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Governing science and technology under the international economic order: Regulatory divergence and convergence in the age of megaregionals by Shin-yi Peng, Han-Wei Liu and Ching-Fu Lin

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Trade and technology have a long history of interdependence. It was the trade along the ancient silk road that helped to spread the technologies of China – such as paper-making, gun power, compass, and moveable type printing – to Europe. These technologies helped to launch the Renaissance, the Reformation, and the Great Discoveries, which in turn set in motion globalization as we know today.

As we enter the third decade of the twenty-first century, the role of science and technology grows even stronger in international trade. For example, the advancement of information and communications technology (ICT) has greatly facilitated the cross-border supply of services (and goods in some instances), which has become essential due to the pandemic that is raging around the world at the time of this writing. In view of these developments, the governance of science and technology under the international economic order becomes even more topical and timely today. By addressing these important governance issues, this book provides rich food for thought.

The key question in any international economic order is about how to strike a balance between trade liberalization on the one hand, and regulatory autonomy on the other hand. This question has generated considerable and enduring challenges for WTO tribunals as they, in the application and interpretation of WTO rules, seek to achieve a balance between trade and non-trade values such as human life and health, the environment, public morals, consumers interests, and, increasingly, national security. As technology plays a critical role in economic development, trade growth, and global competition, WTO and free trade agreements (FTAs) alike will inevitably need to address the tension between domestic regulation of science and technology for legitimate policy goals and trade liberalization.

Due to differences in history, culture, regulatory philosophy, and levels of economic and technological development, countries often choose different regulatory approaches to the same problems. Within the confines of national borders, it is hard to say which approach is right and which is wrong, as each nation's approaches are tailored to meet its own needs and preferences. When countries start to trade with each other, however, these different approaches often run into conflicts that create barriers to trade. As a global organization, the WTO does not, and should not be expected to, dictate the regulatory preferences of its 160+ members. WTO rules on domestic regulation, as applied and clarified in a significant body of case law, have largely been confined to certain principles, in particular prohibitions on discrimination and unnecessary or disguised restrictions on international trade and the requirement for a rational connection between the regulatory purpose and the means chosen. These rules are not designed, nor intended, to cause undue interference with regulatory autonomy or require regulatory harmonization. A small number of agreements that tackle specific measures, such as technical barriers to trade (TBT) and sanitary and phytosanitary (SPS) measures, do include provisions that promote regulatory harmonization through rules on the use of international standards and mutual recognition. While these rules did facilitate regulatory cooperation, notably with the assistance of the relevant WTO committees, they

have limited application and are subject to the willingness of WTO Members to engage in such cooperation.[1]

The facilitation of international trade requires further cooperation on regulatory approaches and standards. This is where FTAs, as testbeds for new ideas, can be useful. Historically, however, most FTAs, with the notable exception of the EU, are rather limited in both membership and scope, and thus ill equipped for such a task. This situation has changed over the past decade, with the rise of new mega-regionals such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the Regional Comprehensive Economic Partnership (RCEP), and the Transatlantic Trade and Investment Partnership (TTIP). These mega-regionals not only straddle across major regions of the world, but also have ambitious agendas which cover many regulatory issues and develop new and more rigorous rules in pursuit of deeper integration. By focusing on mega-regionals, this book makes a worthy attempt to capture the 'zeitgeist' of the current international economic order.

Inspired by the rise of global value chains (GVCs), Mavroidis (Ch. 2) advocates in his opening chapter a 'new WTO think' that incorporates 'shared social preferences' as a 'motivation for advancing international regulatory cooperation'. Given the diversity among the WTO Membership, however, it would be rather difficult, if not impossible, to foster such 'shared social preferences' in Geneva. Thus, FTAs, including mega-regionals, become a natural choice.

The fourteen chapters tackle the issue of regulatory coherence in four distinct areas, which can be grouped into two broad categories as indicated by the title of the book: technology-related issues such as trade in ICT products and services, and intellectual property rights (IPRs) protection; and science-related issues such as environmental and energy policy, and food security and public health.

1. Technology

FTAs, especially mega-regionals, have become a common forum for advancing regulatory convergence. In particular, heightened standards on IPRs protection have become popular among FTAs, as discussed by Yu (Ch. 13), Hazucha (Ch. 14), and Mercurio (Ch. 15) in their respective chapters. Recognizing the complexity of Asia, Yu argues that neither the convergence nor the divergence narrative accurately captures the reality and instead explains the situation as one of 'crossvergence', i.e., 'a simultaneous convergence and divergence of regulatory standards'. Of course, it is one thing to just borrow laws from others, it is a totally different matter to try to make it work in the local context. This is discussed by Mercurio, who cautions against the pitfalls of 'harmonization without localization', and argues that, to be more effective, regulations which raise the normative standards should be tailored to the specific context of the country. Moreover, the mantra of 'intellectual property rights protection stimulates innovation' might not always be true in specific sectors, as illustrated by Hazucha's case study of the impact of enhanced copyright protections and the development of new digital reproduction and communication technologies.

In addition to IPRs, the interaction between domestic regulations and international norms is also found in other areas, such as the governance of digital trade and data protection. Such interactions occur in two directions. The first concerns the attempt by certain countries to push for the

[1] See generally WTO and OECD (2019) Facilitating Trade Through Regulatory Cooperation: The Case of the WTO's TBT/SPS Agreements and Committees. WTO and OECD.

multilateralization of their domestic standards, as illustrated by Weber (Ch. 3) who looks at the EU's efforts to export its regime through the Comprehensive Economic and Trade Agreement (CETA) and the TTIP. As noted by Weber, even in the case of the most powerful players, such an attempt may encounter strong resistance. Even if the attempt succeeds, one may still encounter a myriad of problems when trying to implement such standards in the recipient country. The second concerns the importation of international standards into the domestic setting, as illustrated by Peng (Ch. 4). Using laws governing unsolicited commercial electronic messages, or anti-spam laws, as an example, Peng argues that the efficacy of international norms often depends upon how they are understood and applied by local governments.

A number of chapters discuss the division of economic rents among different players in the technology GVCs, a distinct feature of technology-related issues. Using China as an example, Wu (Ch. 5) examines how governments may leverage strategic instruments, such as export policies, technology controls, and investment reviews, to capture the high-value portions of technology GVCs. However, such strategies do not always work, as illustrated by Liu (Ch. 6) in his study of China's unsuccessful attempt to promote the home-grown WLAN Authentication and Privacy Infrastructure (WAPI) standard – one of the most spectacular failures of China's famous 'indigenous innovation' policy – as an incompatible alternative to the widely implemented Wi-Fi standard. As noted by Liu, even though China maintains a top-down, state-led standardization system, there is no guarantee that it will work due to coordination problems associated with the fragmentation of GVCs and turf wars among regulatory agencies. Moreover, even if such efforts achieve temporary success at the domestic level, such success will lead to pushbacks from foreign governments, which try to fend off such encroachments through a combination of unilateral, bilateral, and regional measures. In addition to direct pressures, foreign laws and international treaties can also play an indirect role in the domestic legal system of a country, as documented by Feng's study (Ch. 16) of China's Anti-Unfair Competition Law, especially those related to the Internet.

2. Science

Given that technology often involves a conscious choice by each national government, it is probably not surprising that the issue of technology regulation in mega-regionals is a complicated and even occasionally contentious task. One might think that things would be different for science; after all we only have a uniform system of science to start with. However, as veterans in trade regulations know, the science on many issues is still inconclusive. Even if the science on an issue is well settled, different regulatory regimes could still emerge due to different lifestyle preferences and risk tolerance levels, not to mention various protectionist measures clothed in science. The problem is particularly prominent in two areas familiar to international trade lawyers: environmental regulation and food safety. But even though the two are often mentioned in tandem, they are actually quite different. Environmental regulations are largely unregulated in the text of WTO Agreements, save the laconic language on 'conservation of exhaustible natural resources' under GATT Article XX. Of course, this did not prevent resourceful lawyers to further refine the legal regime through frequent environment-related litigation in the WTO. In comparison, food safety regulations have received far more attention and even have their own agreement: The Agreement on the Application of Sanitary and Phytosanitary Measures.

As the WTO agreements lack explicit rules on the environment, the forum of choice for such regulations is often FTAs, especially mega-regionals. In his contribution, Choi (Ch. 7) traces the evolution of the governance framework on biological diversity from the rise of the New International

Economic Order, the conclusion of the Convention on Biological Diversity, to the TPP. The other two chapters in Part III address the issue of renewable energy, with Shadikhodjaev (Ch. 8) discussing the trade law issues raised by a variety of 'micro issues' such as localization measures, government support, infrastructural facilities, technical standards, and renewable energy services, while Gao (Ch. 9, unrelated to the reviewer) addresses these issues at the macro level by reviewing the regulatory efforts in different fora such as the WTO and FTAs, including mega-regionals.

In contrast, food safety and public health are hot issues in the WTO. But contrary to popular misconception, the WTO does not mandate a specific approach on food safety issues. Instead, it only requires national measures to have a scientific justification and encourages the use of international standards as the basis for domestic regulation. Such an approach also appears to have been copied into various FTAs, including the mega-regionals. This observation is confirmed by the three contributions on the topic, which all focus on the TPP chapters on TBT and SPS issues. Naiki (Ch. 10) observes that, while the CPTPP attempts to promote regulatory convergence on these issues, its innovation is limited to procedural rules such as transparency, without breaking new ground on substantive rules. This is confirmed by Lo's (Ch. 12) meticulous study of the regulation of food safety-related package issues under the TPP, concluding that the TPP is 'not particularly impressive in the handling of food safety issues'. While also agreeing with the assessment, Lin (Ch. 11) argues that the TPP chapter on Regulatory Coherence needs to be taken into consideration, which could help to improve the parties' SPS rule-making processes.

Upon finishing this book, one cannot help revisiting the question in the subtitle of the book: 'Will the rise of mega-regionals lead to regulatory convergence or divergence?' Some readers might be frustrated by the absence of a straight answer, but this is certainly not the fault of the book. Given the complexities and fast developments of these issues, this book, as put by the editors in their introductory chapter, is not meant to be the end of the journey, but merely 'a point of departure that invites further research, exploring the way to rise to the challenges ahead.'