How to Evaluate and Respond to IP Provisions under the TPP?

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Abstract: In the context of the IP provisions proposed in the TPP plan, this paper discusses the importance of intellectual property (IP) protection in present day China and makes various policy recommendations. The paper first explains why many have criticized the TPP IP clauses by discussing the different effects of IP protection on economic growth in countries with varying development levels. It then compares the TPP IP clauses with those under existing international treaties and various national laws, and argues that these IP provisions have been largely based on US laws. Thirdly, the paper provides a preliminary assessment of the potential impacts of TPP IP provisions on trade, investment, and economic growth of China and other developing countries, arguing that these provisions would have started to substantially affect the Chinese economy five years after the TPP's implementation. The paper concludes by presenting specific policies and measures China could adopt in response to the IP provisions under the TPP, with a focus on how to further improve IP protection in the country.

Keywords: IP protection, Innovation, The TPP, China

At first glance, China should embrace the high-level intellectual property (IP) protection provisions under the TPP (Trans-Pacific Partnership) for two reasons: firstly, better IP protection encourages innovation; and secondly, the promotion of an innovative economy has become the focus of China's future economic development. However, the IP provisions under the TPP are not only widely criticized by Chinese scholars, they are also negatively viewed by the international community. This paper intends to answer these two questions: Why are the IP provisions under the TPP criticized? And how should China respond to them?

This paper elaborates on the above issues in four parts. Part I analyzes the role of IP protection in innovation, trade, and economic growth, based on rele-

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vant economic theories, with particular attention paid to differences between countries with varying development levels. Part II introduces and discusses key IP provisions under the TPP, with a focus on the comparison between these provisions and those under existing international treaties, existing Chinese laws, and relevant provisions under China's foreign trade and economic cooperation agreements. Part III provides a preliminary assessment of the impacts of IP provisions under the TPP on the trade, investment, and economic growth of China and other developing countries, and then makes corresponding suggestions based on China's basic attitudes and principles regarding those provisions. Finally, Part IV builds on the above discussions to present proposals regarding specific policies and measures China can use to respond to IP provisions under the TPP.

I. IP PROTECTION, INNOVATION, AND ECONOMIC GROWTH

IP protection is a system that aims at stimulating innovation. It grants innovators monopolies on the production and distribution of new products within a given period of time, which helps the innovators to recover their innovation cost and earn investment income. The most common forms of intellectual property rights (IPR) include patents, copyrights, and trademarks, which grant monopolies and provide property rights protection for technical inventions, artistic creations, and product goodwill, respectively.

Innovations such as technical inventions must be protected via the lawful and coercive power of the state, because these intellectual products are largely knowledge and information, and thus bear some basic characteristics of public goods. They are available to many users at the same time, and their producers cannot stop others from using them upon their release to the public. In other words, they have the public goods features of non-rivalry and non-exclusivity. Due to these characteristics, producers of intellectual products could not make a profit by selling their products in the same way as other producers. Consequently, innovators will lack the motivation if they cannot be rewarded the due economic benefits for their innovative outcomes to recoup the huge costs in time, money, and personnel resources that are involved in the innovation process.

This is the fundamental reason for why many countries around the world

provide protection for technical inventions via laws on patents, copyrights, and trademarks. These laws confer IPR, or monopolies on relevant intellectual products, on producers of these products within a certain period of time, which allows innovators to recover their investment costs and earn their due profits. Apart from charging transfer fees by selling their IPR, innovators could also profit from the monopoly right by exclusively producing and selling their intellectual products at higher prices. They could also receive royalty payments by allowing others to use their IPR. These rights and the resultant abilities for economic gains provide innovators with significant innovation incentives. Therefore, IP protection has been the primary means for facilitating innovation in modern economies. Various economic models have also been developed to show that stronger patent protection helps speed up innovation.[1]

However, while promoting innovation, IPR protection may also bring about various defects of monopolies, including reduced consumer surplus and hindrance of future innovation. From a static perspective, monopolistic producers tend to maximize profits by reducing production and selling their products at a price higher than marginal cost. This leads to part of the market demand not being satisfied where consumers are willing to pay more than the production cost, thus lowering social surplus.[2] From a dynamic perspective, as future innovations are based on existing innovations, IPR protection may hinder further innovation for various reasons.[3] In the first place, royalties will be charged by holders of IPR to existing innovations, thereby adding to the cost for future innovations. In the second place, to protect their interests, monopolists of existing innovations might prevent others from using their innovations, which would reduce the extent of future innovations. Moreover, the unclear definition for the scope of IPR may lead monopolists of existing innovations to use methods such as patent thickets to extend their rights and benefits beyond reason-

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1 Richard Gilbert, and Carl Shapiro. (1990, Spring). Optimal Patent Length and Breadth. *The RAND Journal of Economics*, 21(1), 106 – 112; Morton I. Kamien, and Nancy L. Schwartz. (1974, March). Patent Life and R&D Rivalry. *The American Economic Review*. 64(1), 183 – 187; Paul Klemperer. (1990, Spring). How Broad Should the Scope of Patent Protection Be? *The RAND Journal of Economics*, 21(1), 113 – 130; Michael Waterson. (1990, September). The Economics of Product Patents. *The American Economic Review*, 80(4), 860 – 869.

2 W. D. Nordhaus. (1969). *Invention, Growth, and Welfare: A Theoretical Treatment of Technological Change*, Cambridge: MIT Press, Ch. 5.

3 Suzanne Scotchmer. (1991, Winter). Standing on the Shoulders of Giants: Cumulative Research and the Patent Law. *The Journal of Economic Perspectives*, 5(1), 29 – 41; Jim Bessen, and Eric Maskin. (1999). Imitation and Innovation in Complex Markets. *Springer US*, 56(2), 171 – 207.

able points, imposing even more negative effects on future innovations.[4]

Just as the theoretical debate continues regarding the role of IPR protection in promoting innovation, the long line of empirical studies that explore how IPR protection relates to innovation have also failed to reach any consensus on whether IPR protection is conducive to a country's innovation. Analyses based on historical data,[5] have found that patent protection has been essential in promoting invention and motivating innovation. Yet other studies using similar data have shown that innovations are mainly driven by factors other than patents, such as sharing of knowledge,[6] a culture that encourages adventures, and a belief in scientific experiments in certain regions.[7] Still other researchers have challenged whether enhanced patent protection could facilitate innovation.[8]

Instead of trying to find universally applicable principles, some scholars have opted to use theoretical models to determine how other factors affect the role of IPR protection in facilitating innovation, leading to two main findings: Firstly, the level of IPR protection may have a nonlinear relationship with inno-

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4 A patent thicket refers to "a dense web of overlapping intellectual property rights that a company must navigate its way through in order to actually commercialize new technology". This phenomenon imposes substantial difficulties on the commercialization of new technology, resulting in insufficient use of patents and a waste of social resources. *See* Carl Shapiro. (2001). Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting. *Innovation Policy and the Economy*, 1, 119 – 150; Hall, B., and R. Ziedonis. (2001). The Effects of Strengthening Patent Rights on Firms Engaged in Cumulative Innovation: Insights from the Semiconductor Industry. *Entrepreneurial Inputs and Outcomes: New Studies of Entrepreneurship in the United States*, Vol. 13 of *Advances in the Study of Entrepreneurship, Innovation, and Economic Growth*, pp. 133 – 187.

5 B. Zorina Khan, and Kenneth L. Sokoloff. (1993, June). Schemes of Practical Utility: Entrepreneurship and Innovation among Great Inventors in the United States, 1790 – 1865. *The Journal of Economic History*, 53(2), 289 – 307; Lamoreaux, Naomi R., and K. L. Sokoloff. (1999, May). Inventive Activity and the Market for Technology in the United States, 1840 – 1920. *NBER Working Papers*, No.7107; Khan, M., and H. Dernis. (2005, February). Impact of Patent Cooperation Treaty Data on EPO Patent Statistics and Improving the Timeliness of EPO Indicators. *OECD Science, Technology and Industry Working Papers*, OECD Publishing.

6 Allen Robert C. (1983, March). Collective Invention. *Journal of Economic Behavior and Organization*, 4(1), 1 – 24; Alessandro Nuvolari. (2004, May). Collective Invention during the British Industrial Revolution: The Case of the Cornish Pumping Engine. *Cambridge Journal of Economics*, 28(3), 347 – 363; Thomson Ross. (1993). *Structures of Change in the Mechanical Age: Technological Innovation in the United States, 1790 – 1865*, Johns Hopkins University Press, pp. 334 – 335.

7 Joel Mokyr. (2009, May). Intellectual Property Rights, the Industrial Revolution, and the Beginnings of Modern Economic Growth. *The American Economic Review*, 99(2), 349 – 355.

8 Sakakibara Mariko, and M. E. Porter. (2001, May). Competing at Home to Win Abroad: Evidence from Japanese Industry. *Review of Economics and Statistics*, 83(2), 310 – 322; Kortum, Samuel, and J. Lerner. (1998, December). Does Venture Capital Spur Innovation? *Advances in the Study of Entrepreneurship Innovation and Economic Growth*, 13(1), 1 – 44; *See supra* n. 4, Hall, B., and R. Ziedonis (2001); Jean Olson Lanjouw. (1998, October). Patent Protection in the Shadow of Infringement: Simulation Estimations of Patent Value. *The Review of Economic Studies*, 65(4), 671 – 710.

vation. For instance, some researchers find that the duration of patent protection has a U-shaped relationship with innovations.[9] In other words, although IPR protection is conducive to innovation, an extremely long duration of patent protection does not help promote innovation. Secondly, the most appropriate level of IPR protection depends on a country's economic development level, so it is not advisable for developing countries, as technological followers of the developed world, to provide overly strong patent protection.[10]

As for empirical research taking into account of development stages, Wang finds evidence that the optimal level of IPR protection for developed countries is higher than that of developing countries and that the international IPR protection system enforced by developed countries does not seem to suit the practical interests of developing countries.[11] Others also argue against applying the same IPR protection system to all countries, and instead advocate different levels of IPR protection corresponding to differing stages of economic development.[12]

This line of research has important implications for how countries should view various international treaties regarding IP protection. For instance, when weighing whether India should join the TPP, Jayant Raghu Ram concludes that whereas high-level IPR protection is conducive to technological innovation and economic growth of developed countries, it could harm economic and social interests of developing countries.[13] Therefore, as he explains, it is worth considering the distribution of gains among countries during negotiations of international agreements, which depends on differences in levels of economic development and technological innovation. Specifically, in the context where developed countries generally possess most of the IPRs while developing coun-

9 Olivier Cadot, and S. A. Lippman. (1995, February). *Barriers to Imitation and the Incentive to Innovate*, Social Science Electronic Publishing, 95/23/EPS; Andrew W. Horowitz, and Edwin L.-C. Lai. (1996, November). Patent Length and the Rate of Innovation. *International Economic Review*, 37(4), 785 – 801.

10 William D. Nordhaus. (1972, June). The Optimum Life of a Patent: Reply. *The American Economic Review*, 62 (3), 428 – 431; Chin Judith C., and G. M. Grossman. (1991). *Intellectual Property Rights and North-South Trade*, Social Science Electronic Publishing, pp. 87 – 92; Alan V. Deardorff. (1992, February). Welfare Effects of Global Patent Protection. *Economica*, 59(233), 35 – 51; Elhanan Helpman. (1993, November). Innovation, Imitation, and Intellectual Property Rights. *Econometrica*, 61(6), 1247 – 1280.

11 Wang Hua. (2011). Is a More Stringent System on Intellectual Property Protection Conducive to Technological Innovation? *Economic Research Journal*, S2, 124 – 135.

12 Yee Kyoung Kima, Keun Leeb, and Walter G. Park. (2012, March). Appropriate Intellectual Property Protection and Economic Growth in Countries at Different Levels of Development. *Research Policy*, 41(2), 358 – 375.

13 Jayant Raghu Ram. (2016, February). *Crouching Tiger, Hidden Dragon: The TPP's IPR Chapter – Issues and Concerns for India*, Indian Institute of Foreign Trade – Centre for WTO Studies.

tries own only a small portion, strengthened IPR protection would protect the national interests of developed countries while undermining the social welfare of developing countries. This is because most monopolist profits will accrue to individuals or companies in developed countries whereas individuals and companies from developing countries are mostly consumers of intellectual products protected by IPR. Similarly, Gene M. Grossman and Edwin L.C. Lai conduct a game theoretical analysis of the TRIPS Agreement (Agreement on Trade-Related Aspects of Intellectual Property Rights) to conclude that unified IPR provisions would generally protect the interests of developed countries but reduce the welfare of developing countries.[14] In other words, the unified system as captured in the TRIPS Agreement is formulated at the cost of the benefits of developing countries.

Therefore, developed and developing countries of varying development stages will inevitably face huge divergences in their negotiations over TPR protection. Developed countries attempt to help their IPR holders obtain more benefits through strengthened IPR protection. On the contrary, most developing countries hope to lower the level of IPR protection for two reasons: First, consumers in developing countries can access benefits and convenience of modern technologies without paying high license fees; In addition, domestic producers can make further innovations without lengthy negotiations with owners of existing ones. Accordingly, developing countries have made the following criticisms regarding strict IP provisions in the various international agreements: First, goods must be purchased at overly high monopoly prices. Second, low-income patients may be prevented from receiving medical treatment due to their inability to pay for expensive medications. Third, low-income countries may not be able to take action against worsening environment and increasing pollution due to the lack of affordable environmental technologies.

There are also opponents to high-level IPR protection in developed countries. In addition to those who are opposed to all agreements promoting globalization, some opponents, although aware of the importance of innovation in economic development, argue that there are more effective alternatives to facilitating innovation than IPR protection. For example, Lawrence Lessig, a professor at Harvard Law School, formerly on faculty at the University of Chicago and Stanford University, insists that the existing IPR protection system is so

14 Gene M. Grossman, and Edwin L.C. Lai. (2004). International Protection of Intellectual Property. *American Economic Review*, 94(6), 1635 – 1653.

rigid that it plays the opposite role of restraining and stifling innovation.[15]

Although some of the above opinions could be biased, a better understanding of these arguments may help avoid the mistake of focusing too much on the details of IPR-related discussions and thus neglecting the ultimate goal of IP protection to promote technological innovation. For developing countries, although IPR-related agreements signed with developed countries may not promote domestic innovation in the short run, inflow of foreign direct investment and integration into the global value chain could help them improve the long-run prospect for technological innovation. It is essential for China, which has been striving to become an innovation-driven economy, to engage in discussions and negotiations related to international IPR agreements. During the discussions and negotiations, special attention should be paid to the implications of these agreements for the country's domestic innovation capacity to maximize the positive effects and mitigate any potential negative impact.

II. AN OVERVIEW OF KEY IP PROVISIONS UNDER THE TPP

IP provisions under the TPP are essentially based on relevant provisions under the domestic laws of the United States and the bilateral trade and investment agreements between the United States as one party, and Australia, Canada, Chile, Peru, and Singapore, respectively, as the other party. This is evidence for the United States' intention to protect its own technological interests through international trade and economic cooperation agreements.[16] Many of these provisions require higher levels of protection than existing international trade treaties, such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), with some clauses providing protection levels even higher than the domestic laws of most developed countries. The following section will summarize key IP provisions under the TPP to facilitate discussion in the later sections.

Regarding trademarks, the TPP, in comparison with the TRIPS, has raised

15 Lawrence Lessig. (2002). *The Future of Ideas: The Fate of the Commons in a Connected World*, Vintage. Furthermore, infringement of privacy is an additional important reason cited by critics in challenging intellectual property provisions in international negotiations.

16 *see* Legislation to reauthorize Trade Promotion Authority ("TPA").

the level of protection in terms of registration procedures, information disclosure, and scope of application. The TPP stipulates that each Party shall ensure that the initial registration and each renewal of registration of a trademark is for a term no less than 10 years, and shall not require recordal of trademark licenses as a condition for trademark protection. The TPP has also made minimum transparency requirements for members' trademark examination and registration procedures, including publicly accessible databases of trademark applications and registered trademarks. Moreover, the TPP requires stronger protection for trademarks including collective marks and certification marks[17] along with best efforts to register scent trademarks[18]. And it clarifies that a Party shall not deny registration of a trademark based only on the ground that the sign that composes it is a sound. Furthermore, the TPP prohibits the use of a trademark that is identical or similar to a well-known trademark, including subsequent geographical indications. This reaffirms the cross-border protection of unregistered well-known trademarks provided for under FTAs between the United States and other countries[19]. It also requires each party to provide appropriate measures to reject the application or cancel the registration and prohibit the use of a trademark that is identical or similar to a well-known trademark, for identical or similar goods or services, if the use of that trademark is likely to cause confusion with a prior well-known trademark. Regarding a domain name, the TPP requires parties to provide online public access to a reliable and accurate database of contact information concerning domain name registrants. This includes providing appropriate remedies when a person registers or holds, with a bad faith intent to profit, a domain name that is identical or sufficiently similar to a trademark. Apparently, the TPP has particularly strengthened the protection of well-known trademarks, extensively discussed other possibilities

17 These two types of trademarks are believed to be more conducive to the protection of intellectual property interests of SMEs.

18 As for the scope of "Protectable Subject Matter", Article 15.1 provides, "Any sign, or any combination of signs, capable of distinguishing the goods or services of one undertaking from those of other undertakings, shall be capable of constituting a trademark." Containing no provisions on requirements on "visual perceptibility", this article leaves much institutional space for the registration of non-visual marks such as sounds and scents. However, the TPP has made it a clear that trademark protection should be made of sound marks. Besides, the TPP also provides, "each Party shall make best efforts to register scent marks", a lower standard than the provision under the US – South Korea FTA that parties shall not refuse the registration of sound marks.

19 In other words, even an obligee of an unregistered well-known trademark can exclude the use of the trademark on goods or services that are not identical or similar to those identified by a well-known trademark.

for protecting geographical indications[20], and required the prohibition of the registration of inappropriate geographical indications. In light of the United States' advantages in well-known trademarks and the European Union's in geographical indications, these TPP provisions have paved the way for the United States' future TTIP (Transatlantic Trade And Investment Partnership) negotiations with European countries.[21]

Regarding patents, the TPP has raised the level of their protection in terms of approval process and test data. It has required parties to protect secondary use of a patent and grant the patent applicant a grace period of 12 months for public disclosure. The TPP also stipulates that "If there are unreasonable delays in a Party's issuance of patents, that Party shall provide the means to, and at the request of the patent owner, shall adjust the term of the patent to compensate for such delays" and that "an unreasonable delay at least shall include a delay in the issuance of a patent of more than five years from the date of filing of the application in the territory of the Party, or three years after a request for examination of the application has been made, whichever is later." In addition, the TPP requires parties to grant a protection period of at least 5 years from the date of marketing approval over applicants' exclusive rights to undisclosed testing or other data. This provision is mainly aimed at stronger protection for pharmaceutical products. In addition to patents for pharmaceutical products, patent holders' exclusive right to test data will further effectively delay the production and sale of counterfeit pharmaceutical products. Regarding the protection of new varieties of plants and industrial designs, the TPP requires parties to accede to the International Convention for the Protection of Varieties of Plants (UPOV 1991) and the Geneva Act of the Hague

20 As provided under the TPP, "The Parties recognize that geographical indications may be protected through a trademark or *sui generis* system or other legal means."

For instance, in line with Article 18.32 of the TPP, a Party shall provide procedures that allow interested persons to object to the protection or recognition of a geographical indication that is likely to cause confusion with a trademark that is likely to cause confusion with a preexisting trademark. Besides, according to Article 18.32.1(c) of the TPP, a geographical indication shall not be a term customary in common language as the common name for the relevant good in the territory of the Party. This paragraph is aimed at preventing common names for the relevant goods from becoming a private right, and major countries on geographical indications led by the European Union from expanding their interests. This is a permissive provision among IP provisions of the WTO, but a mandatory one under the TPP.

21 These two periods coincide with those under relevant provisions under the US – Chile Free Trade Agreement, but are shorter than the requirement of four years and two years, respectively, under the US – Australia Free Trade Agreement, and that of four years and three years, respectively, under the US – South Korea Free Trade Agreement.

Agreement Concerning the International Registration of Industrial Designs, respectively, both of which provide for the highest level of protection in their fields.[22] Finally, the TPP also advocates parties' cooperation in the area of traditional knowledge (Article 18.16).

The TPP's most significant copyright achievement has been the extension of the term of copyright protection from 50 years under the TRIPS to 70 years. It has also provided two calculation methods based on the natural life of an individual, and from the end of the calendar year of the creation of the work, performance, or recording. Moreover, the TPP also requires parties to provide to authors the exclusive right to authorize or prohibit the communication to the public of their works by wired or wireless means. In addition, the TPP has set stricter and more uniform standards for related criminal procedures and penalties. These are applicable at least in cases of willful importation or exportation of counterfeit trademark goods or pirated copyright goods on a commercial scale, or unauthorized copying of a cinematographic work from a performance in a movie theatre.

Regarding trade secrets, the TPP stipulates that "each Party shall ensure that persons have the legal means to prevent trade secrets lawfully in their control from being disclosed to, acquired by, or used by others (including state-owned enterprises) without their consent in a manner contrary to honest commercial practices." In particular, the TPP stipulates that "Subject to paragraph 3, each Party shall provide for criminal procedures and penalties for one or more of the following: (a) the unauthorized and willful access to a trade secret held in a computer system; (b) the unauthorized and willful misappropriation of a trade secret, including by means of a computer system; or (c) the fraudulent disclosure, or alternatively, the unauthorized and willful disclosure, of a trade secret, including by means of a computer system. It is worth noting that although state-owned enterprises' involvement in the willful misappropriation of a trade secret is included in relevant provisions without special provisions targeting state-owned enterprises' infringement of trade secrets, China should take these provisions seriously, as it requires the imposition of criminal procedures and penalties for state-owned enterprises' infringement on trade secrets.

The TPP also requires parties to take tougher measures against the infringement of IPR. In accordance with the TPP and in addition to treating the willful importation or exportation of counterfeit trademark goods or pirated

22 So far, China has not acceded to the two international agreements.

copyright goods on a commercial scale (as discussed in the previous paragraph) as unlawful activities subject to criminal penalties, each Party shall provide for criminal procedures and penalties applicable in cases of willful importation and domestic use, in the course of trade and on a commercial scale, of a label or packaging. The TPP also provides statutory secondary liability for copyright infringement. As required under the TPP, each Party shall impose "penalties that include sentences of imprisonment as well as monetary fines sufficiently high to provide a deterrent to future acts of infringement, consistent with the level of penalties applied for crimes of a corresponding gravity." The TPP also stipulates that: a. its (each Party's) judicial authorities have the authority to order the forfeiture or destruction of: all counterfeit trademark goods or pirated copyright goods; materials and implements that have been predominantly used in the creation of pirated copyright goods or counterfeit trademark goods; b. each Party shall provide that its competent authorities may initiate border measures *ex officio* with respect to goods under customs control, without the right holder's request for rights; and c. each Party shall provide *ex officio* border enforcement during transit and export.

Regarding exemptions, the TPP has narrowed the application scope of measures necessary to protect public health and nutrition provided under the TRIPS. The exemption scope only includes epidemics such as HIV/AIDS, tuberculosis, and malaria that can represent a national emergency, along with other circumstances of extreme urgency, but excludes all other diseases such as cancer. Table 1 briefly compares the main IP provisions under the TPP with those under the TRIPS. It indicates that IP provisions under the TPP have greatly enhanced the protection of IP.

In summary, at the urging of the United States, the TPP requires parties to ratify or accede to international agreements providing for the highest level of IPR protection, with the intention to improve the level of IPR protection in fields such as new varieties of plants, while in others realizing a higher level of

Table 1. Comparison between the Main IP Provisions under the TPP and Those under the TRIPS

	TRIPS	TPP
General Obligations	1. Members may adopt measures necessary for protecting public health and nutrition 3. Decisions on a case's merits shall preferably be written and reasoned 4. Technical assistance and information exchange on the trade of infringed goods	1. Narrows the application scope of measures necessary for protecting public health and nutrition 2. Requires parties to ratify or accede to international agreements at the highest level of protection 3. Transparency requirements for publishing publicly accessible information online 4. Patent cooperation and work sharing

(Continued from Previous Table)

	TRIPS	TPP
Trademark	1. Contains no provisions for "visual perceptibility", protecting trademarks such as sounds 2. Initial registration and each renewal of trademark registration for a term of no less than 7 years 3. Fails to clarify whether parties shall require recordal of trademark licenses 5. Provides for the scope of exclusive rights to registered trademarks 6. Provides for the cross- border protection of registered well-known trademarks	1. Clear provisions have been made on the protection of collective marks, certification marks, and sound marks, and best efforts shall be made to register scent marks 2. Initial registration and each renewal of trademark registration for a term of no less than 10 years 3. No Party shall require recordal of trademark licenses as a condition for trademark protection 4. Each Party shall provide a publicly available electronic information system, including an online database, of trademark applications, registrations, disputes, and revocation of registered trademarks 5. Expands the scope of exclusive rights to registered trademarks to include geographical indications 6. Provides for the cross-border protection of registered well-known trademarks
Geographical Indication	Only provides for the use of any means in the designation or presentation of a good that indicates or suggests that the good in question originates in a geographical area other than the true place of origin in a manner which misleads the public as to the good's geographical origin	Provides for protection over the geographical indication that is likely to cause confusion with a pre-existing trademark, geographical indication, or common name; and has made relevant provisions on "common name"
Domain Name	No relevant provisions for domain name	1. Parties shall offer online public access to a reliable and accurate database of contact information concerning domain name registrants 2. Appropriate remedies shall be available at least in cases in which a person registers or holds, with a bad faith intent to profit, a domain name that is identical or confusingly similar to a trademark
Copyright and Related Rights	A copyright period of 50 years	A copyright period of 70 years
Technological Protection Measures (TPMs) & Rights Management Information (RMI)	No relevant provisions	Relevant provisions have been made in a special charter
Internet Service Providers (ISP)	No relevant provisions	Provides legal remedies and establishes or maintains appropriate safe harbors regarding online services that are ISPs
Patent	1. No protection over secondary uses of patents 2. No grace period 3. No provisions on the adjustment of a protection period 4. Protection of undisclosed tests or other data	1. Protection over secondary uses of patents 2. A grace period of 12 months 3. Provides for adjustments in the protection period 4. Enhanced efforts and an enlarged scope of the protection of undisclosed tests or other data 5. Patent linkage
Trade Secrets	Only contains some principled provisions	1. Clearly provides that trade secrets be prevented from being disclosed to, acquired by, or used by others (including state-owned enterprises) 2. Clearly provides that each Party shall provide for criminal procedures and penalties
Encrypted Program-Carrying Satellite and Cable Signals	Contains no relevant provisions	Contains relevant provisions Each Party shall provide for civil remedies and criminal penalties
Government Software Use	Contains no relevant provisions	Contains relevant provisions
Enforcement Practices Regarding IPR	1. Physical products 2. Criminal penalties 3. Civil penalties 4. Border measures	1. Digital and physical products 2. Enhanced efforts and an enlarged scope for criminal penalties 3. Enhanced effort and an enlarged scope for civil penalties 4. Border measures, *ex officio*, goods in transit

IP protection than under the TRIPS. For the United States, this helps to not only maximize its own benefits but also make the TPP the blueprint for the next generation of international IPR regulations. Specifically, the TPP reflects the United States' technological and economic interests in the following ways. Firstly, IP provisions under the TPP are based on US domestic laws, providing for extensive and strong protection of IPR. In particular, some provisions grant special protections over film, technology, and related industries, demonstrating the influence of these industries on the United States Trade Representative. For example, regarding provisions for Internet Service Providers (ISPs), the relevant provisions under the TPP require each Party to ensure that legal remedies are available for right holders to address copyright infringements and shall establish or maintain appropriate safe harbors regarding online services that are ISPs. However, eligibility for the limitations mentioned in Paragraph 1 shall not be conditioned on an ISP monitoring its services or seeking proof of infringing activity. Meanwhile, these provisions also require parties to provide legal incentives for ISPs to cooperate with copyright owners to deter the unauthorized storage and transmission of copyrighted materials or to take other actions to deter the unauthorized storage and transmission of copyrighted materials. Compared with other provisions, these provisions, which provide for extremely high protections over ISPs, are evidence for the United States' protection over leading companies in its own telecommunications industry.

However, it is worth noting that the United States was also forced to compromise on some IP provisions. The original version of the IP provisions under the TPP submitted by the United States included some clauses that exceeded even the protection level provided for under its domestic laws. For example, to prevent parallel imports, the original version required members to restrict the principle of exhaustion of copyrights to domestic sales, which was inconsistent with the First Sale rule under US domestic laws. The original version also attempted to incorporate some of United States' newly adopted domestic provisions on higher-level protections into the TPP, including granting a 12-year market monopoly to biologics, which did not even make into bilateral free trade agreements signed between the United States and other countries. However, these proposals in the original version were not adopted in the final version of the TPP, which was more concise, general, and flexible than other bilateral free trade agreements recently signed between the United States and other

countries, such as the US – Korea Free Trade Agreement.[23]

As a result, although the TPP fails to extend the level of IP protection beyond that of US domestic laws, it has undoubtedly provided for a higher level of protection than the TRIPS. This means that many TPP parties would have to amend their own domestic laws. For example, Canada, Japan, and New Zealand must amend their own copyright laws to match IP provisions under the TPP by extending the copyright protection period from 50 to 70 years. However, China's IP laws are essentially based on TRIPS standards. Prior to its accession to the WTO in 2001, China also formulated and revised many relevant domestic laws to comply with TRIPS requirements. Only 10-plus years later, however, while China is still working on implementing these laws and regulations, a new set of international rules were formulated, which again made China's existing legal system outdated. This is exactly the United States' strategic intent for advancing the TPP, to make China a consistent follower of established rules that must comply with new standards set by other countries. This being the case, how should China respond to the challenges of IP provisions under the TPP? To answer this question, we will begin with a discussion of the possible impacts of the TPP on China and the attitudes of developing countries toward these provisions.

III. ATTITUDES OF CHINA AND OTHER DEVELOPING COUNTRIES TOWARDS IP PROVISIONS UNDER THE TPP

A. A Preliminary Assessment of the Impact of TPP IP Provisions on China's Economic Growth

Whereas trademark protection involves the output and trade of all industries, Figure 1 indicates that economic sectors closely related to patents or copyrights have accounted for over 60% of China's GDP since 1995, with related import and export trade counting for 30% – 40% of the country's total trade volume. Regarding foreign direct investment (FDI) in major economic sectors, the proportion of sectors closely related to patents and copyrights has increased continuously, reaching 17% in 2014; while for major sub-sectors in the industrial sector, the proportion has remained stable at 30% – 40%. It is even

23 In fact, the five-year protection of biologics provided for under the TPP is lower than not only the 12-year protection period originally proposed by the United States, but also the 8-year period under in Japan's domestic law. Apparently, the final version of the provision has adopted a 5-year period of protection under domestic laws of other developed TPP countries such as Canada, New Zealand, and Singapore.

more noteworthy that industries closely related to patents or copyrights account for a relatively high proportion of China's outward foreign direct investment (OFDI), an amount exceeding 30% in most years and even exceeding 50% in some years. Therefore, the healthy development of IP-related industries will significantly influence China's overall economic, trade, and investment growth. Hence, IP provisions under the TPP deserve China's close attention.

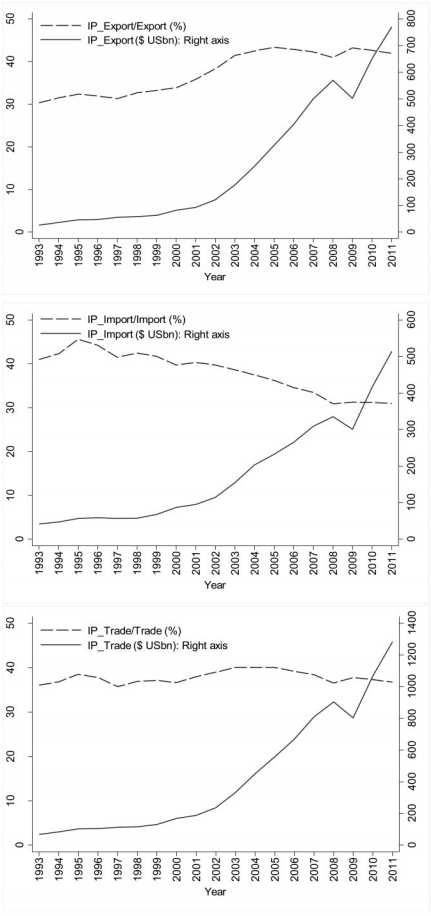

Figure 1. China's Imports and Exports Related to IP Industries and their Year-on-year Changes

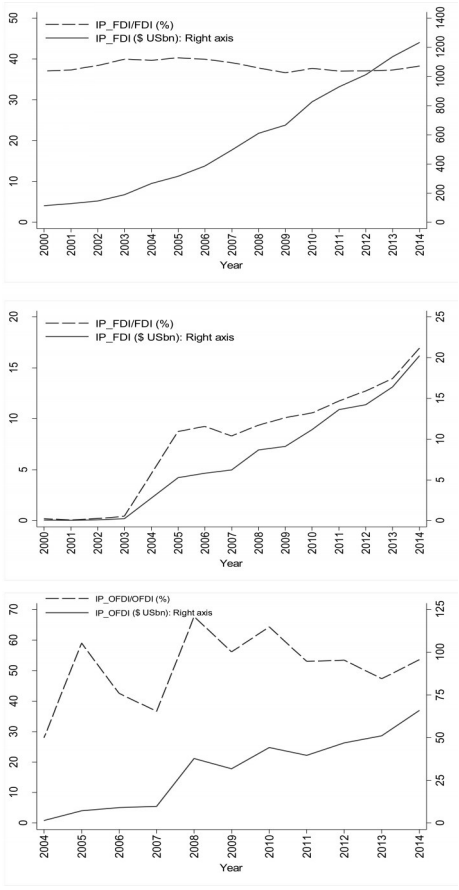

Figure 2. China's FDI/OFDI Related to IP Industries and Their Year-on-year Changes

Note. The FDI in this Figure is the sum of IP foreign assets in all the industrial sectors.

Due to limited data, it is impossible to know the exact magnitude of the TPP IP provisions' impact on the economic and trade relations between China and the TPP member countries. But the corresponding impact should be greater for China's economic and trade relations with developed TPP parties includ-

ing the United States, Canada, and Japan, among others. The ongoing China – US Bilateral Investment Treaty (BIT) negotiations have underscored the need for China to import advanced civil technologies from these countries, and one of the difficulties facing the negotiations is related to the United States' dissatisfaction with China's relatively lower level of IP protection.

In the short run, IP provisions under the TPP will not significantly affect China's economic growth for the following reasons. First, the entry into force of the TPP itself requires parties to secure the approval of their respective parliament (or congress), which takes at least two years. Second, the TPP allows members a certain transitional period to amend their IP laws to ensure compliance with relevant requirements of the TPP. The transition period for developing countries is generally 3 – 5 years. Regarding IP provisions in some sensitive areas, such as biologics and undisclosed data, countries like Vietnam have been granted a transitional period of as long as 10 years. As a compromise on copyright protection of the developed parties, New Zealand was also granted a 60-year copyright exemption within eight years of its entry into force of the TPP. Table 2 lists the TPP parties' transitional periods for IP provisions.

However, with the entry into force of most provisions in most member states, the IP provisions under the TPP will begin to significantly impact China's trade, investment and economic development starting in about five years, and will have even more profound influence on its medium- and long-term economic development. In addition to advancing the process of trade and investment integration (which involves many countries across a wide area), the Unit-

Table 2. TPP Members' Transitional Periods for IP Protection Commitments

No.	Members	Patent Amount & Experimental Data	Trademark	Copyrights and ISPs	Law Enforcement	Approval by International Treaties
1	Australia	0	0	0	0	0
2	Brunei	1.5 – 4	3	3	0	3
3	Canada	0	0	0	0	0
4	Chile	0	0	0	0	0
5	Japan	0	0	0	0	0
6	Malaysia	4.5 – 5	3	2	4	4
7	Mexico	4.5 – 5	0	3	0	4
8	New Zealand	3	0	8	0	3
9	Singapore	0	0	0	0	0
10	United States	0	0	0	0	0
11	Vietnam	3 – 10	3	3 – 5	3	2 – 3
12	Peru	5 – 10	0	0	0	0

Source. USITC. (2015). *Trans-Pacific Partnership Agreement: Likely Impact on the US Economy and on Specific Industry Sectors*, United States International Trade Commission, May, Publication Number: 4607 Investigation Number: TPA-105-001, p. 459.

ed States aims to use the TPP to re-establish its authority in the formulation of international economic and trade rules, an objective the former US President Barack Obama was rather blunt about in his 2015 annual report to Congress. Once the new set of international trade and economic rules represented by the TPP are approved and ratified, they will impact even non-TPP countries, as they will provide a framework for, or serve directly as a blueprint of, future international economic and trade treaties and regulations. In other words, if China fails to take the challenges presented by the TPP by efficiently enacting related legislation, it will eventually find itself in yet another difficult situation similar to that before its WTO accession. Not only will the failure challenge the country's continued success in internationalizing its economy, it will also thwart the efforts towards further integration into the international community.

B. Attitudes of ASEAN Countries towards IP Provisions under the TPP

A key question is whether China should join the new system of international economic and trade regulations such as the US-led TPP or focus on becoming a leader in rebuilding these regulations. This depends not only on the needs of China's economic and trade development, but also on the economic and political conditions in other developing countries in the Asia-Pacific regions, especially the 10 Association of Southeast Asian Nations (ASEAN) member countries. As a major developing country, if China aspires to become a leader in the reconstruction of international trade regulations, it must understand the economic and trade needs of other developing countries. In order to compete with the TPP-led Asia-Pacific-centered international integration process, China has been working hard to promote the regional integration process through the Regional Comprehensive Economic Partnership (RCEP) initiative and strive to become a leader in the process.

Comparing the membership of the TPP and that of the RCEP implies that among the RCEP members that have yet to accede to the TPP (including China, South Korea, India, and seven ASEAN countries), all except for South Korea are developing countries. Therefore, whether China can cooperate with these countries to establish a system of rules that will promote economic growth and the balanced development of developing countries will become a test of whether China can lead the creation of a new international economic and trade order. In comparison with other provisions under the TPP, the IP provisions provide an especially clear demonstration of the differences between developed and developing countries' regulatory needs, making them the best

area for testing China's basic principles and attitudes toward the TPP. Meanwhile, the 10 ASEAN countries, as the world's most successful regional alliance, are not only important developing countries in the Asia Pacific region, but also a primary focus of the United States' diplomatic efforts. Therefore, these countries can play a decisive role in China's economic and trade strategy of using the RCEP to compete with or replace the TPP.

Similar to other developing countries, many ASEAN parties to the TPP are strongly opposed to the IP provisions under the TPP. IPR such as patents are mostly held by foreigners, so IP provisions under the TPP featuring a high level of protection are considered an infringement on the interests of developing countries such as Malaysia. In addition, a higher level of IP protection, which gives a longer period of protection and monopoly to IPR holders and therefore will lead to higher prices, is inconsistent with the original intention of the TPP to promote trade liberalization and improve the interests of consumers.

It is also worth noting that ASEAN countries have taken slow but continued actions to promote IPR protection. One of the latest collective actions is the adoption of the ASEAN Intellectual Property Rights Action Plan 2011 – 2015 in 2011. It is noteworthy that instead of calling for the establishment of a unified trademark and patent system within the ASEAN, the Action Plan requires all parties to accede to major international agreements on IP protection prior to 2015, including the Madrid Agreement Concerning the International Registration of Marks, the Patent Cooperation Treaty (PCT), and the Hague Agreement concerning the International Deposit of Industrial Designs. This shift in the mode of IP protection reflects the following two consensuses among ASEAN members. The first is the difficulty of coordinating IP provisions among ASEAN members due to differing levels of economic development and IPR protection. The second is the increasing importance of the internationalization of IPR protection. Therefore, by adopting its consistent principles of inclusiveness,[24] ASEAN tries to improve the level of the region's IPR protection through learning from other regions' IP protection systems. Another focus of the Action Plan is to strengthen the infrastructure building related to IP protection. This includes the actual implementation of a regional patent work-sharing program known as the ASEAN Patent Examination Cooperation (ASPEC), along with the IPR for SMEs (Small and Medium-size Enterprises)

24 The ASEAN's principles of inclusiveness include: mutual respect for sovereignty and interdependence, non-interference, minimal institutionalization, consultation consensus and non-confrontation.

Development program, and patent examiner training programs. It is particularly noteworthy that some TPP parties including Japan and Australia have already been actively involved in these cooperation projects.

These actions indicate that on one hand, most ASEAN countries have been aware of the importance of IP protection. They have started to establish and improve their own system of IP protection. On the other hand, members' needs for IP protection vary substantially according to their development level. Therefore, it is extremely difficult to apply a short-term uniform legal system of IP protection within the ASEAN community. Nevertheless, it is also possible to influence the long-term development of its IPR protection system by providing technical and management assistance to the ASEAN members. Yet China does not currently have an advantage in this area over other countries such as Japan or Australia.

It should also be noted that the issue of IP protection is only one part of the TPP and other international agreements. Developing countries are likely to accept a higher level of IP protection due to a need for market expansion and cost reduction. The cost of this increased protection has been reduced along with provisions for a grace period for developing countries under most international agreements. Therefore, in order to provide an alternative set of rules, China must not only devise an IP protection framework and the corresponding provisions most closely in line with the interests of developing countries, but also persuade these countries to give up market access to developed countries by offering them alternative or more favorable market prospects.

IV. SUGGESTIONS FOR CHINA'S COPING STRATEGIES AND POLICIES IN RESPONSE TO IP PROVISIONS UNDER THE TPP

A. China's Alternative Coping Strategies for IP Provisions under the TPP

The conclusion of the TPP, by creating a new framework for international IP protection, has divided countries into three categories based on their levels of IP protection, including: a. countries and regions with protection levels above or up to that of the TPP, including TPP parties and most developed countries; b. countries and regions with protection levels up to that of the TRIPS but below that of the TPP, including the majority of developing countries such as China, India, and Brazil; and c. countries with lower levels of IP protection than

that of the TRIPS, including least developed countries[25].

It should be clarified that even if China can establish a new set of international IP regulations outside the TPP framework as the representative of developing countries, including least developed countries, these regulations should not be at a lower level than the current international IP regulations embodied by TRIPS. The reasons are as follows. First, it is not conducive to China's further improvement of domestic IP protection or development of its innovation economy. Second, as China has already been extensively involved in the process of global economic integration, it cannot ignore the needs of a large number of foreign investors and Chinese investors in other countries by regressing in terms of IP protection. In addition, since WTO members have amended their domestic laws based on the TRIPS requirements, it will involve extremely high costs for them to return to a lower level of IP protection.

Therefore, whatever China may choose as its coping strategy, its level of IPR protection should be above that of the TRIPS. However, this does not mean that China is incapable of responding to the TPP or has no choice but to passively accept the new regulations established under the TPP. Now that the minimum level has been established, China's coping alternatives can be categorized along two dimensions (IPR protection level and implementation approach) into the following six strategies, as listed in Table 3. Among them, O1, I1, and II1 are unilateral strategies that China can implement without involving international cooperation. In comparison, Strategies O2, I2, and II2 are multilateral ones, whose implementation requires international consultations and cooperation. In terms of IPR protection level, Strategies O1 and O2 retain the regulations and standards existing under the TRIPS, Strategies I1 and I2 comply with the regulations and standards established under the TPP, and Strategies II1 and II2 involve IPR protection frameworks with higher levels of protection than the existing TRIPS levels but remain outside the TPP framework.

Table 3 indicates that it is clearly infeasible for China to compete with the United States for leadership within the TPP framework, while Strategies O1 and I1 will undoubtedly result in undesirable consequences for China. Therefore, the following discuss will focus on the other three feasible alternatives: Strategy O2, and two "TRIPS+" strategies.

Adopting Strategy O2 will allow China to unite with other developing

25 The TRIPS Agreement has extended the grace period for least developed parties to 2013 (and to 2016 for pharmaceutical products).

countries in continuing to provide IPR protection under the TRIPS framework. This strategy will encounter the following difficulties. First, other developing countries, especially developing members of the TPP (such as Malaysia, Vietnam, Mexico, Peru, and Chile) may accept higher levels of IP protection for other considerations such as opportunities for preferential terms for market access to developed countries. Second, some "TRIPS+" IP provisions have already been included in China's bilateral trade agreements with several other countries. For example, provisions on ISP under the China – Australia Free Trade Agreement are basically consistent with their counterpart clauses under the TPP. Moreover, provisions under the China – South Korea Free Trade Agreement on trademarks, covering sounds and scents, are also quite similar to those under the TPP. Third, some IP provisions under China's domestic laws have already been up to or even above the requirements of the TPP. For example, China requires a six-year protection period for undisclosed test data, already exceeding the five-year period provided for under the TPP. Finally, the existing TRIPS framework was also developed under the leadership of the United States and other developed countries. In the future, if China remains committed to the framework that others have chosen to abandon, it will be at a disadvantage in negotiations with developed countries that are extremely familiar with the existing framework. Additionally, the contentment with the old framework not only highlights China's lack of creativity and originality, but may also reduce the possibilities for discussing new issues and developing new agendas.

Table 3. Comparison of China's Coping Strategies for IP Provisions under the TPP

Protection Level / Implementation Approach	TRIPS	TPP	Other "TRIPS+" Strategies
Unilateral	O1: Inaction	I1: Re-accession to the WTO	II1: Restart domestic efforts to strengthen IPR protection
Multilateral	O2: Advocate strengthening of the WTO	I2: Compete with the United States for leadership within the TPP framework	II2: Advocate a responsible framework on IPR protection

Based on the above analysis, it is clear that Strategies II1 and II2 are the only ideal coping strategies for China. Both provide a higher level of IP protection than the TRIPS. Strategy II1 focuses on China's domestic reforms and relies on China's self-improvement, while Strategy II2 focuses more on international cooperation and partnerships with other countries. The following sections discuss specific measures for domestic IP reforms and international IP cooperation, along with a proposal on how to combine the two to achieve the most effective outcome.

B. Specific Policy Suggestions on Reforming IP Protection in China

Efforts to reform IP protection in China should focus on the following aspects.

1. Acceding to Relevant International Treaties on IPR Protection

China should accede to relevant international treaties on IPR protection, including the International Convention for the Protection of Varieties of Plants (UPOV 1991) and Geneva Act of the Hague Agreement Concerning the International Registration of Industrial Designs.

2. Revising and Updating Its Relevant IP Laws

China should accelerate its efforts to revise and update its relevant IP laws, especially those regarding the following aspects, which can be easily implemented.

a. Registration of sound and scent trademarks

Regarding the registration and protection of sound trademarks, the relevant provisions under the Trademark Law of the People's Republic of China should be made more specific and consistent with the standards under the US–South Korea FTA. Regarding scent trademarks, clauses should be included to the effect that "best efforts shall be made to register scent trademarks", as required under the TPP.

b. Protection of geographical indications

China's trademark protection currently differentiates between trademark protection and collective trademark protection. Therefore, the Trademark Law of the People's Republic of China should clarify the specific scope of these two types of trademark protection.

c. Provisions on the scope of copyright transfer

The TPP has included a flexible provision that copyright transfers are possible through "sale or other transfer of ownership". In comparison, the Copyright Law of China only provides protection for patent transfers through sale or gift. The third Draft Amendment of Copyright Law allows flexibility in this regard, similar to the TPP. It is thus recommended that relevant provisions should be adopted as soon as possible.

d. The "three-step test" in the fair use exception

The TPP requires that the "three-step test" apply to the fair use exception for work, performance or recordings, where in the first step the "legitimate interest" to be considered include the interests of all rights holders, instead of only those of the author, the performer, or the creator. While the current Copy-

right Law of China does not require the "three-step test", it has been included in the third "Draft Amendment of Copyright Law", which also includes some flexible provisions regarding "other circumstances". It is suggested that the draft amendment should be adopted as soon as possible.

e. Greater penalties on IP infringement

Punitive damages have not been provided for under the Copyright Law of China, but are included under the "Draft for Review" and the Trademark Law of China, with stipulated upper and lower limits. In contrast, the TPP provides for additional damages without upper or lower limits, giving judicial institutions more discretion. It is advisable that China should increase the penalties for IP infringement.

3. Coordinating China's Numerous IP Laws and Regulations

Efforts should be made to coordinate China's numerous IP laws and regulations. For instance, provisions regarding secondary use of patents under the Guiding Opinions of the Supreme Court and the Guidelines for Patent Examination should be included on the agenda for the next round of revisions to China's patent law.

4. Revising or Enforcing Existing Laws and Regulations

China's existing laws and regulations should be revised or effectively enforced after a new round of discussions. Some provisions merely exist on paper, but have not been implemented. These include rules regarding the six-year protection period for undisclosed tests or other data under the Regulations for Implementation of the Drug Administration Law of the People's Republic of China, as well as rules related to patent linkage under Article 18 of Measures for the Administration of Drug Registration (Revised in 2007).

5. Holding Discussion on the Feasibility of Modifying Other Relevant Laws

A discussion should be held on the feasibility of modifying other relevant laws based on a comparison between the IP provisions under China's IP laws and those under the TPP. The laws to be discussed should cover mandatory provisions under the TPP, including those related to cross-border protection of unregistered well-known trademarks, consequences of delayed patent examination, patent linkage, and border measures on goods under customs control, as well as advisory provisions under the TPP, including criminal penalties for indirect IP infringement, trade secret infringement, ISP provisions, and recogni-

tion of well-known trademarks.

6. Appropriately Using Exceptions Concerning Public Health and Compulsory Licenses

Based on a careful study of the TRIPS provisions, exceptions concerning public health and compulsory licenses should be appropriately used to help secure a strong bargaining position for future international cooperation and negotiations.

C. Reflections on Establishing New Framework for International IP Protection

If China aims to expand its influence in the area of global IP protection, it needs to introduce a new framework of IP regulations, which should be able to compete with agreements such as the TPP and to gain the support and understanding of a sufficient number of countries. This framework should encompass the following principles: First, it should consist mainly of non-exclusive multilateral international agreements, and the framework is open for adoption to any willing acceder. Second, the various agreements included in the framework should focus on issues related to the promotion of IP protection and technological innovation. These are the very principles that have been violated by the US-led TPP. Essentially forced upon developing countries, the IP provisions under the TPP rarely take into consideration of the impact on consumers and future technological innovation. Even worse, negotiations on trade and investment under the TPP framework have become a tool for the United States and other developed countries to promote their own IP agendas.

Due to uneven development in technological innovation and IP, developing and developed countries have different goals and priorities regarding how to protect IP. Moreover, technical and legal issues involved in IP protection are too complicated to be comprehensively analyzed in a single chapter of an international treaty. Therefore, the free trade agreement is by far not the ideal instrument for implementing the provisions of IP protection. We believe that rather than as a small section of a trade or investment agreement, issues relating to IP protection should be included and discussed under a specialized international agreement together with issues on the promotion of technological innovation. While the formulation of an international agreement on IP protection and technological innovation is a complex systemic project, the ideal agreement should include the following basic components.

a. Conventional provisions on IP protection should include provisions that address the concerns of developing countries such as compulsory licensing, public interest exceptions, and grace periods;

b. Necessary legal services, technical support, and personnel training should be provided to members to help them fulfill the legislative and legal enforcement requirements;

c. Necessary examples on flexible provisions and a grace period clause should be provided to members to help them gain substantive benefits from these provisions;

d. Provisions should be included that require members to reasonably reduce trade barriers in technology imports and exports to allow greater accessibility.

In particular, the new IP protection framework could include some provisions granting protection for areas with special strength in China, including the protection of Chinese herbs (the China – Switzerland FTA can be used as a reference) and geographical indications. As for flexible provisions such as compulsory licenses, public interest exceptions, and grace periods, some balance should also be achieved among the requirements by the TRIPS, the TPP, and the TTIP.

In addition to abiding by IP protection provided for under the existing international agreements, the new agenda should also include the following aspects:

a. requirements for helping developing countries to effectively raise their domestic level of IP protection;

b. reasonable use of flexible provisions;

c. reduction in barriers to technological trade.

All of these are issues of real concern to developing countries, including China. Compared with the TPP and other agreements, this new agreement framework will be more focused on issues pertaining to IP protection; whereas in comparison with existing international IP agreements, the new framework will explicitly include contents related to technological innovation and transfer and is therefore more balanced.

To promote the increased acceptance of the new agreement framework, the following steps should to be taken: First, begin with the negotiations of individual bilateral economic and trade agreements to include certain IP provisions; then, consistently incorporate relevant IP provisions into more bilateral economic and trade agreements; finally, when a sufficiently large number of IP provisions have been adopted by a sufficiently large number of bilateral agreements, piece together relevant provisions to develop a new international IP agreement.

In general, the agreement framework proposed above can be described as a "responsible framework for IP protection", because it approaches issues of concern to countries with varying development levels in a relatively balanced manner. As much time and effort are needed before the above framework can be successfully implemented, it is vitally important to ensure the job stability of relevant departments and staff members.

D. Conclusion

The two strategies discussed above focus on domestic reforms and international collaboration, respectively. However, the ideal strategy should be a combination of the two strategies. While China should first make its top priority to decide on the most ideal IP protection system necessary for its own development and to effectively enforce the relevant laws and regulations within its own borders, it should then seek consensus on IP protection with other non-TPP countries, before considering possibilities for reaching a new international agreement framework in negotiations regarding new areas and provisions for IP protection. To play a leading role in reforming international IPR protection regulations, China need to establish its national credibility in the international community, based on transparency, uniformity and fairness of its domestic legal system. Therefore, it is especially important for China to provide improved and credible protection for domestic intellectual properties.

How to choose potential allies in pushing forward the new framework is another important issue worth further research, especially whether they should be limited to other developing economies, because China shares common interests not only with developing but increasingly more with developed countries regarding IP protection. For example, although China has laws and regulations regarding compulsory licensing for patented technologies, they are rarely used due to excessive barriers to enforcement. This is in stark contrast to India's practice of providing its citizens with cheaper medicines through compulsory licensing for related technologies, with the difference potentially accounted for by the two countries' varying levels of dependence on foreign capital. In general, given its current level of development and economic structure, there already exist substantial differences between China and most other developing countries in terms of the need for the protection of IPR, making it difficult for China to advocate only for developing countries while safeguarding its own development interests. Thus we believe that instead of advocating for developing countries,

China should focus on specific provisions regarding international cooperation.

We now turn to the question raised earlier: How should China respond to the challenges to IP protection posed by the TPP? The discussion above suggests that China's potential coping measures include the following:

a. To continue to improve its existing IP protection system based on its own economic development needs, ignoring the TPP;

b. To fully accept the IP framework of the TPP by making corresponding revisions and amendments to its own IP protection system in an effort to accede to the TPP;

c. To advocate for establishing a new framework of international IP protection to compete with the TPP, especially targeting developing countries;

d. To seek accession to existing international agreements on IP protection, to actively participate in the existing international system of IP protection, and to negotiate new areas and provisions on IP protection within the framework of existing multilateral and international agreements based on the principle of voluntary protection of IP.

We believe that the last measure listed above is China's best option. China should use the signing of the TPP as an impetus to enact additional domestic reforms to strengthen IP protection while simultaneously advocate a new framework of voluntary and responsible IP protection in the international community. Within the new framework, volunteerism-based and innovation-centered principles should be followed, whether a country enacts domestic reforms or creates new international treaties. The framework should also allow concrete and feasible regulations and standards in congruence with each country's conditions.

Yet applying for accession to the TPP by fulfilling its requirements should always remain an option for China. The TPP accession process may help promote China's reform and opening up, similar to the WTO accession process. China's other options are to establish and lead a new international economic and trade cooperation system, or to revitalize the WTO and lead the developing world back to a multilateral system. Regardless of the ultimate choice, both the current status of and future prospects for their economic and trade development need to be comprehensively analyzed before making a decision or establishing a bottom line for negotiations. More importantly, in addition to theoretical considerations and qualitative analysis, detailed quantitative research should be conducted on how the entry into force of the TPP will affect China's foreign trade, international investment, economy, and each individual sector.