

ORIGINAL ARTICLE

# Mapping the New Frontier of International IP Law: Introducing a TRIPs-plus Dataset

Jean-Frédéric Morin<sup>1\*</sup> and Jenny Surbeck<sup>2</sup>

<sup>1</sup>Canada Research Chair in International Political Economy, Université Laval and <sup>2</sup>World Trade Institute, University of Bern  
\*Email: [Jean-frederic.morin@pol.ulaval.ca](mailto:Jean-frederic.morin@pol.ulaval.ca)

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## Abstract

This article introduces a new dataset on the intellectual property (IP) provisions included in preferential trade agreements (PTAs) and makes it available for research and policy communities alike. Several PTAs include IP commitments that go well beyond the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). A sound knowledge of these TRIPs-plus commitments is essential in order to improve our understanding of what drives them and of their legal, social, and economic consequences. Yet, until now, these provisions have not been mapped in a comprehensive and systematic way. The T + PTA dataset fills this gap by documenting the existence of 90 types of IP provisions in 126 agreements signed between 1991 and 2016. We show that, even for like-minded countries, significant variations exist in their reliance on TRIPs-plus provisions, their degree of consistency across PTAs, and their preferences for some IP rights. We also find that strong TRIPs-Plus provisions are correlated with the depth of PTAs, the asymmetry between trade partners, and the strength of their domestic IP law. By making the T + PTA dataset available, we hope to create the opportunity for a new generation of research on TRIPs-plus agreements.

**Keywords:** intellectual property; TRIPs; patent; copyright; preferential trade agreements; Bilateralism

## 1. Introduction

Preferential trade agreements (PTAs) are at the forefront of international intellectual property (IP) law. Many of them include commitments that go beyond the minimum standards set out in the World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). These PTAs extend the duration of copyright protection, strengthen patent rights, and broaden the scope of trademark protection (Drahos, 2001).

Until now, the TRIPs-plus provisions included in PTAs have not been mapped in a comprehensive, detailed, and systematic way. Yet, a sound knowledge of the IP standards covered by PTAs is essential in order to improve our understanding of what drives them and of their impact. This article attempts to fill the gap by introducing a new dataset on the TRIPs-plus provisions included in PTAs: the T + PTA dataset, which is available for research and policy communities alike.

The need for a dataset on the IP provisions found in PTAs has become acute, as multilateral negotiations no longer provide the focal point for strengthening IP protection. Over the last 20 years, coalitions of developing countries and NGO activists have fiercely criticized multilateral IP forums for being biased in favor of IP holders (Helfer, 2004; Yu, 2006; May, 2007; Kapczynski, 2008; Hauns and Shadlen, 2009; Muzaka, 2011; Sell and Prakash, 2004; Morin, 2014). As a result of this antagonism, several multilateral efforts to strengthen IP protection have failed. The World Intellectual Property Organization (WIPO), for example, dropped the project of a Substantive

Patent Law Treaty in 2006. During the Doha Round, members of the World Trade Organization chose not to include the strengthening of patent and copyright protection on the negotiation agenda. In 2011, a group of ten countries concluded the Anti-Counterfeiting Trade Agreement (ACTA), outside the realms of any intergovernmental organization. However, this multilateral agreement is unlikely to come into force after the European Parliament announced that it would not ratify it. In this context, proponents of stronger IP protection have questioned the value of multilateralism for strengthening IP protection and focused their attention on bilateral and regional trade agreements instead.

The shift from multilateralism to bilateralism and regionalism is not unique to IP. PTAs are at the cutting edge of several other trade-related issues, including public procurement, e-commerce, and service liberalization. However, the consequences of this shift are particularly significant for IP for three main reasons. First, several PTAs involve countries that have different interests when it comes to knowledge protection (Shadlen, 2005; Chen and Puttitanun, 2005). Businesses from the most advanced economies own patents, copyrights, and trademarks, and could benefit from the upward harmonization of IP law. In 2017 alone, the United States received more than US\$ 128 billion in royalties and licensing fees from foreign countries (World Development Indicators, 2018). In contrast, several net importers of knowledge want to provide lower levels of protection so they can acquire foreign technologies and guarantee minimum retail prices for IP protected goods. Since several PTAs bring together IP-intensive economies with net importers of knowledge, the negotiation of IP chapters is often taking place in a zero-sum game. If one assumes that the domestic law in place at the time of the PTA negotiation is considered by negotiating parties as their optimal level of protection, any required change is a concession made to the other party. In this context, a dataset of the IP provisions in trade agreements can reveal the extent to which power imbalances influence the content of treaties. A fine-grained dataset could also help unravel the broad categories of 'high-income countries' and 'developing countries' to unpack the variations in country preferences across different dimensions and along continuums.

The second particularity of TRIPs-plus agreements is their impact on third countries. The TRIPs' most-favored nation clause automatically extends bilateral and regional commitments on IP to all WTO member countries. A PTA requirement to extend copyright protection to 70 years, for example, would benefit not only copyright holders who are residents of a party to this PTA, but also all copyright holders from WTO member countries. This means that a country can define the IP scene and set new global standards, PTA by PTA.

Third, TRIPs-plus provisions can have significant economic and social consequences. Several authors have already expressed their concerns over the impact of TRIPs-plus provisions in developing countries. For example, the effect of patent term extension on access to affordable medicines is frequently raised (Abbott, 2004; Correa, 2006; Morin, 2006; Krikorian and Szymkowiak, 2007; Lindstrom, 2009). Other issues include the affordability of copyrighted educational material, the capacity of farmers to replant seeds from the previous season, and the possibility for governments to require the commercialization of a patented invention that could reduce greenhouse gas emissions (Baker *et al.*, 2017). Despite the seriousness of these concerns, the prevalence and magnitude of the adverse social effects remain uncertain. There is no sufficiently comprehensive dataset capable of analyzing the effect of TRIPs-plus provisions in isolation.

The potential impacts of TRIPs-plus provisions on the innovation rate and trade and investment flows are equally important (Maskus and Ridley, 2016). In theory, increased levels of IP protection can create additional incentives for investment in research and development. Stringent regulations can also restrict trade and impede the development of new industrial inventions and artistic creations. The empirical literature on the economic consequences of IP law remains inconclusive and presents conflicting results. Some studies point to net positive effects (e.g. Chen and Puttitanun, 2005) and others claim that net effects are negative (e.g. Hudson and Minea, 2013). The new T + PTA dataset could shed light on these issues and help strike a balance between too little and too much IP protection.

Existing datasets lack the scope and depth to explore these questions. Several studies on TRIPs-plus provisions are limited to agreements involving the United States (US) (Fink and Reichenmiller, 2006; Krikorian, and Szymkowiak, 2007; Osgood and Feng, 2018; Morin and Gold, 2014), the European Union (EU) (El Said, 2007; Drexler, 2014; Moerland, 2017), or a combination of both (Pugatch, 2007; Lindstrom, 2009; Cottier *et al.*, 2017). This limited coverage is problematic given that a number of TRIPs-plus agreements do not include the US or the EU. Limiting the analysis to PTAs involving the US and/or the EU introduces significant bias and is likely to overestimate the marginal impact of the PTAs being studied. A comprehensive study that covers all TRIPs-plus agreements is necessary to understand their drivers and impacts.

Some studies have considered a broader set of PTAs, but have failed to code their IP provisions in detail (Valdés and Tavengwa, 2012; Seuba, 2013; Maskus and Ridley, 2016; Hofmann *et al.*, 2017). They make no distinction between PTAs that include TRIPs-plus measures and those that merely duplicate the content of the TRIPs agreement (which WTO members have to comply with anyway). Yet, before we can assess the social, political, and economic consequences of TRIPs-plus agreements, we must first identify the full sequence of TRIPs-plus agreements signed by a given country and find out exactly what issues they cover. This article and the T + PTA dataset presented seek to fill the knowledge gap.

## 2. The T + PTA Dataset

To create a comprehensive dataset of the TRIPs-plus provisions included in PTAs, we first considered the compilation of PTAs established by the Design of Trade Agreements (DESTA) dataset (Dür *et al.*, 2014). In terms of scope and depth, it is by far the most comprehensive dataset on PTAs. DESTA collected information on more than 1,160 PTAs that were concluded from 1947 to 2016, including sectoral agreements, customs unions, and free trade agreements. Some PTAs are still in force, some have expired, and some were never ratified. DESTA also collected the full texts of most of the agreements and coded for the existence of provisions on various issues, including market access, services, investment, public procurement, and competition. As the PTAs included in the T + TPA dataset use DESTA identification numbers, the T + TPA dataset is inter-operational with other DESTA-based datasets, enabling researchers to determine, for example, whether TRIPs-plus provisions are correlated with provisions on investment protection or biodiversity conservation.

Most PTAs, especially those that were signed before the conclusion of the 1994 WTO agreements, do not include provisions on IP. From the original list of 1160 PTAs, Surbeck ([forthcoming](#)) identified 145 agreements that include specific commitments on IP, of which 126 include commitments that go beyond the minimal requirements of the TRIPs agreement. The 126 TRIPs-plus agreements were signed between 1991 and 2016 and came into force between 1991 and 2017. In total, 106 different countries from all continents signed TRIPs-plus agreements, including countries that were not WTO members when the PTA was signed.

Our coding of these PTAs includes 90 variables. These variables are grouped into 13 categories, namely: copyright, domain names, encrypted program-carrying satellite signals, enforcement, exhaustion, geographical indications, industrial design, new plant varieties, patents, semiconductors, trademarks, traditional knowledge and genetic resources, and undisclosed information. These categories reflect the sections of the TRIPs agreement, but not all of them are equally prominent across countries. For example, geographical indications are highly prominent in EU treaties yet otherwise are far less dominant. For the EU they have become a key element in negotiating trade agreements as seen for example in the negotiations with Canada and discussions around the protection of Feta, a Greek cheese protected in the EU by geographical indications. Another debated category is the protection of plant varieties, which has led to protest against trade deals such as the agreement between the US and Central American countries, where civil

society groups argued that additional protection for plant varieties would prevent farmers from reusing seeds.

Each category includes between one and 12 dichotomous variables related to specific TRIPs-plus provisions. For example, the copyright category includes six variables, such as whether the PTA prescribes a duration of protection for literary work of 70 years or more beyond the death of the author (Y/N), and whether the PTA protects anti-circumvention of technology protection measures (Y/N). Trademark protection includes nine variables, such as whether sounds can be registered as a trademark (Y/N), if the initial term of protection is more than seven years (Y/N) and if parties are required to provide for an electronic registration system for trademarks (Y/N). Patent protection includes nine variables, such as whether animals are patentable (Y/N), and whether the PTA requires an extension of the patent term to compensate for the delay in commercialization as a result of the examination process (Y/N).

Variables should be understood as groupings of provisions, since there might be legal variation among provisions identified under each of these variables. For example, there are different ways to require the patentability of animals, with different conditions, specifications, and binding status, but they would still be grouped in the T + PTA index under the single variable of ‘patentability of animals’. The complete codebook describing the coded variables for each category is available on the journal’s website.

Variables were selected on the basis of the TRIPs-plus provisions identified in previous research by Fink and Reichenmiller (2006), El Said (2007), Lindstrom (2009), Morin and Gold (2014), Cottier *et al.* (2017), and Gold *et al.* (2018). We added some variables following an inductive exploration of the PTAs. We only excluded TRIPs-plus variables that were highly specific to a particular agreement, were subject to wide range of interpretations, or had limited potential economic or social impacts. We also excluded from this first version of the T + PTA dataset references to other IP treaties and looked only for substantial commitments in the PTA itself.

Coders trained in IP law manually coded all PTAs in a two-stage protocol. In the first stage, they had to identify 90 different variables in each PTA. The codebook (see World Trade Review, [www.cambridge.org/core/journals/world-trade-review](http://www.cambridge.org/core/journals/world-trade-review)) provided coders with a description of each variable, notes regarding inclusion and exclusion criteria, and an example of a provision that fitted the description of the variable. The coding was conducted with the qualitative software NVivo to allow for coding refinement and to facilitate the retrieval of the text of coded provisions. Of course, some coding decisions are open to error and interpretation. For this reason, in the second stage, all PTAs were double-coded by a second coder using the same codebook. Any inter-coder discrepancy was settled by one of the authors of this article. Our inter-coder reliability is particularly high, with an unweighted Cohen’s kappa of  $k = 0.881$  (see Appendix 1). This result suggests that the codebook is sufficiently precise and the T + PTA dataset accurately matches the variables’ description in the codebook.

### 3. Trends and Patterns

In order to analyze the T + PTA dataset efficiently, we created a comprehensive index based on coded variables. The index simply indicates the number of TRIPs-plus provisions included in any given PTA. It allows us to explore the development of TRIPs-plus provisions over time, as well as the patterns that emerged for individual countries and regions. Out of the PTAs with TRIPs-plus provisions, the 2016 Trans-Pacific Partnership (TPP) agreement scored the highest (41), closely followed by the 2014 EU–Georgia agreement (38), the 2014 EU–Moldova agreement (38), and the 2014 Morocco–US agreement (38). On average, TRIPs-plus agreements include 14 different TRIPs-plus variables. Most TRIPs-plus agreements have at least one TRIPs-plus provision on either copyright, trademark, geographical indication, or patent, and an average of six TRIPs-plus enforcement provisions.

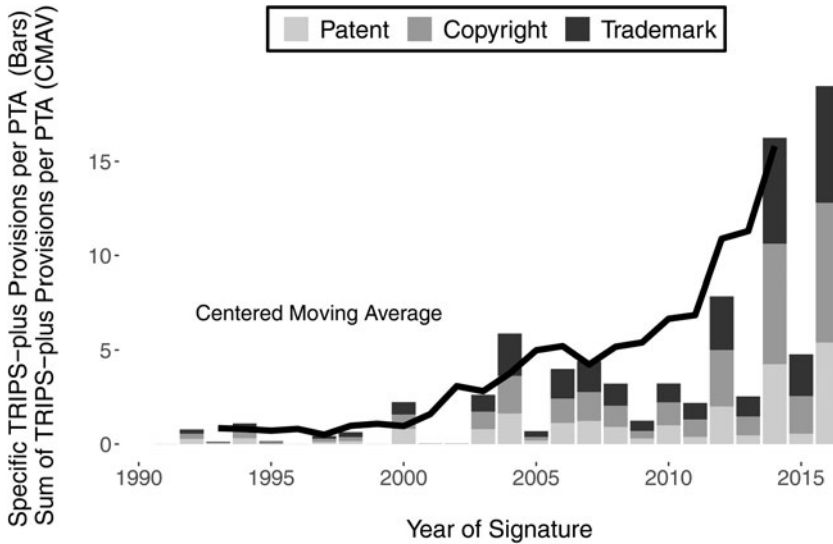


Figure 1. Development of TRIPs-plus provisions in PTAs (moving average of  $\pm 2$  years)

Figure 1 shows how the comprehensive index has developed over time. It is shown as a curve reflecting the average number of TRIPs-plus provisions per PTA with a moving average of  $\pm 2$  years for all 90 variables of the 13 categories. The curve shows that TRIPs-plus provisions started to appear in PTAs even before the TRIPs agreement came into force in 1995. Most PTAs concluded in the early 1990s did not include TRIPs-plus provisions but nine PTAs included several TRIPs-plus provisions. The 1994 agreement between Bolivia and Mexico, for example, scores 19 on the comprehensive index with several TRIPs-plus provisions, for example, on trademarks, undisclosed information, and enforcement.

At the end of the 1990s, the ratio of TRIPs-plus agreements over the total number of PTAs increased, but the average number of TRIPs-plus provisions per TRIPs-plus agreement declined slightly. While TRIPs-plus provisions were becoming a standard feature of PTAs, fewer agreements included a large number of TRIPs-plus provisions. The number of TRIPs-plus provisions per PTA rose again after the launch of the WTO Doha Round in 2001. It plateaued between 2005 and 2010, when the controversial ACTA negotiations drew attention to TRIPs-plus agreements. Since then, a clear upward trend appears in the average number of TRIPs-plus provisions per PTA. This is related to the decline in the number of PTAs focusing only on tariff reduction (related to the denominator), and to the fact that some recent PTAs include several TRIPs-plus provisions (related to the numerator).

Figure 1 also reveals that three categories of variables are responsible for much of the variation in the comprehensive index: namely patent, copyright, and trademark. This is illustrated by the vertical bars in Figure 1 showing the average number of TRIPs-plus provisions related to patent, copyright, and trademark. Those three categories of variables combined account for 60% of all coded TRIPs-plus provisions. The other nine categories such as geographical indications or industrial design are far less important when it comes to explaining variations in the comprehensive index.

However, simply counting the number of TRIPs-plus provisions per category does not allow for comparisons between categories because different numbers of variables are coded per category. To address this issue, we created three sub-indices. For each one, TRIPs-plus variables belonging to a given category were organized into four equally weighted dimensions: scope of protection (25%), duration of protection (25%), rights conferred (25%), and exhaustion (25%).

Values range between 0, in the absence of any TRIPs-plus provisions in the category, to 1 for the maximum score on all dimensions (see Appendix 2 for details of how the sub-indices are calculated).

Figures 2(a)–2(d) provide a closer examination of the development of the sub-indices for four selected entities commonly believed to be leaders in IP protection: the US, the EU, the European Free Trade Association (EFTA), and Japan. For each one, Figures 2(a)–2(d) indicate their PTAs' sub-indices score on patent, copyright, and trademark (organized in chronological order since 1991). We focus on these three IP rights because they make up the highest percentage of TRIPs-plus provisions across PTAs and are thus the most valuable elements for a comparison across different entities. Figures 2(a)–2(d) enable one to visualize how many PTAs each entity has signed, their ratio of TRIPs-plus agreements among these PTAs, their relative importance for three IP rights, their historical evolution, and their consistency.

Figure 2(a) suggests that the US has a clear consistent strategy in terms of TRIPs-plus protection through PTAs. The level of all sub-indices increased significantly after the adoption of the 2002 Trade Promotion Authority, in which the US Congress mandated the US Trade representative to increase IP protection in foreign countries by negotiating trade agreements. From 2004 onwards, the composition of the sub-indices in US PTAs is highly comparable. Out of all the sub-indices, the US gives the most stringent protection to patent, but its trademark scores remain consistently high. Since 1991, the US has signed only PTAs that include TRIPs-plus provisions.

Japan (Figure 2(b)) has the fewest number of PTAs with TRIPs-plus provisions. In addition, Japan's score on the three sub-indices is particularly low. Most of Japan's TRIPs-plus provisions are related to copyright protection, but even this category remains irregular and has a relatively low score. The Trans-Pacific Partnership (TPP) stands out as an exception in Japan's portfolio of TRIPs-plus agreements. The TPP includes several TRIPs-plus provisions, which is the result of US efforts. Following the US withdrawal from the TPP, the remaining 11 parties significantly revised and diluted the IP chapter.<sup>1</sup> Overall, Japan does not seem to have a persistent strategy for TRIPs-plus protection via PTAs. In fact, most of its PTAs do not include any TRIPs-plus provisions.

EU agreements (Figure 2(c)) are heterogeneous. Although the EU protects patent in some PTAs more stringently than copyright and trademark, the level of protection for all sub-indices varies significantly. Only the European PTAs signed in 2014 include TRIPs-plus provisions for all three sub-indices. However, this does not indicate a new European strategy. For example, the EU–Kosovo PTA signed in 2015 does not include any TRIPs-plus provisions. This finding is consistent with studies on other trade issue areas, which show that the EU adapts the content of PTAs to the circumstances that are specific to its trading partners. In contrast to the one-size-fits-all approach of the US and its relatively stable PTA template, the EU appears to tailor its PTAs to its partners' level of economic development, historical ties, and political relations.

Out of the four entities examined, EFTA has the largest number of PTAs with TRIPs-plus provisions (Figure 2(d)). EFTA member states consistently protect patent through their PTAs. Yet, the TRIPs-plus provisions on copyright and trademark seem to play a marginal role in EFTA agreements. This finding comes as a surprise, considering that several Swiss companies in the pharmaceutical, jewelry, and food industries have strong interests to see an increase in trademark protection overseas. One might have expected EFTA states to give as much importance to trademark protection as do the EU and the US.

Although the US, the EU, EFTA countries, and Japan are frequently presented as global leaders keen to promote the upward harmonization of IP (Sell and Prakash, 2004), the T + PTA dataset reveals significant differences between them. Variations occur in the frequency of TRIPs-plus provisions, the degree of consistency across PTAs, and the preferences for some IP

<sup>1</sup>This revised agreement, called the Comprehensive and Progressive Trans-Pacific Partnership was signed in March 2018 and is not included in this first version of the TRIPs-plus database.



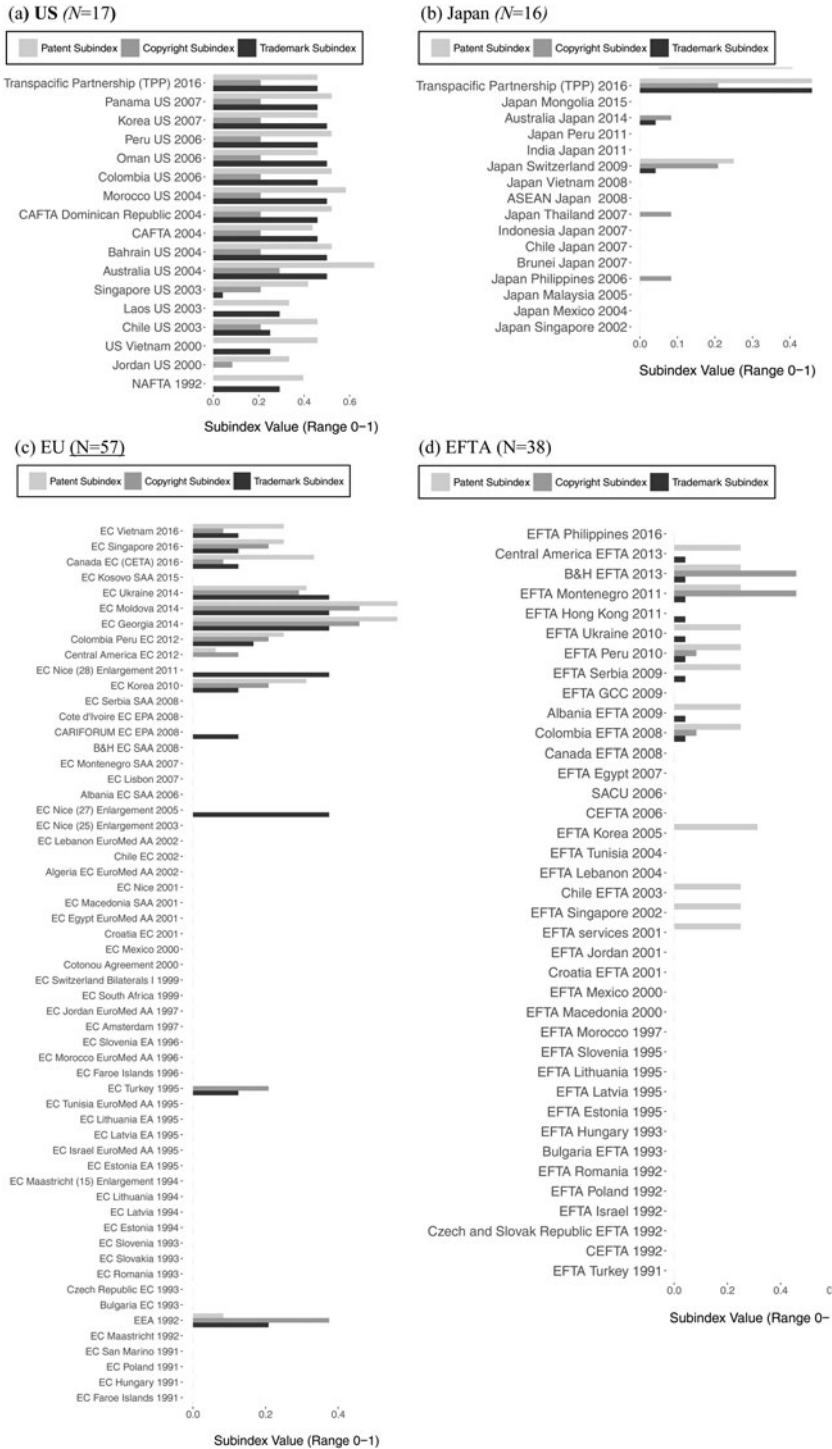


Figure 2. Development of sub-indices for the US, EU, EFTA, and Japan

rights. This confirms that IP leaders do not always adopt the same strategy to promote IP protection globally and that TRIPs-plus agreements should not all be considered as equivalent.

There is also significant variation between PTAs concluded by other countries. For example, the 2008 agreement between Australia and Chile scores 24 on the comprehensive index as a result of several TRIPs-plus provisions related to copyright and trademark (copyright sub-index = 0.21, trademark sub-index = 0.46, patent sub-index = 0.15). The 2014 agreement between China and Korea scores 23 on the comprehensive index, but has considerably lower scores on the three sub-indices (patent sub-index = 0, copyright sub-index = 0.08, trademark sub-index = 0.17). This variation stems from four TRIPs-plus provisions on traditional knowledge and genetic resources and 14 enforcement provisions, which inflate the comprehensive index score. Further studies should be conducted in order to identify the factors that determine the TRIPs-plus provisions and the various consequences that they may have.

Of course, this analysis does not reflect the complete picture of TRIPs-plus provisions in US Japanese, EU and EFTA agreements. Many of these PTAs cover additional IP rights beyond patents, copyrights, and trademarks. Take the case of geographical indication. The US includes TRIPs-plus provisions on geographical indications only in NAFTA and TPP and at a very modest level. In Japanese PTAs, geographical indications account on average for 10% of all TRIPs-plus content, whereas for the EU and EFTA, geographical indications make up on average 20% of all TRIPs-plus provisions. Around 70% of all EFTA agreements cover geographical indications for agricultural as well as non-agricultural products and around 20% of them protect country names. A third of all EU agreements include a list of specific geographical indications to be protected. The complete overview for these four entities can be found in Appendix 3.

#### 4. Bivariate Analysis

In order to illustrate the potential of the T + PTA dataset for quantitative research, we conducted a number of exploratory bivariate analyses. These bivariate analyses cover all 518 free-trade agreements concluded between 1991 and 2016, including those without IP provisions.<sup>2</sup> The purpose of these exploratory analyses is not to make causal inference but to identify descriptive patterns and point to promising avenues for future research. On the basis of the prevailing assumptions in the literature, we considered four factors that are likely to have an impact on the number of TRIPs-plus provisions within PTAs, namely: the depth of the PTA, GDP asymmetry between PTA members, the number of domestic veto players, and the member states' domestic IP law.

One factor that could affect the number of TRIPs-plus provisions within a PTA is the depth of the PTA itself. Here depth refers to the extent to which a PTA constrains its members' policies. We expect the PTA depth score to be positively related to the number of TRIPs-plus provisions for two reasons. First, the same factors that motivate PTA members to address several issue areas in their PTAs (such as their interest in deep economic integration) are also likely to induce them to include an IP chapter. Second, when several issue areas are included in a PTA, trade-offs and bargaining can take place, thus creating opportunities for countries that are keen on TRIPs-plus provisions.

Figure 3 presents the relation between PTA depth and the sub-indices for patent, copyright, and trademark. We use the depth measure created by DESTA. It is an additive index of seven key PTA issue areas, including service trade, public procurement, and investment protection (Dür *et al.*, 2014).<sup>3</sup> The depth measure is then compared to the TRIPs-plus content (as characterized by our sub-indices in a jitter plot).

Figure 3 shows a clear positive correlation between the depth measure and the TRIPs-plus provisions on patent and trademark shown by the linear line with a 95% confidence interval (shaded

<sup>2</sup>Sectoral agreements and side agreements were excluded.

<sup>3</sup>Given that IP is one of the issue areas, we deducted the IP value from the DESTA measure of depth for the analysis.



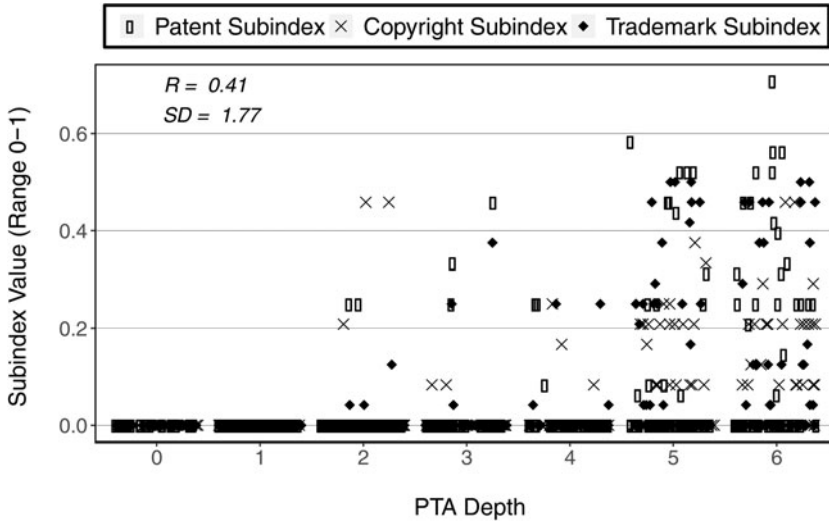


Figure 3. Depth of PTA (jittered)

grey zone). This means that deep PTAs tend to include more substantial provisions on patent and trademark protection than other PTAs. This correlation is primarily driven by US PTAs, which tend to have a high score for depth, as well as for the TRIPs-plus sub-indices. Yet, even when the US is excluded from the dataset, the correlation remains positive. Interestingly, the sub-index for copyright shows greater variance. There are 25 PTAs that have a high score (5–6) for the depth measure, but score 0 for the copyright sub-index.

Power asymmetry is also a factor that can influence the inclusion of TRIPs-plus provisions in a PTA. As the history of WIPO and WTO negotiations show, some net importers of IP can establish coalitions to obstruct multilateral negotiations. However, PTA negotiations break these coalitions and sharpen power asymmetry among negotiating partners. This could explain why net importers of IP accept commitments in bilateral PTAs that they strongly reject in multilateral settings. Thus, we expect that the greater the power asymmetry, the more likely it is that the strongest PTA partner will be able to introduce stringent TRIPs-plus provisions in the agreement.

To explore this relation, Figure 4 plots GDP asymmetry against the sub-indices. The GDP data are drawn from the World Bank database. Data are matched to the corresponding PTA members and to the year when they signed the PTA. GDP asymmetry indicates the difference between the highest and lowest GDP among all PTA members. Figure 4 provides evidence that there is a positive correlation between power asymmetry and the inclusion of TRIPs-plus provisions in PTAs. The correlation is particularly evident in the case of patents and, to a lesser extent, trademarks. Nevertheless, Figure 4 also shows that there are several outlier PTAs, which include a number of TRIPs-plus provisions, despite the low GDP asymmetry between member countries.

The third factor considered is the number of veto players. A veto player is a political actor (e.g. a parliament, a region, a political party, a minister) with the formal or informal capacity to reject an option for a larger group of actors. Their number reflects the distribution of decision-making power within a state (Mansfield *et al.*, 2008: 71). Political systems with a high concentration of power have few veto players (e.g. Russia), whereas diffuse and decentralized political systems have several veto players (e.g. Belgium). We would expect that when more veto players influence the text of the PTA, the less likely it is that an agreement will include TRIPs-plus provisions. In a given state, more veto players means more diverging interests, which are difficult to reconcile within a single agreement (Allee and Elsig, 2017). For example, in a given country, there may be several brand-name pharmaceutical companies, as well as a strong generic industry, which

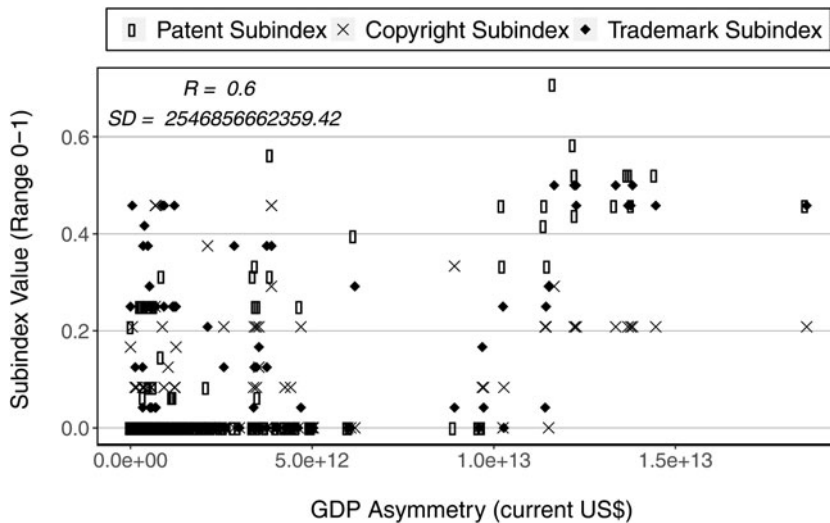


Figure 4. GDP asymmetry

represent different interest groups that can influence policymaking at various levels. Consequently, reaching a national consensus over the inclusion of TRIPs-plus provisions in PTAs can be difficult. Conversely, a highly centralized government may have sufficient control and authority to set clear priorities, negotiate trade-offs, and include very specific regulatory provisions in its PTAs.

Figure 5 illustrates the relation between the three sub-indices and the average number of veto players. The data for the veto players are based on the Political Constraint dataset (Henisz, 2002) and consist of the average veto player value (0–1) for all PTA members. As the data for veto players are only available until 2012, we calculated the bivariate analysis twice. First, we only used PTAs that were signed in 2012 or before. Then, we extrapolated the veto player data for the missing years. The results for the two variations are highly similar. The graphs show the extrapolated data.

Contrary to our assumption, the correlation is positive for all the sub-indices. This suggests that the number of veto players can actually favor the inclusion of TRIPs-plus provisions in PTAs. The highest scoring PTAs for both the veto player measures, as well as the TRIPs-plus sub-indices, include several US and EU agreements. However, other PTAs also show a strong correlation between veto players and the sub-indices, such as the 2012 agreement between Korea and Turkey (copyright sub-index 0.33, veto player average 0.56) and the 1994 agreement between Colombia, Mexico, and Venezuela (copyright sub-index 0.33, veto player average 0.48). One possible explanation for this unexpected finding is that IP holders are significantly more influential than their rival interest groups at the domestic level. In this case, each additional veto player provides the IP holders with a further opportunity to make their case and lobby in favor of TRIPs-plus provisions. In the US, some veto players may even show greater support for a PTA that includes TRIPs-plus provisions (Osgood and Feng, 2018).

In the last bivariate analysis, we examine the relationship between domestic IP law and the T + PTA dataset. The countries that already have several TRIPs-plus measures in their domestic legal system are expected to favor the inclusion of TRIPs-plus provisions in their PTAs. In this way, they can establish a level playing field when dealing with foreign competitors and strengthen their IP rights abroad. Moreover, when countries sign a PTA, they generally agree to implement the IP provisions by the time the PTA comes into force (Deere, 2008). Therefore, there should be a clear positive correlation between domestic IP rules before the PTAs entered into force and TRIPs-plus provisions

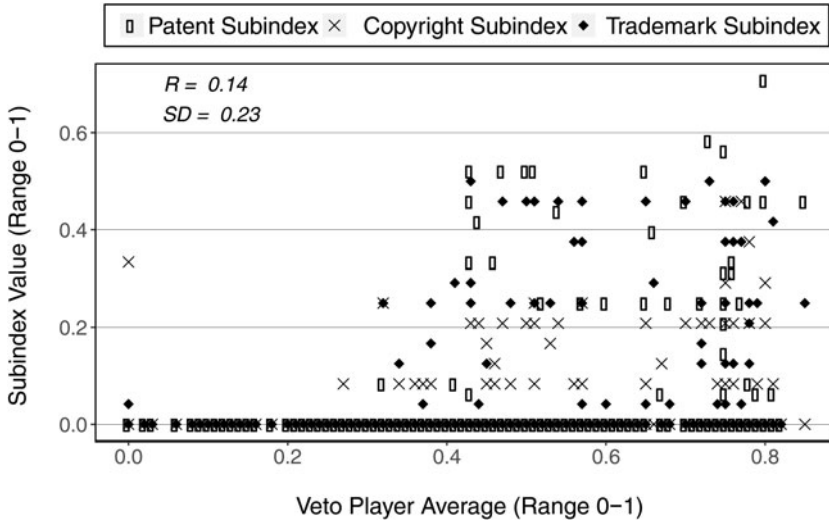


Figure 5. Veto player average

We use the domestic IP index introduced by Gold *et al.* (2018). In contrast to other indexes of domestic IP law, this index focus on TRIPs-plus measures and its components are similar to variables making the T + PTA index. We conducted the analysis twice because these date available for the years 1994–2011. First, we only included PTAs that entered into force up till 2011. Secondly, we extrapolated the domestic data until 2016. A further problem with this dataset is that numerous values are missing and country coverage is incomplete. Nevertheless, it provides the most comprehensive coding of domestic IP law across countries, especially with regard to TRIPs-plus measures. Therefore, when the score for the sub-indices of TRIPs-plus provisions is high, we expect the domestic IP index to have a correspondingly high value.

Figure 6 shows the relation between TRIPs-plus sub-indices and the domestic IP index. As anticipated, we found a positive correlation. A preliminary regression analysis shows high statistical significance for the copyright sub-index ( $p < 0.001$ ), less significance for the trademark sub-index ( $p < 0.1$ ), and no significance for the patent sub-index. When we excluded the extrapolated data for the years 2012–2016, the correlation between the domestic IP index and the copyright index remains statistically significant, although it is lower ( $p < 0.05$ ). None of the other indices appeared to be statistically significant. This suggests that there is a link between domestic IP politics and international trade politics, at least with regard to copyright and trademark protection. Yet, the graph clearly shows that the relation is not as conclusive as we anticipated and that the two measures of IP protection are incongruent. Further research is required to understand how, where, and when TRIPs-plus commitments are actually implemented.

## 5. Toward a Research Program on TRIPs-Plus

By making the T + PTA dataset available on the journal website, we hope to create the opportunity for a new generation of research on TRIPs-plus agreements. It is generally recognized that IP constitutes one of the most controversial issues on the trade agenda. Controversies emerged when the 2001 Declaration on TRIPs and Public Health was adopted at the WTO Doha ministerial conference. In this case, the US government made concessions to obtain the support of African nations before launching a new round of multilateral negotiations. TRIPs-plus measures also generated controversy in 2012, when the European Parliament rejected the ACTA, despite the fact that it had been negotiated and supported by the European Commission. More recently,

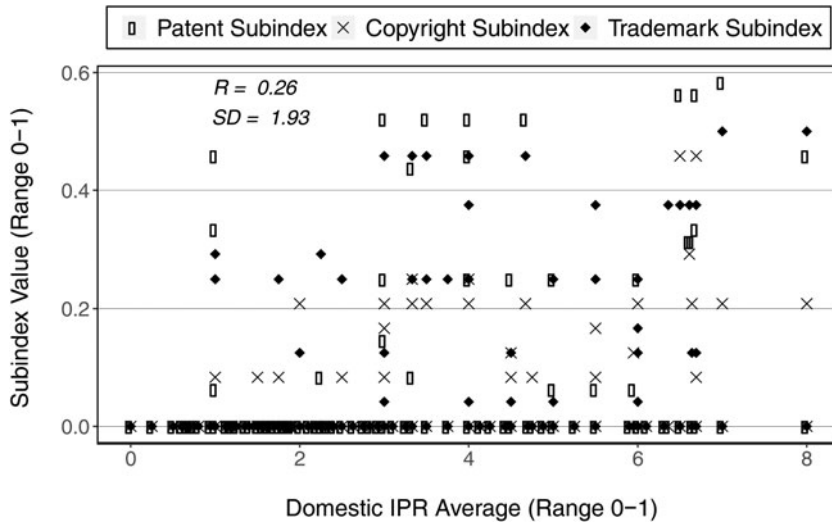


Figure 6. Domestic IPR average


when the US withdrew from the TPP in 2017, the 11 remaining parties chose to maintain most clauses in the agreement, but were quick to remove the least acceptable TRIPs-plus provisions from the trade deal. However, despite these controversies, we know very little about what actually drives TRIPs-plus provisions at the aggregate level and what their systemic consequences are.

The T + PTA dataset should facilitate quantitative research on TRIPs-plus provision, particularly because of its broad coverage and fine-grain coding. So far, research on TRIPs-plus agreements has relied exclusively on qualitative case studies. This approach remains valuable every time researchers are interested in a particular agreement or a particular type of provision. However, the T + PTA dataset opens up possibilities for large N studies and the identification of statistical patterns that would not be observable to the readers of PTAs. It provides a bird's eye view of PTAs and opens new avenues for research on IP.

More specifically, the exploratory analyses conducted in this article point to three different directions for future research. The first promising line of research concerns the links between domestic political economy and the design of TRIPs-plus agreements. Our preliminary findings on the effect veto-players suggest that the influence of certain industrial groups could be an important explanatory factor behind the inclusion of TRIPs-plus provisions in PTAs. However, the role of NGOs remains unclear. Investigating this issue would be an important test for the literature on civil society organizations, particularly because the global campaign for access to patented medicines is often presented as one of the most prominent NGO victories over the WTO. It is uncertain if NGOs can be equally influential at the bilateral level and have an impact on the design of PTAs.

A second interesting line of inquiry focuses on how TRIPs-plus agreements may affect other PTAs. In this article, we show that PTAs increasingly include TRIPs-plus provisions. We also establish that some countries have a stable template for the IP content of their PTAs, but other countries do not. This suggests that certain TRIPs-plus provisions may be diffused through the global PTA network. If so, this could lead to the global convergence of IP provisions or even generate competition between different models of TRIPs-plus provisions. Research on how different TRIPs-plus measures are diffused is important to improve our understanding of the internal dynamics of the fragmented trade system. In addition, it could help assess the prospect of multi-lateralizing TRIPs-plus provisions at the WTO or the WIPO.

Perhaps the most valuable research opportunities provided by the T + PTA dataset concern the impact of TRIPs-plus provisions. As yet, we know little about their effects on trade, foreign direct investments, and international payments in licensing fees. Their impact on domestic law tends to be assumed rather than empirically tested. Our preliminary findings suggest that there is a positive correlation between the TRIPs-plus provisions in PTAs and domestic IP law. However, our results also reveal a gap between the two, a variation that has yet to be explained. Developing the T + PTA dataset and making it available to the research community is a first step to improving our understanding of international IP law.

Author ORCIDs.  Jean-Frédéric Morin 0000-0003-1053-5597

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