

China's Uneasy Engagement with Intellectual Property Reforms during Its Globalization

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SINCE OPENING ITSELF TO TRADE and launching modest domestic reforms in 1978, China has engineered an economic and social transformation unprecedented by virtually any measure. China has evolved from an isolated and economically small nation to the world's largest in terms of both real gross domestic product and export volume.¹ In the process, it has moved hundreds of millions out of extreme poverty and built a large middle class, with pockets of great wealth.² Remarkable transformations of economic activity have accompanied this rapid growth, first from agriculture to labor-intensive manufacturing and, more recently, to a growing share of technologically sophisticated industries and producer services.³

This process was facilitated by successive episodes of trade and investment liberalization, culminating in China's accession to the World Trade Organization (WTO) in December 2001. At the same time, the government engineered numerous important complementary policy reforms, such as partial financial liberalization, currency realignment, rationalization of taxes, enhanced domestic competition, and investments in education and infrastructure. Policies to support the acquisition and domestic development of sophisticated new technologies have been central to these reforms.⁴ Important examples include research

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and development (R&D) subsidies, technology-transfer mandates, support for building domestic standards, and procurement rules discriminating in favor of technologies developed by domestic enterprises. This complex of “indigenous innovation” policies was designed to foster rapid technological growth among high-technology Chinese industries.⁵

In this context, the evolution of China’s system of intellectual property rights (IPRs) is of considerable interest. Since the early 1990s, Beijing has undertaken a series of legislative and administrative reforms—virtually unprecedented on a global scale in their speed and scope—to produce a protection regime that is, at least on paper, consonant with those of the advanced, technologically based economies. External pressures, requirements for joining the WTO, bureaucratic competition, and emerging domestic economic and social interests drove these changes. Yet, this evolution has been far from smooth. It

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has not occurred in harmony with the preferences of many actors in China, who remain concerned about the costs of paying for foreign technologies and the implications of stronger

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IPRs protection for access to medicines, the costs of agricultural biotechnologies and environmental inputs, and the promotion of domestic cultural industries. Moreover, despite the clear upward trend in protection, China’s IPRs regime remains internationally controversial for a variety of reasons, ranging from its preferential elements in central government policy to severe inadequacies in rights enforcement.

Chinese policy reforms have attempted to strike a balance over time among competing interests, both foreign and domestic. This engagement has been both uneven and uneasy, springing from administrative and cultural ambiguities and from deepening regional economic disparities. Because the domestic interests in the relatively weak application of the laws will persist for some years, this tendency to selectively recognize and enforce IPRs is liable to continue until some turning point is reached.

Further, the unease is two-sided, involving both the major external actors and China’s public authorities. This is most readily seen in the negotiation of the Trans-Pacific Partnership (TPP) by the United States and 11 partner countries in the Asia-Pacific region, which to date does not include China. One significant U.S. impetus for the TPP, according to some observers, was to establish a set of trade and regulatory rules in the region that would counter some of the interventionist tendencies of Beijing’s technology policies, while elevating the

scope of certain IPRs standards and enforcement among partner nations.⁶ In this context, the absence of China from the negotiations has diminished its regional influence, perhaps for some time. A looming question is how China may react to the TPP in its own trade policy, not least because that country has its own hopes for economic leadership in the region under a competing set of rules.

This article's purpose is to elaborate on these factors in an analytical context. In the first section, I describe major elements of China's trade opening and the accompanying reforms in intellectual property protection. In the next section, I consider the actors pushing for IPRs reforms, noting the important counter-acting forces and the resulting awkward tensions in achieving and sustaining those changes. In the last section, I conclude by speculating about the potential future paths of China's engagement with yet-stronger rules in the context of competition for trade leadership in the Asia-Pacific region. A potential path forward could be offered by the joint leadership of China and the United States in a more comprehensive agreement.

THE POLICY COMPLEX AND THE EVOLUTION OF CHINESE IPRs

China's double-digit growth era extends back through the 1980s, not long after its initial market-oriented reforms of a few sectors and its beginning pivot toward globalization.⁷ Since that time, the country has enacted numerous critical policy reforms, both in response to this growth and in anticipation of the needs of industrial transformation. These initiatives covered trade and investment liberalization, innovation policy, science and technology support, educational investments, and market structure reforms, among other elements. In this context, the associated evolution of IPRs standards has been embedded in a larger economic development strategy.⁸

TRADE OPENING

China's significant trend toward lower trade barriers preceded its accession to the World Trade Organization (WTO). For example, its trade-weighted average applied rate of import tariffs across all merchandise sectors declined from 32.2 percent in 1991 to 14.6 percent in 2000, before falling further to 3.6 percent in 2011.⁹ To some degree, this remarkable opening was a response to international pressure on China to conform more closely to the globalizing norms of international trade.¹⁰ A primary impetus, however, was the belief that reducing restrictions on imported capital goods and manufacturing inputs

was necessary for attracting investment and enhancing the competitiveness of Chinese enterprises, especially those with strong export potential. In the same time frame, several policies improved the climate for incoming foreign direct investment (FDI). For example, special economic zones (SEZs), featuring a number of tax and input-cost advantages, were established in several coastal areas in the 1980s and 1990s.¹¹ In 1996, all remaining regions of the country were opened to FDI and the government announced its intention to join the General Agreement on Tariffs and Trade (GATT), the precursor to the WTO. Inflows of FDI rapidly mounted from virtually nothing in 1990 to nearly \$50 billion per year by 2000, before accelerating again after 2001, reaching \$289 billion in 2014.¹²

A major policy objective in opening the economy to investment was the potential for FDI and joint ventures to bring more advanced technologies and improved processes, which would both directly raise productivity and offer the potential for domestic enterprises to study such information and absorb it into their own activities.¹³ Indeed, successive rounds of liberalization were typically justified as key to the technology “catch-up” process at the core of China’s shift from a centrally planned economy to a socialist market economy. In this context, policy strongly encouraged effective technology transfer. For example, in key sectors, joint ventures were favored over FDI, while foreign joint venture investors were limited to minority ownership shares until the 1990s. Multinational enterprises operating in China were expected to transfer technologies to local affiliates rapidly, including rights to use intellectual property and trade secrets within a certain time period.

The growth of FDI, joint ventures, and technology imports by both foreign-invested and state-owned enterprises (SOEs) in the decades after 1990 contributed significantly to the acquisition of production know-how and productivity gains. Whether the early policy emphasis effectively coercing technology transfer generated more information acquisition than might have happened otherwise is an open question. China surely would have attracted large inward technology flows and consequent learning spillovers in light of its large and rapidly growing economy and inexpensive labor, making it difficult to assess the precise contributions of technology policies. In any event, much of this emphasis disappeared, at least in terms of formal FDI policy, in the wake of the WTO accession, a period of continued rapid growth.

That Beijing saw trade liberalization as a channel for learning and catch-up is evidenced by its even more aggressive emphasis on promoting homegrown innovation through various legal reforms, incentives, and outright industrial policies.¹⁴ Much of the incoming technology in the 1980s and 1990s, while quite useful for building a manufacturing base, was labor-intensive and standardized, well below frontier standards. Moreover, foreign-invested firms took several steps to disguise or compartmentalize their technological information in order to avoid losing it to local leakage, while licensing fees and the costs of importing technology were seen as a drain on industrial development.¹⁵

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Such factors contributed to the emerging view of central government authorities that fostering domestic innovation was crucial for development, especially in an era of globalization. In addition, policymakers readily understood that the central planning system was ill designed to encourage original innovation or even move the substantial knowledge being generated in universities and public research institutes (PRIs) into commercialization.

Thus, in 1995 the State Council issued the Decision on Accelerating Scientific and Technological Progress, which offered support for investments in basic and high-technology research and incentives for commercializing applied research results.¹⁶ This document became the basis for the successive introduction of stronger technology-oriented development policies to build innovation capacity in high-technology sectors and of an ambitious plan to build world-class research universities. These initiatives continue in expanded form today. Of particular note was the 1998 promulgation of the Science and Technology Advancement Law, a Chinese version of the U.S. Bayh-Dole Act, and related regulations, giving university and PRI researchers the rights to invest in start-ups and awarding those institutions the IPRs to information generated by government-funded research projects. Over 1,000 PRIs chose to convert themselves to enterprises in just the first five years after that law was announced, effectively shifting over 100,000 S&T workers to the new, more market-oriented innovation system.¹⁷

The enthusiasm for a strong and centralized innovation system was reflected most profoundly in 2006, with the implementation of the 15-year Medium- to Long-Term Plan for Scientific and Technological Development (MLP), which

set a framework for pushing the country into an economic future built on creativity and innovation.¹⁸ These guidelines pledged that China would be a globally innovative country by 2020, as measured by patent statistics and R&D performance, and a world Science and Technology (S&T) power by the middle of this century. Among other elements, these guidelines pledged to accelerate catch-up by facilitating importation of frontier technologies and building R&D programs in 16 major areas of advanced technology, ranging from numerically controlled machine tools and microelectronics to genetically modified organisms and water-pollution control techniques.¹⁹

The MLP, along with the many subsequent implementation documents, features multiple objectives. First is to build the basic scientific capability of the country by investing in research universities and education. Second is to grow a domestic culture of innovation and promote successful R&D in Chinese enterprises through a variety of means, including set-asides, procurement advantages, and subsidies. Third is to establish deep competencies in emerging strategic industries, enabling them to lead China's medium-term industrial development and leapfrog foreign technologies into a position of global leadership over time. These industries, all knowledge-intensive and on the leading edges of innovation, include pharmaceuticals and biotechnology; advanced aircraft, satellites, and high-speed trains; energy-saving equipment; clean energy; information technology; new materials; and electric vehicles. Subsequent documents emphasized the importance of developing a globally competent software development industry as well.

A central component of this strategy is to promote the development of Chinese technical standards, protected by patents, in order to gain value added from technical innovation and production and to shift the technological balance of payments more in the country's favor over time. This approach closely ties industrial policy focused on knowledge development and commercialization with a preference for systematic ownership of that knowledge, largely through the assertion of IPRs.

This indigenous innovation policy, as initially designed and implemented, raised considerable concerns on the part of foreign companies operating in China.²⁰ One major problem was that the government procurement rules and subsidies were highly discriminatory in that they largely excluded participation by foreign entities. Further, the announced procedures effectively required that qualifying firms own or acquire IPRs developed in China and that trademarks be originally registered there. In effect, this meant that foreign firms seeking to get their products into the government's procurement catalogs in these critical sectors

would have to transfer their rights to domestically owned enterprises. Because these rights pertained to world-class frontier technologies, their surrender could sacrifice considerable economic value and support the development of Chinese competitors. The policy also put into place rigorous rules limiting the discretion of foreign firms to set contracting terms in the use of their technologies, a precursor to the later promulgation of an anti-monopoly law. In response to diplomatic objections from the United States and the European Union, several of these conditions were softened after 2010, and products associated with both foreign and domestic IPRs are now eligible for procurement benefits.²¹ However, the development of China's indigenous innovation policy, in combination with the MLP, exhibited the willingness of the central government to assert a harder edge in its industrial policy and to support the domestic acquisition and development of patents in key technologies.

INTELLECTUAL PROPERTY RIGHTS TRANSITION

As a country seeking rapid technological transformation, from importing and adapting labor-intensive assembly technologies to competing in highly advanced technologies, China recognized the potential importance of patents, trademarks, trade secrets, and copyrights as facilitating mechanisms. China has legislatively and administratively strengthened its IPRs regime since its initial liberalization period.²² The country adopted its initial post-reform trademark law in 1982, enacted its first patent law in 1984, and joined the Paris Convention for the Protection of Industrial Property in 1985.²³ This initial patent law was aimed at facilitating technological diffusion into the economy through various provisions, including small-scale inventions protected with short-duration utility models and design patents, limited claims, and rapid disclosure, rather like the Japanese patent system of the time.²⁴ However, this law did not make patents available for chemical processes or chemical, pharmaceutical, and food products, nor did it permit SOEs to license their technologies, leaving patent standards well below those in economically advanced nations.

Unsurprisingly, this dissonance with international standards, combined with the eagerness of foreign firms to enter the Chinese market, invited foreign criticism and diplomatic pressures, primarily from the United States. Less well appreciated is that by the early 1990s, Chinese authorities recognized that patents with broader scope could be important for commercializing the R&D results of the country's own enterprises and institutes, while seeming consonant with market-driven economic reforms.²⁵ Thus, an extensive revision of the patent law,

lengthening the duration of invention patents from 15 to 20 years and extending protection to the excluded industries mentioned above, appeared in 1992, well before those principles would be required by TRIPS. In the late 1990s, China joined several additional international industrial property treaties, including the Patent Cooperation Treaty (PCT), the International Convention for the Protection of New Varieties of Plants (UPOV), and the Patent Law Treaty.²⁶

In 2000 and 2001, Beijing adopted additional revisions of its patent law, partly to comply with WTO requirements. Among other things, these adjustments improved ownership incentives for employed inventors, modernized the examination process, and established nondiscrimination between SOEs and privately owned firms in application procedures. There have been subsequent revisions since that time, often strengthening judicial and administrative treatment of patent owners seeking to enforce their rights. Taken in total, these historical reforms established an unprecedented increase in the strength and scope of legal patent rights in China, with a well-known quantitative index of such laws more than tripling in value from 1985 to 2010.²⁷ Today the patent law is not only compliant with TRIPS, but its standards in most respects also approach those of several advanced economies.

There has been a similar evolution of copyrights.²⁸ Beijing established its first modern copyright law in 1990, accompanied by numerous technical implementation regulations, including those for protecting computer software. China joined the Berne Convention for the Protection of Literary and Artistic Works and the Universal Copyright Convention in 1992 and the Geneva Convention for the Protection of Producers of Phonograms in 1993.²⁹ Remarkably, the 1990 copyright law, with subsequent technical amendments, established provisions against circumvention of technological measures taken by copyright owners to protect sound and video recordings, in anticipation of the World Intellectual Property Organization (WIPO) Copyright Treaty and the WIPO Performances and Phonograms Treaty, adopted in 1996. These treaties

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constituted the initial global route to updating copyright protection in the emerging digital age, and China's law predated many of the legal norms they set out, well in advance of any international requirement to do so.

The copyright law was amended in 2001 to achieve compliance with TRIPS, expanding copyrightable subject matter to architectural works, databases, rights to digital communications of works, and rental rights for audiovisual products

and computer software. The revisions also clarified the country's fair use provisions, including their consistency with the three-step test set out in the Berne Convention and TRIPS.

China has enacted and implemented new laws in other substantive areas of IPRs.³⁰ Regarding trademarks, the basic law was adopted in 1984, but failed to meet some international standards. The most prominent shortcoming was its ambiguous treatment of well-known marques, which are brand names and trademarks, such as Coca-Cola, that are so internationally famous that they may merit protection without formal registration. Some adjustments were made in a 1993 revision, but the law underwent considerable changes in its second revision in 2001 in preparation for WTO entry.³¹ Specifically, this revision expanded registrable subject matters and added protection for certification marks, collective marks, and geographical indications.³² It also clarified that unregistered, well-known marques would be recognized under delineated factors and added administrative review mechanisms. Note that this law recognized geographical indications for the first time, essentially by incorporating the U.S. system of protecting them as collective marques. Finally, Beijing enacted regulations covering the protection of new plant varieties and layout designs of integrated circuits in 1997 and 2001, respectively.

Many of these legal documents have undergone significant revisions since the early 2000s as conditions changed. For example, in April 2015, the State Intellectual Property Office (SIPO) circulated a draft set of amendments to the patent law for comments.³³ Among other things, these revisions would extend the reach of administrative enforcement and review of patent disputes on the part of the patent office and expansively redefine the concept of patent misuse to include the exercise of patent rights that harms public interests and impedes the advancement of technology. Both ideas are controversial from the standpoint of international patent practice and reflect the ongoing efforts of Chinese authorities to strike a balance in IPRs with characteristics that may be an appropriate fit for China's own economy, as discussed below.

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ENFORCEMENT

Weak enforcement of IPRs and the associated extensive patent infringement, copyright piracy, and trademark counterfeiting have long been global irritants and the reasons for many diplomatic interventions from foreign governments, culminating in the WTO case filed by the United States in 2007.³⁴ Beijing has become increasingly responsive over time and has taken steps to build a

national and regional capacity to enforce IPRs more strongly and uniformly. To a considerable extent, these steps have been part of implementing key regulations as basic laws have been reformed. For example, the 2000 Patent Law amendments strengthen protection for rights holders by requiring infringers claiming innocence to document the legitimate source of their goods. Several laws set out available recourse to infringement damages under different legal principles, and revisions over time have brought in the possibility of criminal liability.

Equally important are the many changes in administrative and judicial enforcement procedures. Administrative procedures have been increasingly centralized in professional bureaucratic agencies, such as SIPO, offering opportunities for reviews of decisions and challenges to the validity of rights. China has invested heavily in training and education programs for lawyers and judges and, beginning in the 1990s, has established specialized IPRs courts with a growing reputation for sophistication.³⁵ Both domestic and foreign rights holders make increasing use of the courts, with litigation rising rapidly. Chinese courts now manage more IPRs-based lawsuits than any other country, with most of these involving disputes between domestic litigants.³⁶

Despite these extensive legislative and administrative reforms, China remains one of the major global sources of IPRs infringement. It accounts for the bulk of international exports of counterfeit goods, while copyright piracy remains endemic, especially over the Internet.³⁷ The United States International Trade Commission surveyed U.S. firms across a range of intellectual property sectors. They computed that Chinese infringement, in combination with its indigenous innovation policies, caused losses in annual global sales of those firms of perhaps \$48 billion and eliminated 923,000 U.S. jobs.³⁸ This issue will remain paramount for some time to come, primarily because of the sheer difficulty of deterring infringement on the scale of the Chinese economy.

EXPLAINING THESE REFORMS

One might interpret the last section as suggesting that the development of China's intellectual property laws and administrative infrastructure was almost mechanical and monotonic, perhaps preordained by the needs of fitting into a globalized world. That story may well characterize post-WTO reforms in many developing economies, which have put forward legislative programs under guidelines suggested by the United States, the EU, or WIPO without thinking more broadly about the implications for economic and social development.³⁹

This idea is misleading in China, however, where implementation has been purposeful and pragmatic. Chinese authorities have long recognized that, in building a modern IPRs system, the country faced several significant constraints, both from outside and inside the economy. In brief, China is an enthusiastic participant in globalization and must accommodate the needs of important international actors. Yet, it has a complex domestic society to consider. It is a rapidly growing economy with an emerging set of knowledge-based sectors, but remains in many ways a lower-income developing country with a range of interests opposed to strong patents and copyrights. Navigating these waters has been a great challenge that reflects an uneasy engagement of policy—in regards to both development and innovation initiatives and IPRs—with external mandates. Moreover, Beijing aspires to assert its already strong leadership among developing and emerging countries, especially within Asia, in trade and innovation policy going forward. These cross-cutting factors set the stage for the organic evolution of the nation's current IPRs regime.

Three developments, among many others, illustrate the pragmatism with which China's central government has engaged in IPRs reforms, precariously balancing external pressures with domestic needs.

Facilitating Rhetoric

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First, as noted above, government authorities saw the need from the early stages of economic liberalization for accessing international production technologies to build an export-based manufacturing sector. Much like in Korea before it, the economy could build production and management capacities while learning from these technical processes, even if the foreign investments and partnerships were in labor-intensive, lagging technologies.⁴⁰ Attracting increasing levels of FDI, however, required some commitment to stronger patents and trademarks.⁴¹ More importantly, U.S. trade authorities began to raise pressures for improved IPRs as early as the 1980s, an important factor in the 1984 patent law and especially its 1992 revision.⁴²

The difficult question was how to convince leaders in key sectors of the domestic economy to embrace policy change. For this purpose, China's leadership established a rhetoric linking the importance of economic modernization, in the rapid shift to a socialist market economy, to the presumed need for stronger IPRs as a key facilitating condition. In light of China's other pull factors such as its market size and cheap labor, the question of whether patent reforms were actually necessary to bring in newer technologies was much debated in

academic and policy circles. Concerns were raised about IPRs policy within the inter-agency discussions in Beijing as well. For example, a primary issue in the 1991–92 bilateral U.S.-China negotiations was the U.S. demand that software be designated as a “literary work” and therefore protected by copyrights.⁴³ Up to that time, software registration had been managed by the Ministry of Machinery and Electronics Industry (MMEI), which regarded computer programs as a “tool” that should be disseminated widely to the country’s SOEs. U.S. negotiators labeled MMEI a major source of software piracy, a contention that was resolved only when top Chinese leadership intervened and transferred software registration to the National Copyright Administration.

What emerged from such tussles was an effective compromise: the public rhetoric proclaiming the importance of modernization and global integration dominated in procuring key reforms, but the initial laws themselves adopted features that favored small-scale innovation (utility models), diffusion (rapid publication of patent applications, technology transfer requirements, limited trade secrets protection), and usage rights (fair-use provisions in copyright). Perhaps more importantly, structural difficulties in enforcement and an administrative unwillingness to invest in sufficient enforcement resources meant that foreign IPRs were not difficult to overcome through means ranging from simple counterfeiting to technology theft.

Over time, domestic economic interests have increasingly come to favor stronger IPRs for their own innovations and creations, an important factor in pushing additional reforms. As discussed earlier, for example, China adapted its copyright law to protect digital products and software well before it joined the WIPO Internet treaties and the WTO. Moreover, in recent years, the greater impetus for improving the courts and administrative protection system comes from domestic firms seeking to assert their rights against local infringers.⁴⁴

PATENTS AND INDIGENOUS INNOVATION

A second illustration may be found in the marriage of patents, in the public mind, with policies to promote indigenous innovation. This objective is evident in the National IP Strategy, published in 2008, and the National Patent Development Strategy, promulgated in 2010. Both are closely tied to the innovation goals of the 2006 Medium- to Long-Term Plan. The first document argues that the IPRs system remained inadequate to facilitate the further necessary modernization and sets out an ambitious set of principles for a national policy framework. Among these are to improve the IPRs regime through further legal reforms

and regulations, to invest more in enforcement, and to coordinate closely the patent and copyright system with S&T, industrial, and trade policies. The plan also emphasizes to enterprises the importance of efficient creation and management of intellectual property, urges universities and PRIs to engage in more commercialization strategies, and stresses the need to build national awareness and a cultural preference for creating and owning intellectual property. A key principle is that Chinese-owned intellectual property rights should be incorporated into local technical standards in order to leverage ownership in the latter.

The IP Strategy also emphasizes targets for IPRs development and usage that would position China as an innovative economy. Thus, for example, it posits that China will rank with the top industrialized economies in the global registration of invention patents, develop globally recognized brands, and substantially increase the importance of copyright sectors in the economy. As for the Patent Development Strategy, it sets out ambitious numerical targets, such as the goal of two million applications by Chinese entities for invention patents, utility models, and design patents by 2015.⁴⁵ According to WIPO statistics, this target was surpassed by 2014, while on a global basis (including applications at home) Chinese inventors register far more patents than do those of any other country.⁴⁶ A similar growth of Chinese trademarks, which also exceeded two million in 2014, has accompanied this explosion of patenting.

On the surface, this insistence on patenting in the context of urging indigenous innovation helps achieve some key objectives. First, a culture of innovation and ownership, filtered through patents and trademarks, is asserting an increasing hold on business strategies in the formal sectors, including universities. The drive to patent is presumably one factor behind rapid increases in R&D spending over the past 20 years, yet another policy target. By 2014, the ratio of R&D to GDP in China

reached 2 percent, far higher than other developing countries, and near the

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median of high-income OECD economies.⁴⁷ Second, there are signs of effective economic modernization and entry into global technologies. Such Chinese enterprises as Haier and Huawei are in the vanguard of those building global brands.⁴⁸ Scientific research at top Chinese universities increasingly generates new technologies in software, bioengineering, renewable energies, and other cutting-edge sectors. Third, the continuing updating of the IPRs system and judicial procedures generally meets with approval from foreign constituents,

even if enforcement remains a significant problem.⁴⁹

Digging deeper, however, raises fundamental questions about the true effectiveness of industrial policy-cum-“patent fever.”⁵⁰ First, it is legitimate to question whether the massive increase in patent registrations truly represents new innovation or is simply the outcome of incentives to own IPRs.⁵¹ The bureaucratic emphasis on patenting is a signal to provincial and city authorities that increasing such activity is a marker of success. In turn, policymakers have offered financial incentives to enterprises and individuals to register patents, even if there is little underlying novelty in the claims. Moreover, until recently much of the growth in domestic patenting in China came via a surge in utility models, which rarely contain more than minor modifications of existing products and reflect the outcome of simple reverse engineering more than innovation. In addition, among those few large firms that actively seek out patents in foreign markets, such as ZTE and Huawei, much of their patenting seems to be aimed at building defensive patent portfolios to achieve operating space in patent-intensive fields, such as consumer electronics, rather than embodying truly novel inventions.⁵²

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Second, there are increasing concerns in China that the emphasis on patenting has gone too far. The large increase in patents and utility models owned by domestic inventors poses the risk that inventive technologies could be held up by the assertion of even minor claims in prior patents. As noted earlier, the amount of litigation in patents and trademarks has greatly increased in China, the bulk of it featuring domestic disputants. Such litigation can be costly and could have a chilling effect on continuing innovation. There are also concerns that the pro-patent emphasis has encouraged SIPO to grant protection to applications of dubious validity and limited inventiveness, resulting in diminishing quality.⁵³

Third, it now seems that the indigenous innovation policy has achieved relatively little in terms of one key objective, namely the development of domestic technical standards in key technologies that generate rents for Chinese firms owning domestic and international patents in their embodied technologies.⁵⁴ Attempts to develop world-class Chinese 3G standards in cellular phones have met largely with failure, for example. Nonetheless, China’s attempts at blocking market access in order to promote domestic standards development and encourage utilization of indigenous innovations remain a significant irritant for foreign IPR holders and policymakers in technologically advanced countries. It seems clear that Chinese authorities will continue to foster local technology and attempt to link the accompanying intellectual property to domestically produced standards, generating ongoing tensions with technologically advanced nations.⁵⁵

In this context, the goodwill achieved by strengthening IPRs may be more than offset by the remaining exclusionary aspects of the innovation mandates.

POLICY MODERATION

Over the last 30 years, China has continuously updated its laws protecting intellectual property, both in response to international pressure and to meet the needs of a society increasingly oriented toward high technology use, innovation, and creativity. This process has been a central component of Beijing's economic modernization efforts. At the same time, Chinese laws often take advantage of the flexible limitations on the scope of various IPRs offered by the TRIPS Agreement, rendering the system less protective than foreign rights holders would prefer.⁵⁶ For example, the Chinese patent law does not make plant and animal varieties eligible for protection and has an extensive set of conditions under which compulsory licenses may be issued, particularly in pharmaceuticals.⁵⁷ The copyright law offers expansive fair-use exceptions under which persons may use protected materials without permission, though this may be tightened in new draft amendments recently under consideration.⁵⁸

This situation suggests that Chinese authorities generally pursue a nuanced balance in the scope of IPRs between rights holders and domestic users, sometimes in opposition to international preferences. This process may be accelerating as the government gains more confidence in setting its own path. As noted above, the 2015 draft amendments to the patent law, if enacted, would considerably expand the notion of harmful use of intellectual property rights to include technology contracting practices that would be considered normal exploitation of a patent under U.S. law, which follows a limited "patent abuse" standard.⁵⁹

Thus, despite the significant convergence in China's standards with global practices, the country retains a distinctive approach that bends in the direction of use rights. This is unsurprising because China must meet the needs of its dual economy, balancing between the preferences of high-technology sectors for protection and the needs of consumers and lagging industries for low-cost access to new products. Indeed, the continuing inability to deter large-scale infringement in lower-income provinces effectively satisfies the latter ambition.

A CROOKED PATH AHEAD

After years of experimentation and reforms, IPRs play a central, if multifaceted,

role in Chinese development policy and have become widely acculturated in the economy, for better or worse. Given this history, it is interesting to speculate about the short-term future of China's engagement with the global regime. On the one hand, powerfully emerging domestic economic interests may push for increasing harmonization with high-standard systems, like those of the United States and the European Union. On the other hand, Chinese authorities are committed to additional interventions in order to advance the so-far halting domestic progress in innovative, high-technology sectors. It may seem that both objectives require continued strengthening of the patent, copyright, and trade secrets regimes, but this is not necessarily the case. For the sake of indigenous innovation—in addition to the perceived social-use needs in medicines, environmental technologies, and other areas—a more permissive system based on allowable flexibilities may reign for some time. Put differently, if Beijing were to adopt and enforce a maximal IPRs regime it would sacrifice its potential use of significant elements of domestic industrial policy, ranging from a relaxed attitude toward copying and trade-secrets misappropriation to national favoritism in technology supports. Thus, there remains an uneasy tension between the dictates of industrial policy and full IP development. Adding the sometimes cacophonous nature of centralized versus provincial attitudes toward the protection and enforcement of IPRs accentuates this tension.⁶⁰

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This awkward equilibrium now faces an additional disruptive challenge from abroad, the prospective enactment of the Trans-Pacific Partnership (TPP). The TPP is the first of the so-called mega-regional trade agreements involving multiple countries at different levels of economic development and incorporating rules across a comprehensive set of trade and regulatory policies.⁶¹ Thus, the agreement goes well beyond tariff cuts to include rules of origin, services liberalization, market access in investment, investor-state dispute resolution, intellectual property rights, government procurement rules, the operations of state-owned enterprises, and labor standards. The result will be a complex set of regulatory provisions, largely harmonized and well beyond those envisioned by the WTO agreements, among a highly disparate set of countries. If ratified and implemented by TPP partner countries, it will essentially define global trade policy for the balance of the twenty-first century.

For the purposes of this essay, three observations about the TPP are crucial. First, it represents one major fulcrum of the much-discussed pivot of U.S. economic policy toward East Asia.⁶² As such, it offers Washington an unparalleled opportunity to establish a regional set of trade and regulatory rules that ultimately could be expanded across Asia. To be sure, the TPP was negotiated

among 12 partners, which in some areas resulted in a text that falls short of U.S. goals.⁶³ However, the totality of the agreement comports with U.S. fundamental priorities in numerous policy areas, such as protection of the economic value of foreign investments from regulatory initiatives, transparent government procurement, a greater market orientation of SOEs, and enforceable labor rights. In this context, the United States exercised considerable economic leadership over a wide diversity of economies.

Second, the rules on intellectual property go well beyond the minimum standards required by the WTO—also a key U.S. demand—and limit the scope with which TPP members may access TRIPS flexibilities in their legislation. Particularly relevant are the strong provisions in TPP for expanding patent eligibility, assigning criminal liability to the willful misappropriation of trade secrets, limiting generic competition in medicines, establishing protection of confidential testing data for biologic products, enhancing safeguards for digital products and internet transmissions, and expanding the range and severity of sanctions for copyright piracy and trademark infringement. A number of these features are not found in current Chinese law and likely would engender considerable controversy there if Beijing were confronted with adopting them.

The third notable feature is simply that China is not included in the TPP. Some observers attribute this fact to a purposeful U.S. strategy of excluding Beijing.⁶⁴ The essential argument comes in three parts. First, the United States could not have succeeded in establishing such a high-standard agreement, involving deep regulatory integration, had it been forced to negotiate with China, the other Asia-Pacific behemoth. Presumably, that country would have fended off high-level provisions in services, investor protection, reforms of SOEs, IPRs, and perhaps labor standards, areas of the TPP it views with caution. Second, U.S. export interests have much to gain from the establishment of a dominant Asia-Pacific trade pact, featuring high-level regulatory norms, prior to the foundation of any alternative competing plurilateral agreements in the region. As noted below, such agreements, more attuned to perceived needs of developing economies, would surely limit the reach of regulatory reforms in key issues. Third, by setting the regional trade-policy agenda for the next generation through the TPP, the United States would assert its continued economic leadership in the region.

How damaging would it be for China to remain outside the TPP? As a matter of economics, China's exclusion promises to be fairly modest in its effects. For example, one prominent analysis suggests that the TPP would reduce China's real income by about \$47 billion, or 0.27 percent of GDP, relative to

the benchmark expectation by 2025.⁶⁵ Such estimates, however, fail to take into account the unpredictable, yet potentially large, cumulative effects of the diversion of investment flows and technology away from China and toward other TPP members induced by policy harmonization within the agreement. Beijing, however, may see the greater threat as political to the extent it loses its ability to influence policymaking in the region.

Long-term exclusion of China from the TPP is hardly assured, however. The agreement has a provision allowing open accession to any country that wishes to join and agrees to adopt its provisions. China could join by agreeing to alter its laws to comply with the text, a policy option that seems to be under active consideration.⁶⁶

Beijing's choice in this regard cannot be predicted, but at least two important factors will certainly influence it. For one, the broad regulatory scope of the TPP would place considerable constraints on China's nationalist development strategy. Within the IPRs area, the expectations about trade secrets, generic competition, and enforcement would effectively force high-level harmonization well beyond the delicate balance of existing law. More broadly, the rules on government procurement and public support for SOEs could diminish the scope of those policies regarding innovation and industrial interventions. How these issues might navigate through China's complex political economy into law is an open question.

More important is the extent to which China may wish to surrender, or perhaps share, its economic leadership role in East Asia, borne of its dominating presence in trade and foreign direct investment. China has largely eschewed trying to export its regulatory standards to partner countries, preferring national discretion to the extent possible. This may be changing, however. China is participating in current negotiations over the Regional Comprehensive Economic Partnership (RCEP), a prospective competing mega-regional trade agreement involving 15 nations in the Asia-Pacific region, including India, Japan, and South Korea.⁶⁷ The content of these negotiations remains confidential, but the RCEP will be less comprehensive than the TPP. It does not cover government procurement or SOEs, and its intellectual property provisions are likely to be more lenient on policy flexibilities, reflecting China's characteristic preference.

Thus, the choice seems rather stark: accept the TPP and its rigorous IPRs standards, largely defined by the United States, or have more influence over regional policy via RCEP. Put in those terms, the latter option seems more strategic, given China's ambitions. It is possible for China to join both, in principle, but doing so would establish the higher TPP standards, which would necessarily

prevail regarding IPRs and regulatory treatment.

A third possibility exists if both trade agreements fail to be agreed on or implemented. In this case, China would remain freer to pursue its domestic priorities in intellectual property and industrial policy, an outcome that would appeal to many in the country. Major industrialized economies, led by Washington and Brussels, would face more years of active engagement to try to influence the evolution of Chinese IPRs and innovation policy, even as that economy becomes more internationally competitive.⁶⁸ Equally, China would have freer rein to influence the evolution of regional trade and innovation policies, at times frustrating the intentions of authorities in the United States and other leading economies. Under that scenario, for example, emerging countries in East Asia might exert more discretion over issuing compulsory licenses in pharmaceutical patents, extending R&D subsidies to domestic firms, and expanding the scope of unauthorized use of copyrighted educational materials.

At this time, predictions about how this situation might evolve are, at best, informed speculation. It seems appropriate, however, to offer at least one view, based largely on the history described here. In recent years, China has witnessed a remarkable economic transformation, increasingly focused on the acquisition, use, and domestic development of sophisticated technologies. This transformation has brought with it a growing chorus of voices arguing for policy reforms that conform to intellectual property norms and industrial property regulations in the advanced economies. It seems likely that these pressures will prove ascendant in Beijing going forward, effectively reducing domestic opposition to adopting the rules embodied in the TPP. In light of its potential dynamic benefits, it seems likely that China will choose to accede to the agreement, if indeed the TPP itself is ratified by its negotiating partners within a reasonable time period.

It is possible to envision a broader outcome, however. If the United States and China truly are converging in their views of the importance of mega-regional trade agreements with extensive regulatory norms for dynamic sectors, they might jointly lead the development of a wider Free Trade Agreement of the Asia-Pacific (FTAAP), a prospect that has been discussed.⁶⁹ Such an agreement, which would incorporate many of the countries not currently in the TPP, would be historic in its economic and geographical scope, while generating far larger economic benefits.⁷⁰ It could also place China and the United States on

The choice seems rather stark: accept the TPP and its rigorous IPRs standards, largely defined by the United States, or have more influence over regional policy via RCEP.

an equal footing in setting the trade rules in the region for at least a generation. Achieving that cooperation would be challenging for many reasons. It would, however, offer the potential for charting a course in intellectual property regulation that strikes a compromise between the high-protection emphasis of the United States and the more development-oriented Chinese focus. If managed effectively, such an accord could even point the way forward for global policy. 

NOTES

1. According to World Bank data, China surpassed Germany as the largest merchandise exporter in dollar terms in 2009 and established a larger GDP than the United States, measured in purchasing power parity terms, in 2014. For more information, see: “World Data Bank: World Development Indicators,” World Bank, <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>.

2. Steven Radelet, *The Great Surge: The Ascent of the Developing World* (New York: Simon and Schuster, 2015).

3. See: C. Fred Bergsten et al., *China's Rise: Challenges and Opportunities* (Washington, DC: Peterson Institute for International Economics, 2008); Lan Xue and Zheng Liang, “Relationships between IPR and Technology Catch-Up: Some Evidence from China,” in *Intellectual Property Rights, Development, and Catch-Up: An International Comparative Study*, ed. Hiroyuki Odagiri et al. (Oxford: Oxford University Press, 2010); Deepak Bhattasali, Shantong Li, and William J. Martin, eds., *China and the WTO: Accession, Policy Reform and Poverty Reduction Strategies* (Oxford: Oxford University Press and World Bank, 2004).

4. Xue and Liang, “Relationships between IPR and Technology Catch-Up”; Peter K. Yu, “Intellectual Property, Economic Development, and the China Puzzle,” in *Intellectual Property, Trade, and Development: Strategies to Optimize Economic Development in a TRIPS-Plus Era*, ed. Daniel Gervais (Oxford: Oxford University Press, 2007).

5. Keith E. Maskus, *Private Rights and Public Problems: The Global Economics of Intellectual Property in the 21st Century* (Washington, DC: Peterson Institute for International Economics, 2012); Dieter Ernst, *Indigenous Innovation and Globalization: The Challenge for China's Standardization Strategy* (Honolulu: East-West Center, 2010).

6. Keith E. Maskus, “Patents and Technology Transfer through Trade and the Role of Regional Trade Agreements” (paper for East-West Center conference, Manila, Philippines, January 20, 2016); On the issue of U.S. containment of China through the TPP, see: Simon Reich, “Is the TPP about Jobs or China?” *Beyond the Beltway*, May 22, 2015; For a dissenting view, see: Mireya Solis, “The Containment Fallacy: China and the TPP,” *The Brookings Brief*, Brookings Institution, May 24, 2013.

7. Xue and Liang, “Relationships between IPR and Technology Catch-Up.”

8. For example, see: Richard P. Suttmeier and Xiangkui Yao, *China's IP Transition: Rethinking Intellectual Property Rights in a Rising China* (National Bureau of Asian Research, NBR Special Report 29, 2011).

9. “World Bank Data,” World Bank, <http://data.worldbank.org/indicator/TM.TAX.MRCH.WM.AR.ZS>.

10. Barry Naughton, *The Chinese Economy: Transitions and Growth* (Cambridge, MA: The MIT Press, 2007).

11. Xue and Liang, “Relationships between IPR and Technology Catch-Up”; Note that the bulk of early FDI inflows came from Taiwan and Hong Kong, helping to integrate the mainland into a broader Chinese economy involving complex cross-border ownership and production relations, as discussed in: Yin-Won Cheung, Menzie D. Chinn, and Eiji Fujii, *The Economic Integration of Greater China: Real and Financial Linkages and the Prospects for Currency Union* (Hong Kong: Hong Kong University Press, 2007).

12. Xue and Liang, “Relationships between IPR and Technology Catch-Up”; Organization for Economic Cooperation and Development, *FDI in Figures* (OECD, October 2015).

13. Economists refer to the possibility that firms in one country may become more efficient by studying

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foreign technologies as “learning spillovers.” These are important contributors to international productivity growth, as explained by: Wolfgang Keller, “International Technology Diffusion,” *Journal of Economic Literature* 42, no. 3 (2004): 752–82; On China’s policy objectives in this regard, see: Richard Li-Hua and Tarek M. Khalil, “Technology Management in China,” *Journal of Technology Management in China* 1, no. 1 (2006): 9–26.

14. Maskus, *Private Rights and Public Problems*.

15. On strategies to diminish technology leakage in China, see: Keith E. Maskus, *Intellectual Property Rights in the Global Economy* (Washington, DC: Institute for International Economics, 2000); For an explanation on Chinese complaints about the high cost of licensing and technology purchases, see: Xuan Li and Baisheng An, *IPR Misuse: The Core Issue in Standards and Patents* (Geneva: South Centre, 2009).

16. Xue and Liang, “Relationships between IPR and Technology Catch-Up.”

17. Ministry of Science and Trade, “China Science and Technology Indicators 2004,” in *The Yellow Book on Science and Technology: Scientific and Technical Documents* (Beijing: Ministry of Science and Trade, 2006).

18. The State Council of the People’s Republic of China, *The National Medium- and Long-Term Program for Science and Technology Development (2006–2020)* (Beijing: The State Council of the People’s Republic of China, 2006).

19. Suttmeier and Yao, *China’s IP Transition: Rethinking Intellectual Property Rights in a Rising China*.

20. Maskus, *Private Rights and Public Problems*.

21. United States Trade Representative, *2015 National Trade Estimate Report on Foreign Trade Barriers* (Washington, DC: United States Trade Representative, 2015).

22. For example, see: Andrew C. Mertha, *The Politics of Piracy: Intellectual Property in Contemporary China* (Ithaca, NY: Cornell University Press, 2005); Keith E. Maskus, “Intellectual Property Rights in the WTO Accession Package: Assessing China’s Reforms,” in Bhattasali, Li, and Martin, *China and the WTO*.

23. Xue and Liang, “Relationships between IPR and Technology Catch-Up.”

24. Janusz A. Ordover, “A Patent System for both Diffusion and Exclusion,” *Journal of Economic Perspectives* 5, no. 1 (1991): 43–60.

25. Xue and Liang, “Relationships between IPR and Technology Catch-Up.”

26. UPOV is an acronym derived from the French name of the agreement.

27. The index is due to Juan Carlos Ginarte and Walter Park, first published in “Determinants of Patent Rights: A Cross-National Study,” *Research Policy* 26, no. 3 (1997): 283–301. The index in principle ranges from zero to five, with China’s value increasing from 1.33 to 4.21. For further discussion, see: Maskus, *Private Rights and Public Problems*.

28. Peter K. Yu, “From Pirates to Partners (Episode II): Protecting Intellectual Property in Post-WTO China,” *American University Law Review* 55, no. 4 (2006): 901–1000.

29. Xue and Liang, “Relationships between IPR and Technology Catch-Up.”

30. Chengsi Zheng, “Looking into the Revision of the Trademark and Copyright Laws from the Perspective of China’s Accession to the WTO,” *European Intellectual Property Review* (2002).

31. Xue and Liang, “Relationships between IPR and Technology Catch-Up.”

32. Yu, “From Pirates to Partners (Episode II).”

33. State Intellectual Property Office, “Draft Amendments to China’s Patent Law,” April 7, 2015, <https://chinaipr2.files.wordpress.com/2015/04/aba-sipl-sil-comments-on-draft-patent-law-amendments-final-en-cn-w-app.pdf>.

34. For an early perspective, see: Mertha, *The Politics of Piracy: Intellectual Property in Contemporary China*; For the diplomatic efforts, see: Peter K. Yu, “Still Dissatisfied after all these Years: Intellectual Property Post-WTO China, and the Avoidable Cycle of Futility,” *Georgia Journal of International and Comparative Law* 34, no. 1 (2005): 143–58; On the WTO case, see: Maskus, *Private Rights and Public Problems*.

35. Suttmeier and Yu, *China’s IP Transition: Rethinking Intellectual Property Rights in a Rising China*.

36. Ibid; Suttmeier and Yu note that in 2010 there were almost 43,000 IP civil cases in China, compared to under 8,000 in the United States.

37. Carsten Fink, Keith E. Maskus, and Yi Qian, “The Economic Effects of Counterfeiting and Piracy: A Review,” *World Bank Research Observer* 31, no. 1 (2016): 1–28.

38. United States International Trade Commission, *China: Effects of Intellectual Property Infringement*

and *Indigenous Innovation Policies on the US Economy* (2011).

39. See: Carolyn Deere, *The Implementation Game: The TRIPS Agreement and the Global Politics of Intellectual Property Reform in Developing Countries* (Oxford: Oxford University Press, 2009).

40. Keun Lee and Yee Kyoung-Kim, "IPR and Technological Catch-Up in Korea," in Odagiri et al., *Intellectual Property Rights, Development, and Catch-Up*.

41. Maskus, *Private Rights and Public Problems*.

42. Mertha, *The Politics of Piracy: Intellectual Property in Contemporary China*.

43. Ibid.

44. Suttmeier and Yu, *China's IP Transition: Rethinking Intellectual Property Rights in a Rising China*.

45. Ibid.

46. See: "Intellectual Property Statistics," World Intellectual Property Organization, <http://www.wipo.int/ipstats/en/>.

47. "World Development Indicators," World Bank, <http://databank.worldbank.org/data/reports.aspx?source=2&Topic=14>.

48. Xue and Liang, "Relationships between IPR and Technology Catch-Up."

49. United States Trade Representative, *2015 National Trade Estimate Report on Foreign Trade Barriers*.

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51. Albert G. Hu and Gary H. Jefferson, "A Great Wall of Patents: What Is behind China's Recent Patent Explosion?," *Journal of Development Economics* 90, no. 1 (2009): 57–68.

52. Maskus, *Private Rights and Public Problems*.

53. Ibid.; Interestingly, similar complaints about the U.S. patent system were important in motivating passage of the America Invents Act of 2011, which addressed several such concerns.

54. Ernst, *Indigenous Innovation and Globalization*.

55. Maskus, *Private Rights and Public Problems*.

56. Ibid.

57. *Patent Law of the People's Republic of China, as amended 2008*, http://www.wipo.int/wipolex/en/text.jsp?file_id=178664.

58. Samuel Speed, "Fair Use or More Fair Dealing: China's Copyright Law in Transition," *Yingke Law Firm—IP and Legal Advisers*, <http://www.hg.org/article.asp?id=35527>.

59. State Intellectual Property Office, "Draft Amendments to China's Patent Law."

60. Suttmeier and Yu, *China's IP Transition: Rethinking Intellectual Property Rights in a Rising China*.

61. Peterson Institute for International Economics, *Assessing the Trans-Pacific Partnership, Volume 1: Market Access and Sectoral Issues* (2016).

62. See, for example: Matt Schiavenza, "What Exactly Does It Mean that the U.S. is Pivoting to Asia?" *The Atlantic*, April 15, 2013; Kurt Campbell and Brian Andrews, "Explaining the U.S. 'Pivot to Asia'" (Chatham House, 2013).

63. For example, in the intellectual property area, a norm for protecting confidential test data in biologic products is established for the first time in a major trade agreement, but partners agreed on shorter minimum periods than the U.S. preference for 12 years; See: Maskus, "Patents and Technology Transfer through Trade and the Role of Regional Trade Agreements."

64. For example, see: Shuaihua Cheng, "TPP, China, and the Future of the Global Trade Order," *Yale Global Online*, October 14, 2014; For an argument that Chinese authorities view the TPP as exclusionary, see: Aurelia George Mulgan, "Japan, U.S. and the TPP: the View from China," *East Asia Forum*, May 5, 2013.

65. Peter A. Petri and Michael G. Plummer, *The Trans-Pacific Partnership and Asia-Pacific Integration: Policy Implications*, (Peterson Institute for International Economics, 2012).

66. Paul Bowles, "China Debates the TPP," *East Asia Forum*, March 20, 2014, available at <http://www.eastasiaforum.org/2014/03/20/china-debates-the-tpp/>; For an argument that China has decided to forego the TPP, see: Min Ye, "China Liked the TPP—Until U.S. Officials Opened Their Mouths," *Foreign Policy*, May 15, 2015.

67. Center for Strategic and International Studies, "ASEAN and Others Launch Regional Comprehensive

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Economic Partnership,” December 7, 2012.

68. Kenneth Lieberthal, “How Domestic Forces Shape the PRC’s Grand Strategy and International Impact,” in *Strategic Asia 2007-08: Domestic Political Change and Grand Strategy*, ed. Ashley J. Tellis and Michael Wills (National Bureau of Asian Research, 2007), 28–66.

69. Petri and Plummer, *The Trans-Pacific Partnership and Asia-Pacific Integration*.

70. Ibid.