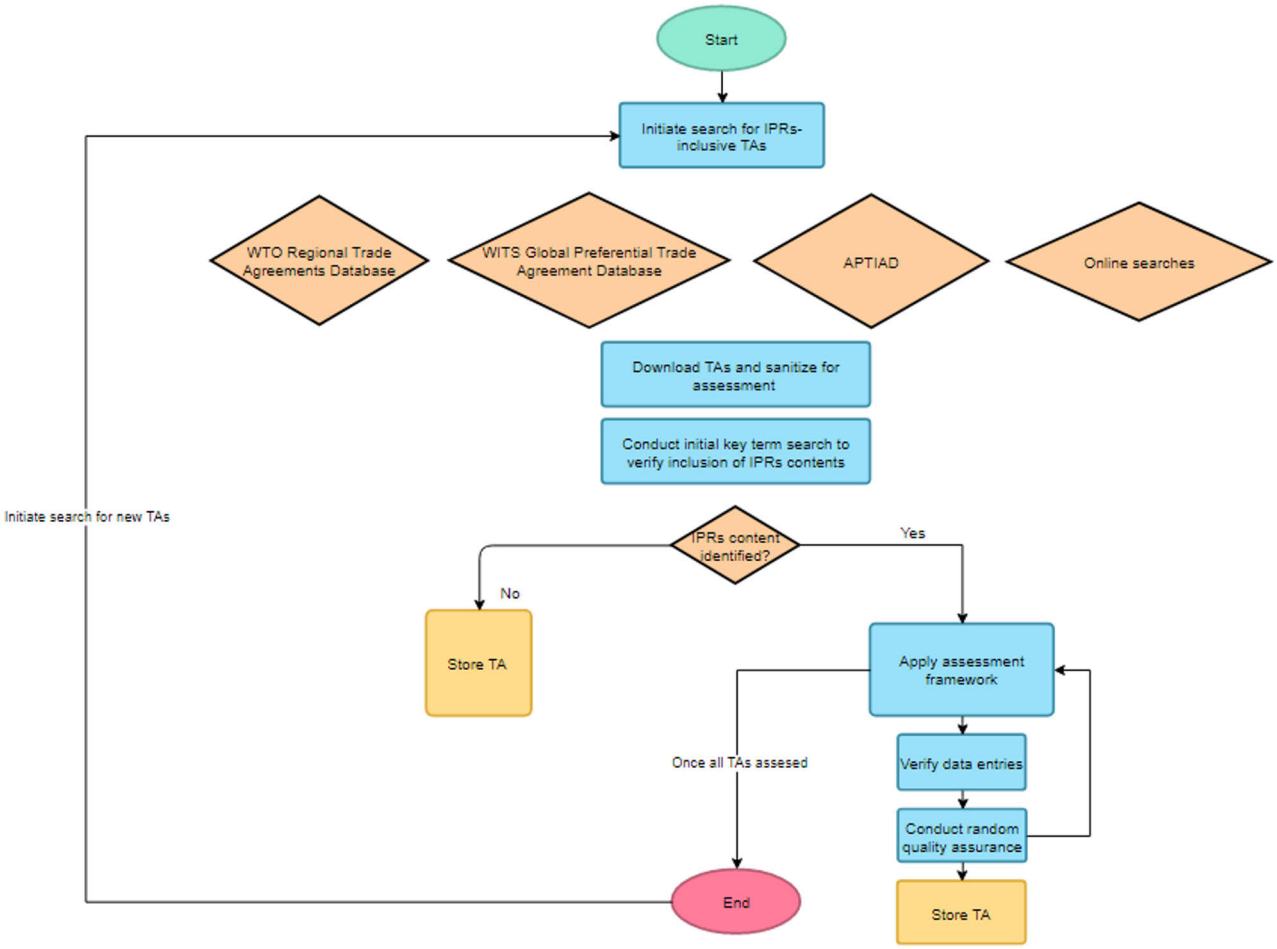
copyright, TRIPS) were made to see whether the TA included IPRs-contents.[65] If so, it was marked for further assessment as per the criteria in the below section. If not, the results were codified in the database and the TA was stored.

The assessment process itself was straightforward once the assessment framework was in place. After it was confirmed that a TA was IPRs-inclusive, it was visually assessed against the list of 104 categories explained below. Search terms were used to aid in the visual search where necessary, and page counts of IPRs-inclusive text were codified accordingly. To begin with, TAs were lumped into batches based on the alphabetical ordering of the main signatory parties. The assignment of which country would be presented first was random but strictly applied once an initial decision was made for all TAs for the parties involved.[66] This helped to maintain a column view that remained constant and visually searchable with and without filters to the extent that raw manipulations were conducted directly in Excel. Each TA would take anywhere from 5 to 120 minutes to codify, depending on the amount of IPRs content included and the complexity of the structure of the TA in question. Random verification checks were conducted in two primary forms. First, at the end of each codification run, search terms for "missing categories" that the TA seemed to exclude were used to confirm their absence, and 1–3 categories marked as present were similarly subjected to a search test. At later intervals, a random assortment of cases (usually in batches of 5–10) were selected for reassessment to verify the findings of the initial run. Where discrepancies were found, all TAs assessed in the same batch were redone. The above process was repeated until all available TAs had been assessed. Newly negotiated TAs were included in the dataset, on a monthly basis when necessary. The below figure captures the overall details of the data generation procedure in a process-map manner.

65 Search terms were issued in the original language of the TA.

66 For example, for the TA between the United States and Singapore, it was decided that the United States would be presented first in the file name (and database row) with Singapore coming second. This was followed for all TAs for both parties so that United States was always first for all its TAs, and Singapore last. Where two countries were assigned the same rule (e.g., always first – always first), the country with the most agreements with its country's name in the first place was given priority.

Data generation process map



3.6.4 Establishment of the assessment criteria and a summary of the final assessment framework used in the article

Gathering the IPRs-inclusive TAs for assessment was by no means an easy task. In fact, the process of acquiring new TAs for analysis continued well into the final months before the publication of Articles 3, 4, and 6 respectively, with constant updates and refinements made. However, once the first batch of IPRs-inclusive TAs had been generated, it became clear that establishing an objective assessment criterion would be a much more complicated assignment for several reasons. First, at the time of writing Articles 3 and 4, prior literature on assessing IPRs-inclusive

TAs was limited, with only two relevant outputs issued by Valdes and collaborators in 2012 and 2014.[67] In both cases, the breadth of assessment (capturing only main categories such as patents and copyrights with no differentiations between the strength and complexity of provisions) did not meet this study's goals, which in turn necessitated the creation of an entirely new assessment methodology. Second, given the vast number of TAs to assess and the work involved in each assessment, it was essential to get the assessment framework right the first time to ensure objective application throughout all the TAs. This goal was sadly not fully reached, and the assessment framework was refined on multiple occasions throughout the study, each time when an initially omitted category was found to merit inclusion e.g., due to prevalence or the need for differentiation between various categories. Finally, the establishment of the assessment framework was further complicated by the need to ensure wide acceptance by both academia and policymakers to ensure the results would be sustainable and deliver the desired impact in policy making. This necessitated several workshops and feedback sessions with experts at multiple stages of the project. These discussions were insightful and fruitful and based on extensive feedback, a mechanism for assessing not only the existence of provisions on a binary basis but also for assessing the strength of each relative clause, was established. To date, this remains the most critical differentiating factor between this study and those that have come after it, and the author considers the relative strength and complexity measures of this study to be its most important overall contribution to the current literature.

The below summary reflects the assessment framework as it was applied in Articles 3,4, and 6 with a brief explanation of how each criterion was applied. Where applicable, an explanation will be provided regarding how the strength between different types of provisions were differentiated. Criteria will be presented in groups of categories that were used to aid assessment and to organize the database in an orderly manner. However, it should be noted that the category boundaries are ultimately arbitrary and that many other alternative categorization methods could have been selected.

The first category of codified information concerns the basic details of the TA as presented below. Given that TAs are often referred to by multiple names, it was decided to include both short names, full names, as well as database-specific IDs, to ensure ease of reference and consistency with external literature.

[67] Supra, 38.

Assessment framework: Basic details

BASIC DETAILS	
ID	Unique alphanumeric ID given for each agreement for identification purposes. E.g. United States-Australia
Reviewed	Binary boolean variable to confirm whether TA has been reviewed
Agreement Type	Agreement type as defined by partners or data source including: Free Trade Agreement, Preferential Trade Agreement, Regional Trade Agreement, Economic Integration Agreement
Short name	E.g. AANZFTA for ASEAN-Australia-New Zealand Free Trade Agreement
Full name	E.g. ASEAN-Australia-New Zealand Free Trade Agreement
Status	Under negotiation, Pending ratification, In-force, Expired, Uncertain
Status Since	Year of last confirmed status

Another "housekeeping" category was created for capturing basic details about the total and relative number of (IPRs-inclusive) text contained in the TA.

Assessment framework: Text

TEXT	
IPRs mentioned	Binary Boolean variable to confirm that IPRs-inclusive text was identified.
Total pages	The total number of pages in the TAs
IPRs pages	The total number of pages that discuss TAs, expressed in integers with each page that discusses IPRs regardless of length marked as 1 pages.
Text in annexes	Total number of pages in annexes
IPRs page ratio	Portion of IPRs of total pages calculated by formula (*Total pages* / *IPRs Pages)*. Expressed as a float integer up to 6 digits.

One of the most common provision types in IPRs-inclusive TAs concerns references and commitments to further cooperation. A total of 11 distinct cooperation-related provision-types were identified and separated as their own columns in the database. Entries were codified as a binary Boolean after an initial codification on a 0-3 scale of strength/complexity verified that the plurality of provisions did not rise above a reference to the specific type of cooperation without further obligations or commitments. At times, several columns overlapped and could have been collapsed into one column for certain TAs. However, it was determined that the 11 features below were best separated given the underlying variety in TAs when discussing cooperation. Of note, certain criteria such as "establishing contact points" can be used as proxies for complexity and strength if necessary.

Assessment framework: Cooperation

COOPERATION	
General commitment to cooperation	Binary Boolean variable
Establishment of cooperative body (i.e. working group, body, committee)	
Establishing contact points	
Information sharing	
Transparency	
Building awareness on IPRs	
Promotion of innovation	
Support small and medium enterprises	
Cooperation on streamlining of procedural measures	
Harmonization (as an overarching objective)	
Technical assistance, for enforcement or establishment of IPR	

Numerous TAs contained direct references to WTO principles and a separate category was established accordingly. All features in this category were treated as binary Booleans due to the lack of differentiation in strength or complexity in the actual TA provisions reviewed. Here, we have arrived at the first category that proves how the use of binary codification does not indicate equal strength or equal consequences, noting how significantly e.g., a commitment on MFN protection for IPRs differs from a generic cooperation commitment in terms of real impacts for all trading parties involved. This fact was addressed in further analyses in Article 4 (when creating more complicated indicators) by assigning categories with different "strength multipliers."

Assessment framework: WTO principles

WTO PRINCIPLES	
Non-discrimination	Binary Boolean variable
National Treatment for IPRs protection	
Most-Favored-Nation treatment for IPRs protection	

By far the "widest" category of related IPRs-provisions concerns the reaffirmation, reference to, or building-upon of pre-existing international obligations. As noted in the earlier summaries, most IPRs-inclusive TAs contain several references to other IPR-treaties such as TRIPS, and a total of 21 unique types of external treaty references were identified. Because no meaningful escalations of obligations or commitments were identified, the category was codified with binary Booleans. Of note, one or multiple references to EU-specific legislations were aggregated into a single column.

Assessment framework: International Obligations

INTERNATIONAL OBLIGATIONS	
TRIPS reaffirmation	Binary Boolean variable
General reference to multilateral agreements (i.e. and any other agreement...) without specifics	
Paris Convention	
Berne convention	
Rome Convention	
Geneva Convention for the protection of producers of phonograms (1971)	
WIPO Copyright Treaty	
Wipo Performance and Phonograms Treaty, WPPT	
UPOV The International Convention for the Protection of New Varieties of Plants 1961 (as revised at Geneva, March 19, 1991)	
Brussels Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite	
Budapest Treaty	
Hague Agreement concerning the international registration of industrial designs	
Madrid Protocol	
Locarno/Nice/Strasbourg and Vienna agreement	
Trademark Law Treaty	
Singapore Treaty	
Patent Cooperation Treaty	
Patent Law Treaty	
WIPO Convention	
Convention of Biological Diversity	
Specific EU legislation	

Readers familiar with the typical format and subject matter ordering of TAs will note that the categories thus far have followed the traditional order of provisions that move from general to more specific areas of references and commitments. The following categories are dedicated to specific IP subject matter areas, and the codification framework will begin to include 0–3 scales where relevant. The 0–3 scale was chosen due to i. the potential and ease of building upon/upgrading from a 0–1 scale should additional TAs contain stronger or more complex obligations than those reviewed before, and ii. the ability to map four degrees of strength and complexity, which was found to exhaust the most urgent logical permutations for most categories. Ultimately, any other scale could have been adopted with the 0–5 scope being an early candidate. However, the additional granularity was ultimately not needed for the vast majority of provision types and the 0–3 scale was thus standardized.

The first two categories to use the 0–3 scale concerned technology transfer, competition, and trade secrets. As can be seen below, each 0–3 scale follows a similar sequence of escalation with each step being more actionable, stringent, or

complex. However, it was clear that the vast majority of IPRs provisions for which the 0–3 scale was used would need their own, ad hoc, descriptors to reflect the unique nature of the TAs' contents as encountered.

Assessment framework: Tech Transfer and access to technology

TECH TRANSFER AND ACCESS TO TECHNOLOGY	
Government procurement in connection to IPR	No=0 Mentioned = 1 Transparency of bids required = 2 Bidding to be opened to parties = 3
Details of specific procedures for acquiring IPRs	No=0 Yes = 1
Technology transfer in general	No=0 Mentioned as an objective etc. = 1 Requirement for transfer prohibited = 2 Tech transfer required/promoted actively = 3

Assessment framework: Competition and consumers rights

COMPETITION AND CONSUMERS RIGHTS	
Anti-trust cooperation/anti monopoly related language	No=0 Mentioned = 1 Competition/anti-trust specific paragraph = 2 Actionable obligations = 3
Commercial abuses of IPR	No=0 Mentioned = 1 Enable use of IPRs(patents) to remedy anti-competitiveness = 2 Remedies, penalties procedures = 3
Unfair competition	No=0 Mentioned = 1 Defined types of unfair competition = 2 Remedies, penalties, procedures = 3

Assessment framework: Trade secrets

TRADE SECRETS	
Protection of trade secrets (also unpublished know-how)	No=0 Mentioned = 1 Particular definitions = 2 Duration, registration etc. specific requirements = 3

Next, the assessment methodology provides a codification scheme for the broad category of copyrights. A total of 8 differentiable areas of provisions were identified, all of which utilize the 0–3 scaling. Of note, provisions concerning computer

programs and database needs were codified with a specific variation of the 0–3 scale where the values 2 and 3 are mutually exclusive (available for copyrights, excluded from copyrights) and ordered in, what the author perceived, the most suitable order of "stringency." From there, the assessment framework moves on to include the categories of geographical indications, folklore/genetic resources, and designs that are considered by some to be copyright-adjacent.

Assessment framework: Copyrights

COPYRIGHTS	
Copyrights (in general)	No=0 Mentioned = 1 Particular definitions of owners of right, licensing rights etc= 2 Term of protection, collective societies, registration = 3
Related rights (performers, producers, distributors)	No=0 Mentioned = 1 Particular definitions of owners of right, licensing rights etc = 2 Term of protection, collective societies, registration = 3
Computer programmes and databases	No=0 Mentioned = 1 Included as copyrightable matter = 2 Excluded as copyrightable matter = 3
Sound recordings	No=0 Mentioned = 1 Definitions etc. = 2 Own article/ includes specific provisions etc. = 3
Domain names	No=0 Mentioned = 1 Definitions etc. = 2 Own article/ includes specific provisions etc. = 3
Rights management information, DRM, and Encryption circumvention measures	No=0 Mentioned = 1 Definitions etc. = 2 Own article/ includes specific provisions etc. = 3
Encrypted Programme-Carrying Satellite Signals	No=0 Mentioned = 1 Definitions etc. = 2 Own article/ includes specific provisions etc. = 3
Government use of software	No=0 Mentioned = 1 Defined = 2 Procedures, requirements, limitations = 3

Assessment framework: Geographical indications

GEOGRAPHICAL INDICATIONS	
Geographical indications (in general)	No=0 Defined as protected subject matter = 1 Trade marks/registered marks trump geographical indications = 2 Geographical indications trump trademarks = 3
Appellation of origins	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. = 3
Protected Gis specified in annex	No=0 Yes=1

Assessment framework: Traditional knowledge, folklore, genetic resources

TRADITIONAL KNOWLEDGE, FOLKLORE, GENETIC RESOURCSES	
Traditional knowledge (in general)	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. = 3
Folklore	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. = 3
Genetic resources	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. = 3

Assessment framework: Designs

DESIGNS	
Designs (in general)	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement, etc. = 3
Layout designs of integrated circuits	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. = 3
Industrial designs	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. = 3

Trademarks were the next category to be codified. Interestingly, the category only consists of four distinct provision types, fewer than identified for copyrights and patents. In addition, the study found that trademark-related provisions included in the TAs tended to be towards the higher end of the scale on average, perhaps signaling the relative importance as well as "maturity" of the category.

Assessment framework: Trademarks

TRADEMARKS	
Trademarks (in general)	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement, etc. = 3
Collective marks	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. = 3
Country names	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. = 3
Non-traditional trademarks	No=0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. = 3

For patents, a total of 16 differentiable provision types were identified. An additional column was added for a composite column of the author's "patent index," which was used in the study to assess the relative strength of each IPRs-inclusive TA from a patent-specific viewpoint. The patent index's formula was based on a weighted sum of the 0–3 scaled entries as follows 100*((CB5+SUM(CC5:CP5))/16). The patent category was also by far the most involved in terms of depth of analysis, with several provision-types requiring their own 0–3 scaling method. As before, the divisions between different provision-types are to an extent arbitrary and some of them could have been aggregated into a single column (e.g., concerning periods/extensions). However, it was decided to retain additional provision types for codification, even at the risk of redundancies given the added value of granularity of the data.

Assessment framework: Patents

PATENTS

Patents (in general)	No=0 Mentioned = 1 Particular definitions of owners of right, licensing rights etc= 2 Term of protection, collective societies, registration = 3
New plant varieties	No=0 Mentioned = 1 Particular definitions of owners of right, licensing rights etc= 2 Term of protection, collective societies, registration = 3
Utility models	No=0 Mentioned = 1 Included as copyrightable matter = 2 Excluded as copyrightable matter = 3
Specific pharmaceutical provisions	No=0 Yes=1
Lists specific things which may be excluded	No=0 Yes=1
Exceptions to patent rights	No=0 Mentioned =1 Exceptions disallowed = 2 Exceptions allowed =3
New use	No=0 Mentioned = 1 Definitions etc. = 2 Own article/ includes specific provisions etc. = 3
Patentability criteria / patent subject matter	No=0 Mentioned =1 Limitations disallowed = 2 Limitations defined = 3
Test data exemption / data protection provisions	No=0 Mentioned = 1 Defined = 2 Procedures, requirements, limitations = 3
Patent linkage (i.e., linking approval of medication to patent status)	No=0 Mentioned = 1 Defined = 2 Procedures, requirements, limitations = 3
Novelty grace period	No=0 Mentioned = 1 Defined = 2 Procedures, requirements, limitations = 3
Term extensions of patent protection (e.g., due to marketing approval)	No=0 Yes=1
Patenting period	Not specified = 0 Specified =1
Compulsory licensing	No = 0 Mentioned = 1 Compulsory licensing enabled in certain circumstances = 2 Compulsory licensing limited = 3

PATENTS	
Public order exceptions	No=0 Yes=1
Generic Entry	No=0 Mentioned = 1 Defined = 2 Procedures, requirements, limitations = 3
Parallel importing	No=0 Mentioned = 1 Allowed = 2 Limited = 3

In many IPRs-inclusive TAs, provisions concerning enforcement and dispute settlement provisions were saved for last and the database then followed suit. A total of 10 differentiable provision types were identified, of which the majority were codified based on a 0–3 scale.

Assessment framework: Enforcement and dispute settlement

ENFORCEMENT AND DISPUTE SETTLEMENT	
General provisions on enforcement	
Border measures	No = 0 Mentioned = 1 Allowed = 2 Limited (i.e. includes exceptions) =3
Penalties (specific)	No = 0 Mentioned = 1 Definitions = 2 Amounts, strictness etc established = 3
Criminal measures	No =0 Mentioned = 1 Definitions = 2 Amounts, strictness etc established = 3
Civil measures	No = 0 Mentioned = 1 Liability limited (safe harbour) = 2 Liability not limited = 3
Provisional measures	No = 0 Yes=1
Dispute settlement	No = 0 Mentioned = 1 IPRs not included in Disputes mechanism = 2 IPRs included in dispute mechanism = 3
Investor state dispute settlement	No=0 Yes=1
Non-violation Complaints	No=0 Yes=1

The final provision types identified for codification concerned whether IPRs were defined as investments. The feature was codified as a binary Boolean.

Assessment framework: IPRs defined as investments

IPRS DEFINED AS INVESTMENTS	
IPRS defined as investments	Binary Boolean variable

The above assessment framework was applied consistently throughout Articles 3,4, and 6. At the time of writing, an updated version has been developed for further work with the WTO, the draft of which is presented in Annex I.

3.6.5 Main findings

The research theory behind Article 4 was initiated with three clearly defined hypotheses in mind, all of which were confirmed by the data. First, the study showed that over the past decades, the complexity of IPRs provisions included in TAs has increased across all country groups. The data confirmed a pronounced inter-group difference between the complexity of IPRs provisions with the most technologically advanced countries signing the most complex IPRs-inclusive TAs. Second, the data showed that TAs were increasingly used to establish international norms for "emerging" topics, such as folklore, traditional knowledge, and geographical indications, which are not widely regulated by multilateral IPRs treaties. In turn, the data prove beyond a doubt that forum shopping has, and continues to, take place and there is evidence that it does so with increasing frequency. Finally, when examined through an inter-temporal lens, the data show that IPRs provisions in IPRs-inclusive TAs have, in terms of the number of topics considered and their stringency, become increasingly harmonized across all country and development groupings. In fact, there is clear evidence that subsequent TAs utilize the IPRs-provisions of their predecessors as starting points, leading to "ratcheting up" phenomena where the complexity of IPRs provisions in TAs do not seem to be heading towards any immediately recognizable equilibrium.

3.7 Article 5: IPRs, creative economies and localized development initiatives

3.7.1 Objectives, methods, and summary

The fifth article in this study was a long time in the making, with the first draft versions coming together quickly after Article 4. However, Article 5, "*IPRs, creative*

economies and localized development initiatives," would eventually be the last published of all the study's articles. This was due to two main reasons. First, after Article 4, further development of the IPRs in TAs database led first to the "topographical" components of Article 6, which was followed by a separate strand of research and cooperation with various international organizations and academic institutions had taken place, developing the database even further. All the while, Article 5's core tenets and findings were being refined, and the article was published shortly after a collaborative workshop on IPRs, development, and health care at the end of 2020.

Article 5 stands out for reasons other than the delay in its finalization. Mainly, it is the first entry of this study that devotes the entirety of its analysis to Objective 5: Assessing the development implications of IPRs in the trade context and Objective 6: Providing policy-guidance for developing countries. Secondly, it stands out as the study's main entry on understanding the intricate causal relationships between IPRs, creativity, and innovation. In order to provide policymakers with tangible guidance and tools for improving economic outcomes through IPRs, it was decided that the otherwise abstract and theoretical discussions of the impacts of IPRs would be cast through the lens of a concrete development intervention model, namely the One Village One Product framework, which originated in rural Japan in the 1970s.

In its first section, Article 5 discusses IPRs, creative economies, and local economic development. Here, one of the main proposals considers that creative economies cover all industries, behaviors, and economic activities for which the primary source is human innovation and creativity as protected by modern IPRs, *regardless* of whether they are artistic, scientific, or economic in nature. This proposal is made in order to harmonize several overlapping definitions and strands of research into IPRs, creativity, and innovation, which have thus far needlessly bifurcated the field of research. With this definition at hand, Article 5 proceeds to discuss the "right metrics" for assessing the success of creative economies. Here, traditional metrics such as economic performance, patent activity, and numerous others are presented. However, the main contribution of Article 5 is found in a proposed set of development outcomes and indicators across economic, social, cultural, and environmental outcomes; built upon globally-accepted UNESCO definitions, combined with the author's analysis of how each set of indicators is linked to IPRs both internationally and locally. The proposed development indicators are summarized below.

Theoretical linkages between IPRs and various development outcomes

ECONOMIC OUTCOMES		**Main connection type to IPRs (direct/ indirect, what forms of IPRs)***
Output of cultural goods and services	Volume and value of local production of cultural goods and services: – by product group – by industry Value added in local production of cultural goods and services: – by product group – by industry Value of cultural production per head of population • Value of cultural production as a proportion of gross domestic product: – at regional level – at national level	Direct: through e.g., goods and services that depend on copyrights, trademarks, and patents.
Employment	Number of new jobs created for artists and creative workers: – in core arts industries – in wider and related cultural industries – in industries outside the cultural sector Increase in wages, salaries, incomes of creative workers • Reduction in the need for artists to access unemployment assistance • Increased opportunities for artists to work full-time at their creative work	Direct: through e.g., copyright ownership, incentivizing effect of various IPRs etc.
Trade*	Volume and value of net exports of creative goods and services from the city/region: – to other parts of the country – to other countries Proportion of creative to total exports Import replacement by domestic production of creative goods and services	Direct: through e.g., goods and services that depend on copyrights, trademarks, and patents and which are traded globally.
Business development	Number of new creative business start-ups Improvement in entrepreneurial skills in creative SMEs Creative clusters and hubs: – establishment – expansion Inward investment stimulated by cultural attractiveness of the city or region: – in cultural industries – in non-cultural industries Cultural content in city branding attractive to incoming business investment	In-direct: through e.g., accumulation of know-how and cluster effects
Tourism	Number of tourists whose visit involved some cultural consumption: – coming from inside the region – coming from the rest of the country – coming from abroad Tourist expenditure on admissions to cultural events or for participation in cultural activities: – heritage visits – performing arts venues – museums and galleries – other cultural tours and attractions	Direct: through e.g., traditional knowledge, geographical indications, copyrights, and trademarks
Equity in economic outcomes	Distribution of income and wealth: – trends in Gini coefficients Poverty alleviation facilitated by creative economy development: – number of jobs created – increase in income levels Economic initiatives to ensure equitable community access to cultural participation and enjoyment: – free admission to public cultural institutions – affordable prices for admission to paid cultural events – programs to assist low-income or disadvantaged groups to access cultural resources.	Indirect: through e.g., increased opportunities for rural populations to engage in economic activities due to protection of traditional knowledge and copyrights
Innovation*	Number of patents and open-source innovations generated by local producers Strength of local innovation cluster effects and ease of knowledge-transfer and technological diffusion Local investments in R/D and innovation enabling physical capital	Direct: through e.g., goods and services that depend on copyrights, trademarks, and patents and which are traded globally.

SOCIAL OUTCOMES		
Social cohesion, cultural diversity	Cultural identity: – proportions of different ethnicities in the local population – shared/common elements in local cultural identity – distinctive features of cultural identity unique to city or region – languages spoken at home • Intercultural dialogue and engagement: – platforms for inter-ethnic contact and exchange – multicultural clubs, societies, associations – festivals, fairs, etc., celebrating cultural diversity – valorization of "interculturality" in schools • Social capital, peace, and security:– trust towards individuals and institutions – lack of crime, violence – lack of inter-ethnic conflict – tolerance, openness in social interaction	Direct: through e.g., copyrights, geographical indications, and traditional knowledge protection
Human rights and non-discrimination	Gender equality: – proportion of women working in cultural sector – proportion of women in decision-making or gatekeeping positions – equity in women's access to cultural participation – non-discrimination against women on cultural grounds – male/female earnings gaps • Minority rights: – recognition of appropriate cultural rights and consistency with basic human rights – freedom of religion • Freedom of expression, no arbitrary censorship	Indirect: through e.g., traditional knowledge and copyright protection for minorities
Educational outcomes	• Number of children studying arts/cultural subjects in school • Number of children engaged in extra-mural artistic activities, including: – learning a musical instrument, singing – art classes, ballet classes, drama classes – creative writing programs • Number of artists employed as teachers in schools • Number of graduates from arts training institutions.	Indirect: through e.g., incentivizing effect of copyright protection leading to a wider number of creative outputs available on the educational market

CULTURAL OUTCOMES		
Cultural consumption and engagement	Attendance at cultural events and cultural institutions: – Number of attendees, by event/institution type – number attending cultural events/institutions, as a proportion of population – composition of audiences, by age, gender, etc. • Expenditure on cultural by individuals – by households – cultural expenditure, as a proportion of total consumption expenditure goods and services, by type	Direct: through copyright protection for cultural goods and services producers

From there, Article 5 establishes a novel Global-to-Local hierarchy of IPRs-regimes and the tangible activities that promote the achievement of the above indicators and outcomes at each level. Here, the main objective was to highlight the myriad ways with which global IPRs regimes, policymakers, and micro-communities can encourage and promote creative economies and innovation within the broader framework of IP. To make these connections even clearer, Article 5 provides a mapping of this hierarchy, reporting the tangible actions that have been taken by governments around the world using data derived from UNESCO's policy monitoring platform.

Global-to-Local hierarchy of IPRs-regimes

Scope of measures	Economic	Social	Cultural	Environmental
Global	Multinational harmonization and standardization of IPRs norms, establishing policy floors and ceilings, steering/targeting international resource allocations across socio-cultural and environmental categories,	IPRs training, capacity building, and knowledge sharing	Acknowledging and appreciating cultural norms, promoting the protection of diverse cultural outputs through IPRs	Establishing multilateral frameworks and norms for environmental protection technology
Regional	Deeper harmonization of IPRs rules and norms, economic integration of creative markets, steering/targeting regional resource allocations across socio-cultural and environmental categories,	Promoting deeper social integration to create deeper linkages between regional creative economies	Establishing cultural ties through trade and exchanges of cultural outputs and norms	Promoting green technology transfer, establishing patent pools
National	Maintaining creative societies, implementing national policies, laws, and institutions, steering/targeting national resource allocations across socio-cultural and environmental categories, enforcing rights	Aggregating locally generated social capital, maintaining a national social framework, and developing social institutions	Aggregating locally generated cultural values, norms and outputs, manufacturing and maintaining a national cultural narrative	Establishing environmental rules and norms, enforcing environmental rules and norms
Local	Adapting and applying national policies and laws, maintaining local markets, infrastructure, etc. and enforcing rights	Establishing venues and fostering opportunities for the accrual of social capital	Maintaining local cultural values, norms, and outputs internally and promoting them externally	Adapting and applying national environmental rules and norms, local enforcement
Producers	Producing and distributing creative goods and services	Sharing knowhow and contributing to the accrual of social capital	Creating cultural outputs and directly maintaining cultural norms	Adopting environmentally responsible production and consumption norms

The second part of Article 5 departs from the generation of analysis and theory and examines how the One Village One Product framework has succeeded in fostering creative economies by adapting and applying a Global-to-Local hierarchy. All identifiable local manifestations of the framework were assessed (ranging from Cambodia to Uganda, with over a dozen countries having proven track records of implementation) and the main "models" were assessed, primarily those developed by UNIDO and the One Tambon One Product movement of Thailand, which has, arguably, been the most successful local adaptation. The objective of the second

section was to provide policymakers with the necessary tools and guidance to build upon the theoretical linkages between IPRs and creative economies in a tangible manner. This goal was largely achieved, and the author had the opportunity to discuss the results at numerous workshops and panels in the Asia-Pacific region throughout the authoring of Article 5.

3.8 Article 6: A Handbook on Negotiating Development Oriented Intellectual Property Provisions

3.8.1 Objectives, methods, and summary

The study culminates in Article 6, "*A Handbook on Negotiating Development Oriented Intellectual Property Provisions in Trade and Investment Agreements,*" commissioned by the United Nations Economic and Social Commission for Asia and the Pacific. Article 6 is a collaborative publication, written together with Professor Grosse Ruse-Khan, which was prepared under a research project led by the author. The study was conducted via firsthand legal research and analysis, and parts of the article were built directly upon the database that was updated for use in its publication.

The establishment of a research project on negotiating development-oriented IP provisions was a direct response to the successes of Articles 1-5 and the request for further entries in the series, which arose from various workshops, panels, and other events in which their results were discussed. The growing intensity with which IPRs provisions appear in TAs has given rise to an urgent need to promote the capacity of developing countries to understand, apply, and adapt these norms in a way that ensures that the IP institutions that are ultimately put in force, will in fact promote local creativity, innovation, and economic performance instead of solely benefitting external actors.

Article 6, "the Handbook," aimed to address this need by presenting four ambitious chapters of legal analysis and policy-guidance developed specifically with the developing nations of the Asia-Pacific in mind. The Handbook begins with an assessment of the international IP framework, moving from TRIPS to international investment agreements and their policy implications. The second chapter contains an expanded and updated version of the topographical map of IPRs-inclusive TAs as they operated in the Asia-Pacific region in 2016. From there, it builds upon earlier work at, e.g., the Max Planck Institute for Innovation and Competition Law, and presents tangible recommendations for approaching IPRs-provisions in TAs in a development-oriented manner. Finally, the Handbook concludes with an assessment of state practices and other means of introducing flexibilities into TAs in order to promote IP policies that are "fit for development."

The findings in the first two chapters are similar to those of the articles presented earlier but are presented with more elaborate and nuanced details and updated analysis. While these findings remain topical and fascinating in their own right, they will not be reproduced here as they have already been discussed above. Instead, we will briefly summarize the main recommendations for negotiating development-oriented IPRs-inclusive TAs. The recommendations build upon prior work from a wealth of IP experts, adapting them to the context of Asia-Pacific developing nations. The below elaborations have been updated to reflect feedback and discussions after the issuance of the Handbook.

Summary of recommendations made

Issue/threat	**Recommendation**
As time passes, IPRs-provisions can become "locked in" to certain technologies or can become overly restrictive in terms of their application	*Ensure that provisions are sufficiently flexible and technology-neutral across the board*
Developing nations may accept certain IPRs-provisions as "legal transplants" that may not be applicable or desirable in the local political, economic, creative, or environmental context	*Ensure that domestic IP strategies are set and establish specific agendas for IP rules in TAs in advance of any negotiations*
IPRs-inclusive TAs may face political objections due to misalignments with the interests of the full set of local stakeholders	*Ensure transparency, inclusivity, equity, and fairness throughout the negotiation process by offering opportunities to comment on draft provisions and proposals*
IPRs-provisions may enclose previously open policy-spaces in ways that are not fully anticipated or desired, in the local setting	*Ensure that IPRs provisions leave room for domestic implementation and flexibility therein to promote jointly-agreed upon, overarching, societal goals such as health, safety, and the environment*
IPRs-inclusive TAs may introduce unexpected provisions and obligations by means of reference	*Ensure that the "inclusion by reference" phenomenon is fully understood at the outset and set limits and thresholds for such obligations in advance*
IPRs-inclusive TAs may undermine the flexibilities afforded by the WTO system of IP rights	*Ensure that IPRs-inclusive TAs do not remove, limit, or otherwise make unavailable the critical flexibilities afforded by e.g., the TRIPS agreement*
Implementation of the IPRs provisions may require significant legislative, administrative, technological, and financial investments, which developing nations may not be able to properly anticipate or may not have the resources to undertake	*Ensure that developed nations commit to "neutral technical assistance" that provides unconditional support in the means required to meet the obligations of the TA in question*
As the local economic, creative, social, and environmental context changes, certain IPRs provisions may become irrelevant, redundant, politically misaligned, or harmful to future development	*Consider re-negotiating IPRs-inclusive TAs where applicable and ensure that future TAs contain clauses anticipating the potential need to renegotiate.*

Although the Handbook was not published last chronologically due to delays with Article 5, it nonetheless is the capstone of this study. It brings together this work's different strands of thought, analysis, and approaches, and it provides a self-contained publication that comes the closest to meeting each and every objective of this study in one single article. One might also see how the Handbook presents a nascent case for ensuring that each developing nation retains their right to further develop, even after entering into IPRs-inclusive TAs. As such, it is hard to imagine a better suited concluding chapter to the study at hand.

3.9 Supporting articles excluded from the study at hand

The six articles presented above form the main body of the study. However, during the research period, four other related articles were drafted and published. The decision to exclude these four articles was not particularly straightforward, as all of them could have added nuance, context, empirical evidence, and theoretical analysis from important perspectives. In the end, however, the decision to include or exclude an article from this study was to an extent arbitrary, apart from Articles 4 and 6, which are necessary for a full exposition of the study and its results. In the end, the four articles were excluded largely based on two factors: redundancy and/or an unnecessary expansion of the scope of this research project. The contents of these studies are briefly summarized in the table below.

Supporting articles not included in this study

Regional Integration and the Creative Economies of ASEAN: Assessing the Potential for a Single ASEAN Creative Economy, in ASEAN Economic Community, Palgrave, 2016	Prepared for a larger compendium study for Palgrave on the ASEAN Economic Community, this article explores creative economies from a regional viewpoint.
Lessons from India and Association of Southeast Asian Nations, in Innovation, Competitiveness and Regional Integration - Assessing Regional Integration In Africa Vii, African Union, 2016	Presented as a contribution to the African Union's 'Assessing Regional Integration in Africa' study, this article explores lessons from India and ASEAN in fostering creativity, innovation, and economic development.
Healthcare products trade and external shocks: The US-China trade war and COVID-19 pandemics, United Nations, Asia Pacific Research and Training Network on Trade, 2020	Written in response to the COVID-19 pandemic, this joint article explores the connections between healthcare trade, external shocks, and intellectual property rights.
Sector wide approaches (SWAps) as a means for increasing the effectiveness of Aid for Trade, United Nations, Asia Pacific Research and Training Network on Trade, 2014	Prepared on behalf of the Governments of Cambodia, Lao PDR, Myanmar, and Viet Nam, and funded by the Government of Thailand, this article explores how "Sector wide approaches" can be used in conjunction with Aid for Trade schemes as means of supporting local development.

4 Impact of the original publications and future strands of research

Of the six Articles presented in this study, none come close to the impact had by the articles discussing the IPRs in TAs database. While the Handbook was the intellectual capstone of this project and generated a positive response, the manner in which the database was received and adopted for further discussion and development has been particularly humbling.

At the time of writing, the database remains both in use and in active development and is currently integrated into the United Nations Economic and Social Commission for the Asia-Pacific's research and training arms, ARTNeT's, online platform. The underlying research itself has contributed to several follow-up articles, including most recently the World Bank's Handbook on Deep Trade Agreements.[68] Most excitingly, the WTO and ARTNeT are currently working on a follow-up study on the database's findings, with a view to creating an integrated and harmonized methodology for assessing IPRs in TAs globally. In this need for standardization also lies one of the author's major regrets. Had the author only learned of DESTA's, and specifically Dr. Surbeck's doctoral work on a TRIPS-plus dataset earlier, the underlying methodologies and databases could have been merged and this study could have focused on diving deeper into each provision by assessing the relative strength and complexity of each provision mapped by DESTA. It is the author's sincere hope that future research and collaboration will take place in this regard, specifically under the WTO/ARTNeT research project, which is slowly but steadily advancing towards its assessment phase.

While the author's personal research agenda will continue to focus on further development and automation of the database, much remains to be done to ensure that IPRs-inclusive TAs do not hinder the growth trajectories of developing nations. Through its articles, this study highlighted only a portion of the connections between IP and economic, social, cultural, and environmental development, and the bulk of assessment, both legal and economic, on their causal pathways remains to be done.

[68] World Bank, "Handbook on Deep Trade Agreements"

What is clear is that the erosion of the multilateral policy space is real, and developing nations today face a markedly different international norm environment in which to seek out satisfactory development trajectories. The recommendations of the Handbook will remain relevant for decades to come, and hopefully policymakers and trade negotiators will take them to heart in the future. A return to multilateral solutions remains unlikely as it would be ideal for developing nations to be able to represent and aggregate their voices under the auspices of the WTO and WIPO much more effectively than in one-on-one TA negotiations. In the meanwhile, future research and policy-guidance is desperately needed for translating the overarching recommendations of the Handbook into tangible actions, institutions, and policies in practice. Similarly, further analysis is needed to understand how countries can effectively manage the increasingly complex constellation (or "noodle soup") of IPRs-inclusive TAs in a manner that meets development as well as economic goals.

Finally, future research is particularly needed in the area of implementation rates and the "law in action" effects of IPRs provisions in TAs. Whereas this study has succeeded in establishing both a topographical mapping of these provisions, as well as an overall theoretical framework for understanding their development impacts, our shared understanding of the extent to which these provisions are implemented, and what effects they tangibly have, is extremely limited. The task ahead is daunting, but now that the codification frontiers have been cultivated, it is time for braver souls (and larger research teams with local experts) to push forward and assume the task of mapping, country-by-country, to what extent these provisions are reflected in local IP institutions. As the reception to this study has shown, the demand for knowledge is there, if only we were able to meet it.

Abbreviation

ACTA	Anti-Counterfeiting Trade Agreement
APTIAD	Asia-Pacific Trade and Investment Agreement Database
ARTNeT	Asia-Pacific Research and Training Network on Trade
IPRs	Intellectual property rights
MFN	Most-favored-nation
TAs	Trade agreements
TRIPS	Trade-Related Aspects of Intellectual Property Rights agreement
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Office
WTO	World Trade Organization

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Annexes

Annex 1: Current draft of revised assessment framework categories (30 June 2021)

	Category	Indicators	Notes	Key words
1.	Text	IPR get mentioned at all		Intellectual Property
2.		Total pages		
3.		IPR pages		
4.		Text in annex	Elaboration on commitments to IP protection in some RTAs is expressed outside the main text, through Annexes obliging compliance or eventual accession to specific IP treaties. Eg. US - Australia has Annexes and sides letters concerning areas ranging from pharmaceuticals to blood plasma, phonograms, whiskey, and ISP liability.	
5.		IPR page ratio		
6.	Cooperation	General commitment to cooperation	Not mentioned = 0 Mentioned = 1 Cooperation modality detailed without commitment to action = 2 Commitment modality is detailed with actions to be taken = 3 Significant diversity in how the parties express their attitudes, objectives, and expectations with respect to committing to cooperate on IP protection. Commitments vary: single sentence affirming their commitment to protecting IP in general "pursuance of a uniform policy of protecting intellectual property rights." commitment including a more detailed provisions elaborating on why effective protection is an important goal. "The Parties recognise the importance of intellectual property in promoting economic and social development, particularly in the new digital economy, technological innovation and trade…IP protection seeks to facilitate international trade and development, provide certainty to rights holders and users, and to promote the enforcement of IP rights" statement to commit to cooperation on intellectual property issues counted as an expression of commitment to IP protection “The Contracting Parties confirm their willingness to cooperate in the area of issues related to the trade-related intellectual property rights…” no commitment Some RTAs express recognition of the importance of protecting IP, but stop short of an express commitment to provide for protection of IPRs. “The Parties recognise the importance of intellectual property in promoting economic and social development, particularly in the new digital economy, technological innovation and trade." *Streamlining and harmonization or procedures are dealt separately	Cooperation, collaboration
7.		Establishment of cooperative body	Ex. Japan-EU ARTICLE 14.53 Committee on Intellectual Property 1. The Committee on Intellectual Property established pursuant to Article 22.3 (hereinafter referred to in this Article as "the Committee") shall be responsible for the effective implementation and operation of this Chapter.	Committee, group

8.		Establishing contact points	within the IP Chapter CPTPP - IPR Chapter - Article 18.12: “Contact Points for Cooperation Further to Article 21.3 (Contact Points for Cooperation and Capacity Building), each Party may designate and notify under Article 27.5.2 (Contact Points) one or more contact points for the purpose of cooperation under this Section.” scored (0) if general point of contact? a general contact point established under the treaty that applies to any matters covered under the agreement, including IP (where applicable) Georgia-China - Article14.3: Contact Point “For the purpose of facilitating communication between the Parties on any matter covered by this Agreement, the following contact points are designated: (a) for China, Ministry of Commerce; and (b) for Georgia, Ministry of Economy and Sustainable Development.”	contact points, focal point
9.		Information sharing	Not mentioned = 0 Mentioned = 1 Information sharing modality detailed without commitment to action = 2 Information sharing modality is detailed with actions to be taken = 3 ex. CPTPP “The Parties shall endeavour to cooperate on the subject matter covered by this Chapter, such as through appropriate coordination, training and exchange of information between the respective intellectual property offices of the Parties, or other institutions, as determined by each Party.”	
10.		Transparency	Not mentioned = 0 Mentioned = 1 Transparency related matters are detailed without commitment to action = 2 Transparency related matters are detailed with actions to be taken = 3 ex. Georgia-China Parties recognise that: establishing and maintaining transparent intellectual property systems and promoting and maintaining adequate and effective protection and enforcement of intellectual property rights provide certainty to right holders and users… ex. CPTPP The Parties shall endeavor to cooperate on the subject matter covered by this Chapter…including transparency Art 18.9.	
11.		Building awareness on IPRs	Not mentioned = 0 Mentioned = 1 Awareness related matters are detailed without commitment to action = 2 Awareness related matters are detailed with actions to be taken = 3 ex. Viet Nam - EU Chapter 12 Intellectual Property. Article 12.62 Cooperation (2) Subject to Chapter 16 (Cooperation and Capacity Building), areas of cooperation include, but are not limited to, the following activities: …(e) promotion and dissemination of information on intellectual property rights in, inter alia, business circles, socio-professional and social organisations as well as promotion of public awareness of consumers and right holders (g) active promotion of awareness and education of the general public on intellectual property rights policies by formulating effective strategies to identify key audiences and creating communication programmes to increase consumer and media awareness on the impact of intellectual property violations, including the risk to health and safety and the connection to organised crime.	

			ex. CPTPP Article 18.13: Cooperation Activities and Initiatives The Parties shall endeavour to cooperate on the subject matter covered by this Chapter… Cooperation may cover areas such as: (c) education and awareness relating to intellectual property;… Article 18.80: Government Use of Software 1. Each Party recognises the importance of promoting the adoption of measures to enhance government awareness of respect for intellectual property rights and of the detrimental effects of the infringement of intellectual property rights.	
12.		Promotion of innovation	Not mentioned = 0 Mentioned = 1 Innovation promotion related matters are detailed without commitment to action = 2 Innovation promotion related matters are detailed with actions to be taken = 3 CPTPP Article 18.2: Objectives The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations. Article 18.4: Understandings in Respect of this Chapter Having regard to the underlying public policy objectives of national systems, the Parties recognise the need to: …(a) promote innovation and creativity; … through their respective intellectual property systems	
13.		Support small and medium enterprises (SMEs)	Not mentioned = 0 Mentioned = 1 SME support related matters are detailed without commitment to action = 2 SME support related matters are detailed with actions to be taken = 3 CPTPP Article 18.13: Cooperation Activities and Initiatives The Parties shall endeavour to cooperate on the subject matter covered by this Chapter… Cooperation may cover areas such as: (d) intellectual property issues relevant to: (i) small and medium-sized enterprises;… Chapter 24 SMEs …information sharing on…(b) regulations and procedures concerning intellectual property rights;	
14.		Cooperation on streamlining of procedural measures	Not mentioned = 0 Mentioned = 1 Streamlining related matters are detailed without commitment to action = 2 Streamlining related matters are detailed with actions to be taken = 3 ex. China-Georgia The Parties will consider opportunities for continuing cooperation... ...that aim to improve the operation of the intellectual property rights system, including administrative processes, in each other's jurisdictions….including… d) improvement of patent examination quality and efficiency; and (e) reducing the complexity and cost of obtaining the grant of a patent. CPTPP Article 18.14: Patent Cooperation and Work Sharing 1. The Parties recognise the importance of improving the quality and efficiency of their respective patent registration systems as well as simplifying and streamlining the procedures and processes of their respective patent offices for the benefit of all users of the patent system and the public as a whole.	

			Article 18.31: Administrative Procedures for the Protection or Recognition of Geographical Indications. If a Party provides administrative procedures for the protection or recognition of geographical indications, whether through a trademark or a sui generis system, that Party shall with respect to applications for that protection or petitions for that recognition: (a) accept those applications or petitions without requiring intercession by a Party on behalf of its nationals; (b) process those applications or petitions without imposition of overly burdensome formalities;…	
15.		Harmonization (as an overarching objective)	Not mentioned = 0 Mentioned = 1 Harmonization related matters are detailed without commitment to action = 2 Harmonization related matters are detailed with actions to be taken = 3	Harmonization, standardization, streamlining
16.		Technical assistance, for enforcement or establishment of IPR	Not mentioned = 0 Mentioned = 1 Technical assistance related matters are detailed without commitment to action = 2 Technical assistance related matters are detailed with actions to be taken = 3 Ex. CPTPP Article 18.13: Cooperation Activities and Initiatives The Parties shall endeavour to cooperate on the subject matter covered by this Chapter... Cooperation may cover areas such as: (g) technical assistance for developing countries. EU-Armenia Article 268 Cooperation 2. Areas of cooperation between the Parties include, but are not limited to, the following activities: …(b) the exchange of experiences and information on the enforcement of intellectual property rights; (c) the exchange of experiences on the enforcement of intellectual property rights by customs authorities, police, and administrative and judiciary bodies at central and sub-central level; … (e) capacity-building, and the exchange and training of personnel;	Assistance, support, aid
17.	WTO coverage	National treatment for IPR protection	Not mentioned = 0 Mentioned = 1 National treatment related matters are detailed without commitment to action = 2 National treatment related matters are detailed with actions to be taken = 3 Ex. EFTA-Philippines ARTICLE 8 Protection of Intellectual Property Rights 2. The Parties shall accord to nationals of another Party treatment no less favourable than that they accord to their own nationals. Exemptions from this obligation must be in accordance with the substantive provisions of Articles 3 and 5 of the TRIPS Agreement.	National treatment
18.		Non-discrimination	Not mentioned = 0 Mentioned = 1 Non-discrimination related matters are detailed without commitment to action = 2 Non-discrimination related matters are detailed with actions to be taken = 3 Ex. EFTA-Philippines ARTICLE 8 Protection of Intellectual Property Rights 1. The Parties shall grant and ensure adequate, effective and non-discriminatory protection of intellectual property rights, and provide for measures for the enforcement of such rights against infringement thereof, including counterfeiting and piracy, in accordance with the provisions of this Chapter, Annex XVIII (Protection of Intellectual Property), and the international agreements referred to therein.	

19.		MFN for IPR protection	Not mentioned = 0 Mentioned = 1 MFN related matters are detailed without commitment to action = 2 MFN related matters are detailed with actions to be taken = 3 Ex. EFTA-Philippines ARTICLE 8 Protection of Intellectual Property Rights 3. The Parties shall grant to nationals of another Party treatment no less favourable than that accorded to nationals of a non-party. If a Party concludes a trade agreement containing provisions on the protection of intellectual property rights with a non-party, notified under Article XXIV of the GATT 1994, it shall notify the other Parties without delay and accord to them treatment no less favourable than that provided under such agreement.	
20.	International Obligations	Reaffirming TRIPS	Not mentioned = 0 TRIPS reaffirmed = 1 TRIPS+ mentioned without commitment to action = 2 TRIPS+ mentioned with commitment to action = 3 The TRIPS Agreement reaffirmation criterion is a narrower conception of the general commitment to IP protection. Can be a phrase mandating compliance with, or application of, the TRIPS Agreement itself, requiring the application of TRIPS Agreement standards in the bilateral context New Zealand – Singapore, Article 57 provides that "The Parties agree that the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights shall govern and apply to all intellectual property issues arising from this Agreement." May be reaffirmation of the parties' rights and obligations which could include under the TRIPS Agreement Australia – Chile, Article 17.3: "The Parties reaffirm their existing rights and obligations with respect to each other under the TRIPS Agreement and any other multilateral intellectual property agreements to which both are party." TRIPS Agreement is compulsory for all WTO Members, but overt reaffirmation could be regarded as a strong indicator that the parties actively embrace their rights and obligations under the Agreement. (sign that there is a level of acceptance of TRIPS provisions, including standards and public policy safeguards and flexibilities, and sign of a benchmark for comprehensive IP protection. Some RTAs that affirm TRIPS Agreement may arguably diverge from TRIPS by exceeding TRIPS standards of protection (TRIPS-Plus). Could be problematic, as disturbs balance of rights and obligations in TRIPS.	Ref: http://www.wipo.int/export/sites/www/about-ip/en/iprm/pdf/ch5.pdf
21.		General reference to any multilateral agreement	Not mentioned = 0 Mentioned = 1 A general reaffirmation of obligations under international IP agreements "in effect between the parties" The purpose of analysing references to the WIPO treaties and the UPOV Convention is to determine the importance that RTA parties place on these agreements. Affirmation would increase the probability that the RTA parties' IP laws and policies would be in line with a significant part of the extensive WIPO framework. Affirmatory references to WIPO treaties provide WTO (and WIPO) Members a significant degree of predictability in terms of how any given RTA could alter, depart from or re-conceptualise the common understanding of the international IP framework. An additional effect of mandated compliance with certain WIPO treaties is the facilitation of a more harmonized global IP regime. This would occur primarily through the extension of the WIPO system into the national laws of RTAs parties regardless of whether they are members of WIPO or not.	

			References to WIPO treaties may take the form of a reaffirmation of obligations under enumerated WIPO treaties Article 46.3 of the EU – South Africa RTA states that: “The Community and its Member States confirm the importance they attach to the obligations arising from the:...” The provision then lists the Madrid Convention, the Rome Convention and the Patent Cooperation treaty. Article 46.5 then says, “The Parties confirm the importance they attach to the following instruments:...” The provision then lists various WIPO conventions and treaties. Mandates compliance with the provisions of certain WIPO treaties without requiring accession to the agreements themselves. NAFTA Article 1701.2: “To provide adequate and effective protection and enforcement of intellectual property rights, each Party shall, at a minimum, give effect to this Chapter and to the substantive provisions of: ...” followed by a list of WIPO conventions. Mandates the eventual accession of some parties EU – Morocco Annex 7, Article 1: “By the end of the fourth year after the entry into force of the Agreement, Morocco shall accede to the following multilateral conventions on the protection of intellectual, industrial and commercial property: ... ", followed by a list of WIPO conventions and treaties. “Soft” mandate that encourages parties to make their “best efforts” to join WIPO treaties they are not already party to Nicaragua – Chinese Taipei Article 17.03(3): “The Parties confirm that if either of them that is not a party to one or more of the multilateral treaties listed in Article 17.01, it commits itself to put forth its best efforts to seek to join those treaties in due time.” See also Japan – Indonesia Article 106.6, which encourages accession using the words, “Each Party shall endeavor to become a party if it is not a party, to the following international agreements in accordance with its necessary procedures.” Ex. Armenia-EU Article 210.1 “The Parties shall ensure the adequate and effective implementation of international treaties concerning intellectual property to which they are parties, including…”	
22.		Paris convention for the protection of industrial property	Specific mention to certain agreements (22 - 40)	
23.		The Berne convention for the protection of Literary and Artistic Work		
24.		The Rome convention -- International Convention of 26 October 1961 for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations		
25.		The Geneva Phonograms Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms (1971)		

26.		WIPO copyright treaty (WCT)		
27.		The WIPO performances and phonograms treaty (WPPT)		
28.		UPOV the international convention for the Protection of New Varieties of Plants 1978		
29.		The Brussels convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite		
30.		The Budapest treaty International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure		
31.		Hague Agreement concerning the international registration of industrial designs		
32.		The Madrid protocol		
33.		Locarno/Nice/Strasbourg and Vienna agreement		
34.		Trademark law treaty		
35.		Geneva trademark law treaty		
36.		Singapore treaty on the law of trade mark		
37.		Patent cooperation treaty		
38.		The patent law treaty		
39.		Convention on biological diversity	Ex. See EFTA-Philippines Article 10(4) The Parties shall take legislative, administrative, or policy measures, as appropriate, for access to genetic resources and traditional knowledge associated with genetic resources, for fair and equitable sharing of benefits arising from their utilisation, and for compliance with domestic laws, rules and regulations or regulatory requirements on access and benefit-sharing, in accordance with the provisions of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of	

			Benefits Arising from their Utilization to the Convention on Biological Diversity. Ex. EFTA-Indonesia Article 10 Genetic Resources and Traditional Knowledge 1. The Parties reaffirm their sovereign rights over their natural resources. The Parties also recognise their rights and obligations as established by the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture…	
40.		Beijing Treaty on Audiovisual Performances (2012)		
41.		International Treaty on Plant Genetic Resources for Food and Agriculture		
42.		Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired or Otherwise Print Disabled, adopted at Marrakesh on 27 June 2013		
43.		Treaty on Intellectual Property in Respect of Integrated Circuits		
44.		International Convention on the Simplification and Harmonization of Customs Procedures (Kyoto Protocol) [in reference to IPR border enforcement]		
45.		Specific EU legislation		
46.	Tech transfer and access to technology	Government procurement in connection to IPR	No=0 Mentioned = 1 Transparency of bids required = 2 Bidding to be opened to parties = 3 Check chapters on Government Procurement with IPR requirements listed. Ex. Australia-Peru ; Turkey-Singapore; Korea-Central America, etc.	
47.		Procedures for acquiring IPR	Not mentioned = 0 Mentioned = 1 Ex. China - Georgia ARTICLE 11.7: PROCEDURES ON ACQUISITION AND MAINTENANCE Each Party shall:	

			(a) continue to work to enhance its examination and registration systems, including through improving examination procedures and quality systems; (b) provide applicants with a communication in writing of the reasons for any refusal to grant or register an intellectual property right; (c) provide an opportunity for interested parties to oppose the grant or registration of an intellectual property right, or to seek either revocation, cancellation or invalidation of an existing intellectual property right; (d) require that opposition, revocation, cancellation, or invalidation decisions be reasoned and in writing; and (e) for the purposes of this Article, "writing" and "communication in writing" may include writing and communications in an electronic form. Ex. Indonesia-EFTA SECTION III ACQUISITION AND MAINTENANCE OF INTELLECTUAL PROPERTY RIGHTS. Article 13 Acquisition and Maintenance Where the acquisition of an intellectual property right is subject to the right being granted or registered, the Parties shall ensure that the procedures for grant or registration are of at least the same level as that provided in the TRIPS Agreement, in particular Article 62.	
48.		Transfer of technology (pro-)	Not mentioned = 0 Mentioned = 1 Transfer of technology requirements are detailed without commitment to action = 2 Transfer of technology requirements are detailed with actions to be taken = 3 The TRIPS Agreement also sets an important objective for the IP system: the protection of IP should also contribute to technical innovation and the transfer of technology, and to broader social benefit. Sometimes mentioned in the context of statements on cooperation, assistance or other coordination for IP. Ex. CPTPP Article 18.2: Objectives The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations. Article 18.13: Cooperation Activities and Initiatives The Parties shall endeavour to cooperate on the subject matter covered by this Chapter, such as through appropriate coordination, training and exchange of information between the respective intellectual property offices of the Parties, or other institutions, as determined by each Party. Cooperation may cover areas such as…(d) (iii) the generation, transfer and dissemination of technology;	
49.		Transfer of technology (anti-)	Not mentioned = 0 Mentioned = 1 Transfer of technology prohibitions are detailed without commitment to action = 2 Transfer of technology prohibitions are detailed with actions to be taken = 3	
50.	Competition & consumers	Anti-trust co-operation anti-monopoly	Not mentioned = 0 Mentioned = 1 Antitrust matters are detailed without commitment to action = 2 Antitrust matters are are detailed with actions to be taken = 3 The TRIPS Agreement contains provisions on the control of anti-competitive practices in contractual licences, and it incorporates standards on suppression of unfair competition from the WIPO-administered Paris Convention on the Protection of Industrial Property (Paris Convention).	Anti-competition
51.		Abuses of IPRs	Not mentioned =0 Mentioned = 1	

			Particular definitions such as enabling use of IPRs(patents) to remedy anti-competitiveness = 2 Actionable requirements such as penalties, remedies, procedures = 3	
52.		Unfair competition	Not mentioned =0 Mentioned = 1 Defined types of unfair competition = 2 Actionable requirements such as penalties, remedies, procedures = 3	
53.		Consumer protection	Not mentioned =0 Mentioned = 1 Particular definitions such as infringements/protection objectives = 2 Actionable requirements such as penalties, remedies, procedures = 3	
54.	Trade Secrets	Protection of trade secrets	Not mentioned =0 Mentioned = 1 Particular definitions = 2 Actionable requirements such as duration, registration etc. specific requirements = 3 Undisclosed information, also known as trade secrets, is confidential information not generally known among, or not readily accessible to, other persons apart from those in lawful control of the information. Undisclosed information is kept secret because it has commercial value that would be eroded if disclosed to others. Such information remains legally protected provided the person lawfully in control of it takes reasonable steps to keep it secret. Unlike other forms of IP protection, undisclosed information is not protected by a specially conferred right. They are protected without registration or any procedural formalities.	Search Undisclosed information Trade secrets Unpublished know-how / information
55.	Copyright			
56.		Copyrights	Not mentioned =0 Mentioned = 1 Particular definitions of owners of right, licensing rights etc. = 2 Actionable requirements such as term of protection, collective societies, registration = 3 Literary and artistic works such as books, musical compositions, paintings, sculptures, computer programs and films are protected by copyright. Generally, the minimum period of protection is 50 years after the death of the author. Copyright and related rights, sometimes referred to as “neighbouring” rights, protect the rights of performers (e.g. actors, singers and musicians), producers of phonograms (sound recordings) and broadcasting organizations. The main social purpose of protection of copyright and related rights is to encourage and reward creative work.	
57.		Related rights	Not mentioned =0 Mentioned = 1 Particular definitions of owners of right, licensing rights etc= 2 Actionable requirements such as term of protection, collective societies, registration = 3 Related rights, also referred to as neighboring rights, protect the legal interests of certain persons and legal entities that contribute to making works available to the public or that produce subject matter which, while not qualifying as works under the copyright systems of all countries, contains sufficient creativity or technical and organizational skill to justify recognition of a copyright-like property right. Traditionally, related rights have been granted to three categories of beneficiaries: • performers; • producers of sound recordings (also referred to as phonograms); and • broadcasting organizations	
58.		Computer programmes and databases (inclusion)	Not mentioned =0 Mentioned = 1 Included as copyrightable matter = 2 Additional rights conferred = 3	
59.		Computer programmes and databases (exclusion)	Not mentioned =0 Mentioned = 1 Excluded as copyrightable matter = 2 Additional restrictions added = 3	

60.		Sound recordings	Not mentioned =0 Mentioned = 1 Particular definitions etc. = 2 Actionable requirements or other specific provisions etc. = 3	Search Sound recordings Phonograms
61.		Rights management information, DRM and Encryption circumvention measures	Not mentioned =0 Mentioned = 1 Particular definitions etc. = 2 Actionable requirements or other specific provisions etc. = 3 Ex. Korea-Central America ARTICLE 15.33: RIGHTS MANAGEMENT INFORMATION In order to provide adequate legal protection and effective legal remedies to protect rights management information: (a) each Party shall provide that any person who without authority, and knowing, or, with respect to civil remedies, having reasonable grounds to know, that it would induce, enable, facilitate, or conceal an infringement of any copyright or related right… …(c) rights management information means: (i) information that identifies a work, performance, or phonogram; the author of the work, the performer of the performance, or the producer of the phonogram; or the owner of any right in the work, performance, or phonogram; (ii) information about the terms and conditions of the use of the work, performance, or phonogram; or (iii) any numbers or codes that represent such information, …	
62.		Encrypted Programme-Carrying Satellite Signals	Not mentioned =0 Mentioned = 1 Particular definitions etc. = 2 Actionable requirements or other specific provisions etc. = 3	
63.		Government use of software	Not mentioned =0 Mentioned = 1 Particular definitions = 2 Actionable requirements or other specific provisions such as procedures, requirements, limitations = 3	
64.	Domain names	Domain names	Not mentioned =0 Mentioned = 1 Particular definitions = 2 Own article/ includes specific provisions etc. = 3 Unlike other IP rights, the registration of domain names is global rather than territorial in scope. Access to the websites that correspond to their URLs are uninhibited by national borders. Further, the successful registration of a domain name in one part of the world precludes the registration of that domain name in every other part of the world. The registration of domain names is not managed by national IP authorities but generally by organizations accredited by the Internet Corporation for Assigned Names and Numbers (ICANN). As a non-state entity, much of ICANN's responsibilities and activities are neither based in, nor driven by the legislation of any country.	
65.	Geographical indications (1/3)		Not mentioned =0 Defined as protected subject matter = 1 Trade marks/registered marks trump geographical indications = 2 Geographical indications trump trademarks= 3 A geographical indication (GI) is a sign used on goods that have a specific geographical origin and possess qualities, reputation or characteristics that are essentially attributable to that place of origin. Most commonly, a GI includes the name of the place of origin of the goods. Agricultural products typically have qualities that derive from their place of production, such as climate and soil. GIs may be used for a wide variety of products, whether natural, agricultural or manufactured. One example of a GI is "Darjeeling", applied to tea from that region of India.	
66.		Appellation of origins	Not mentioned =0 Mentioned = 1 Particular definitions = 2 Actionable requirements or other specific provisions= 3 An appellation of origin is a special kind of geographical indication generally consisting of a geographical name or a traditional designation	

			used on products which have a specific quality or characteristics that are essentially due to the geographical environment in which they are produced.	
67.		Protected Gis specified in annex	Not mentioned =0 Yes=1	
68.	Traditional knowledge (1/3)		Not mentioned =0 Mentioned = 1 Particular definitions, cooperation procedures etc =2 Actionable requirements such as remedies, collective registration, procedures for enforcement etc. =3 Traditional knowledge and genetic resources (TK-GR) are not covered in the TRIPS Agreement. However, these subjects are evolving and controversial areas of the international IP debate. It is both interesting and important to determine how these issues are being dealt with in the parallel system of proliferating RTAs given the lack of agreement on these subjects in the WTO context, and the continuing work of WIPO's Intergovernmental Committee to conclude international instruments in this area. Though TK-GR relate to distinct subject matter, they are included in the same category for the purposes of this paper because legislative and policy debates tend to cover them together.	
69.		Folklore	Not mentioned =0 Mentioned = 1 Definitions, cooperation procedures etc. =2 Remedies, collective registration, procedures for enforcement etc. =3	
70.		Genetic resources	Not mentioned =0 Mentioned = 1 Definitions, cooperation procedures etc =2 Remedies, collective registration, procedures for enforcement etc. =3	
71.	Designs (1/3)	Designs	Not mentioned =0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. =3	
72.		Layout design of integrated circuit	Not mentioned =0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. =3 An integrated circuit (IC) is an electronic circuit with its elements integrated into some medium, thus creating a single functional unit. Integrated circuits are utilized in a large range of products, including articles of everyday use, such as watches, television sets, automobiles and data processing equipment. Note: The terms "integrated circuit", "semiconductor" and "silicon chip" are used synonymously.	
73.		Industrial design	Not mentioned =0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. =3	
74.	Trademarks		Not mentioned =0 Mentioned = 1 Definitions = 2 Remedies, period, procedures for enforcement etc. =3	
75.		Collective marks	Not mentioned =0 Mentioned = 1 Definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3	
76.		Country names	Not mentioned =0 Mentioned = 1 Definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3	
77.		Nontraditional trademarks	Not mentioned =0 Mentioned = 1 Definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3	

78.	Patents			
79.		New plant varieties	Not mentioned =0 Mentioned = 1 Definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3 WTO Members that do not provide patent protection for new plant varieties are required to protect plant varieties through a system created especially for this purpose (sui generis system). Members also have the option of using a combination of patents and a sui generis system. The main sui generis system for the protection of plant varieties at the international level is contained in the convention establishing the International Union for the Protection of New Plant Varieties (the UPOV Convention). This Convention is administered by the Geneva-based Union internationale pour la protection des obtentions végétales.	
80.		Utility models	Not mentioned =0 Mentioned = 1 Definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3	
81.		Patents	Not mentioned =0 Mentioned = 1 Definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3	
82.		Specific pharmaceutical provisions	Not mentioned =0 Mentioned =1	
83.		List specific things which may be excluded	Not mentioned =0 Mentioned =1	
84.		Exceptions to patent rights (allowed)	Not mentioned =0 Mentioned =1 Exceptions allowed = 2 Exceptions allowed with consequences for breach=3 Ex. Exceptions or exclusions to exclusive rights – Article 17.20 of the Australia - Chile RTA provides that a party may permit limited exceptions to the exclusive rights conferred by a patent, provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties.	
85.		Exceptions to patent rights (not allowed)	Not mentioned =0 Mentioned =1 Exceptions disallowed = 2 Exceptions disallowed with consequences =3	
86.		New use (allowed)	Not mentioned =0 Mentioned =1 New use allowed = 2 New use allowed with consequences for breach= 3 Ex. Patentability of new uses – Article 21 of Decision 486 by the Andean Community provides that products or processes that are already patented may not form the subject matter of a new patent owing to the fact of having a use different from that originally provided for in the first patent.	
87.		New use (not allowed)	Not mentioned =0 Mentioned =1 New use not allowed = 2 New use not allowed with consequences for breach= 3	
88.		Patent ability criteria/ patent subject matter	Not mentioned =0 Mentioned =1 Limitations allowed = 2 Limitations allowed with consequences for breach= 3 Ex.	

			Patentability criteria or patent subject matter – Article 130.1 of the Japan - Thailand RTA provides that patents be made available for any inventions in all fields of technology provided that they are new, involve an inventive step and are capable of industrial application.
89.		Patent ability criteria/ patent subject matter (limitations not allowed)	Not mentioned =0 Mentioned =1 Limitations not allowed = 2 Limitations not allowed with consequences =3
90.		Test data exemption/ data protection provisions/ minimum period	Not mentioned =0 Mentioned = 1 Particular definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3 Ex. Data protection – Article 3 of Annex XIII to the EFTA – Korea, Republic of RTA requires the Parties to prevent applicants for marketing approval for pharmaceuticals products from relying on undisclosed test data submitted for marketing approval by a first applicant "for an adequate number of years", to be determined by the relevant regulations of the Parties. Any Party may instead allow applicants to rely on such data if the first applicant is adequately compensated. Minimum period of data protection – Article 1711.6 of the NAFTA requires that, normally, no person other than the person submitting test data may, without permission, rely on such data in support of an application for product approval during a period of not less than five years after approval is granted to the person that produced the data.
91.		Patent linkage (i.e. linking approval of medication to patent status)	Not mentioned =0 Mentioned = 1 Particular definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3 Ex. Patent linkage – Article 18.9.5 of the Korea– US RTA provides that the marketing approval process for pharmaceuticals include measures to prevent third parties from marketing a patented product during the term of that patent without the consent of the patent owner.
92.		Novelty grace period	Not mentioned =0 Mentioned = 1 Particular definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3
93.		Term extensions of patent protection (e.g. due to marketing approval)	Not mentioned = 0 Mentioned =1 Ex. Term extensions of patent protection – Article 2(b) in Annex XIII of the EFTA – Korea, Republic of RTA requires parties to provide in their national laws a compensatory term of protection for pharmaceuticals of up to five years for curtailment of the patent term as a result of the marketing approval process.
94.		Patenting period	Not specified = 0 Specified =1
95.		Compulsory licensing (allowed)	Not mentioned = 0 Mentioned = 1 Compulsory licensing enabled in certain circumstances = 2 Compulsory licensing enabled with consequences for breach = 3 Ex. Compulsory licensing – Article 1709.10 of the NAFTA setting out conditions for the granting of compulsory licences, including requirements that such licences be non-exclusive and non-assignable, be predominantly to supply the domestic market, efforts be made to obtain authorization from the right holder and this be paid adequate remuneration, and do not authorize the use of the subject matter of a patent to permit the exploitation of another patent except as a remedy for violation of domestic competition laws.

96.		Compulsory licensing (not allowed)	Not mentioned = 0 Mentioned = 1 Compulsory licensing not enabled in certain circumstances = 2 Compulsory licensing not enabled with consequences for breach = 3	
97.		Public Order Exception	Not mentioned = 0 Mentioned =1 Particular definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3	
98.		Generic Entry	Not mentioned = 0 Mentioned =1 Particular definitions = 2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3	
99.		Parallel importing (allowed)	Not mentioned =0 Mentioned = 1 Allowed =2 Allowed with consequences for breach =3 A parallel import is a non-counterfeit product imported from another country without the permission of the intellectual property owner.	
100.		Parallel importing (not allowed)	Not mentioned =0 Mentioned = 1 Not allowed =2 Not allowed with consequences for breach =3	
101.	Enforcement	Border measures	Not mentioned =0 Mentioned = 1 Particular definitions =2 Actionable requirements such as remedies, period, procedures for enforcement etc. =3 An IP border measure provision is identified as an obligation to undertake action related to the treatment of IP at a party's border. This includes an obligation to cooperate, exchange information, or to form committees on border or customs procedures for IP. ASEAN - Australia - New Zealand, Article 9.6 provides that: "Parties shall co-operate on border measures with a view to eliminating trade which infringes intellectual property rights. Parties who are members of the WTO shall also cooperate with each other to support the effective implementation of the requirements relating to border measures set out in Articles 51 to 60 of the TRIPS Agreement."	See customs or trade facilitation chapter – with specific provisions on IPR
102.		Penalties	Not mentioned =0 Mentioned = 1 Particular definitions =2 Limits, thresholds, procedures set =3	
103.		Criminal measures	Not mentioned =0 Mentioned = 1 Particular definitions =2 Limits, thresholds, procedures set =3	
104.		Civil measures	Not mentioned =0 Mentioned = 1 Particular definitions =2 Limits, thresholds, procedures set =3	
105.		Provisional measures	Not mentioned =0 Mentioned = 1 Particular definitions =2 Limits, thresholds, procedures set =3 3	
106.		Service provider liability (limited)	Not mentioned =0 Mentioned = 1 Liability limited (safe harbour)=2 Liability limited with consequences for breach = 3	
107.		Service provider liability (not limited)	Not mentioned =0 Mentioned = 1 Liability not limited (safe harbour)=2 Liability not limited with consequences for breach = 3	

108.		General provisions on enforcement	Not mentioned =0 Mentioned = 1 Particular definitions =2 Limits, thresholds, procedures set =3 A typical approach is the inclusion of a brief statement obliging parties to "provide in their respective laws for the enforcement of intellectual property rights consistent with the TRIPS Agreement." Korea, Republic of – India, Article 12.4	
109.		Dispute settlement (included)	Not mentioned =0 Mentioned = 1 IPRs included in dispute mechanism = 2 IPRs included with additional provisions and details = 2	
110.		Dispute settlement (excluded)	Not mentioned =0 Mentioned = 1 IPRs not included in dispute mechanism = 2 IPRs not included with additional provisions and details = 2	
111.		Investor state dispute settlement	Not mentioned =0 Mentioned = 1 Particular definitions =2 Limits, thresholds, procedures set =3	
112.		Non-violation Complaints	Not mentioned =0 Mentioned = 1 Particular definitions =2 Limits, thresholds, procedures set =3 Under WTO rules, non-violation complaints are possible for goods and services. The TRIPS Agreement provides that non-violation complaints shall not apply to TRIPS Agreement disputes for five years from 1 January 1995, the date of entry into force of the WTO Agreement. This "moratorium" has since been repeatedly extended and it is still in force. Some Members consider that non-violation cases should be allowed under the TRIPS Agreement, while others would like to see the moratorium made permanent. Discussion on the moratorium to be discussed in the next Ministerial Meeting in June 2020 in Kazakhstan.	
113.		IPR defined as investments explicitly	No =0 Yes e.g. through a passing mention or explicit inclusion in a list of covered subject matter=1	
114.	IPR in Chapters		How are IPR captured in FTAs	
115.		IPR Chapter	18 of 22 new treaties had a separate IP chapter	
116.		Investment Chapter	As covered investment	
117.		Cooperation Chapter	Where found many IPR cooperative indicators scored in above index	
118.		SOEs Chapter	Would be interesting to look at connection btw SOEs, competition, and IPR protection	
119.		Government Procurement Chapter	Usually as exemption / exception for IPR protection and uses	
120.		Customs & trade facilitation Chapter	Border measures	
121.		SMEs Chapter		
122.		Trade in Goods Chapter		
123.		Services and e-commerce Chapter	Ex. Japan-EU Chapter 8 Trade in Services, Investment Liberalisation And Electronic Commerce. Section F. E-Commerce (IPR protection around source code discloser requirements)	

TURUN
YLIOPISTO
UNIVERSITY
OF TURKU

Painosalama, Turku, Finland 2022

ISBN 978-951-29-8812-9 (PRINT)
ISBN 978-951-29-8813-6 (PDF)
ISSN 0082-6987 (Print)
ISSN 2343-3191 (Online)