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ORIGINAL ARTICLE

Lowering Regulatory Trade Costs

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Abstract
Negotiations on 'deeper' trade agreements and estimates of tariff equivalents have increased the awareness that regulatory trade costs are (too) high. This paper discusses ways to effectively lower such costs, reviewing the potential role of trade agreements and international regulatory cooperation, and the approaches that have been taken in different world regions. Attention is also paid to cost reduction via global technical standardization. Key issues are how to reduce the prevalence of national standards setting and how to best promote international standards. In both dimensions, Europe is argued to play a frontrunner role.

1. Introduction

Tariffs are no longer a major barrier to trade, with only relatively few exceptions. Instead, regulatory trade costs are higher, and at times much higher, than tariffs. Moreover, these costs are rapidly rising for middle-income countries with an emerging middle class, and can confidently be expected to rise amongst low income developing countries Regulatory trade costs are also the principal barrier to market access for services, given the absence of import duties.

Regulatory trade costs are high because regulations differ between trading partners, with respect to scope, objectives, approaches, details and/or enforcement, and because of 'red tape' related compliance costs, in particular in services. There are many types of regulatory barriers but those resulting from 'risk regulation' dominate. Risk regulation addresses market failures such as health, safety, or environmental risks. Whilst appropriate risk regulation improves welfare, it also generates costs in international trade due to regulatory heterogeneity as well as unnecessarily costly administrative compliance costs.

This paper discusses three broad approaches to address regulatory trade costs. Section 2 focuses on trade agreements. Section 3 discusses international regulatory cooperation (IRC), which has a variety of distinct approaches and ambitions with commensurate degrees of effectiveness. Section 4 surveys, briefly, international standardization, in principle a voluntary market-driven approach but with significant and potentially helpful links with (risk) regulation. Section 5 concludes.

2. Trade Agreements

Trade officials have three sets of tools that can be used to lower regulatory trade costs: WTO agreements (including plurilaterals), bilateral/regional agreements, and mutual recognition agreements (MRAs).

*This article is a synthesis of a longer working paper, Pelkmans (2023).

2.1 The WTO Level

The main WTO disciplines addressing regulation of goods are the agreements on Technical Barriers to Trade (TBT) and on Sanitary and Phytosanitary (SPS) measures. These are the dominant forms of risk regulation affecting trade in goods.[1] The agreements establish a minimum set of basic principles and disciplines encouraging 'better' risk regulation (e.g., requiring product regulation to be based on sound risk assessments and encouraging the use of international standards). However, the WTO does not set standards or regulate markets and hence can only marginally influence regulatory trading costs. With respect to lowering 'red tape' compliance costs, the WTO Trade Facilitation Agreement of 2013 has helped for trade in goods. In services, efforts to reduce regulatory trade costs are reflected in the 2021 Reference Paper on Services Domestic Regulation, which was signed by 70 economies, accounting for some 90% of world services trade.

The regular work of the TBT and SPS committees helps to 'manage' regulatory trade barriers, including through 'transparency' associated with obligatory notifications that trigger dialogue. The number of annual notifications to the TBT committee, for example, has increased to more than 3,000 per year. Notifications are the basis for discussions on specific trade concerns (STCs), a process through which trading partners can raise questions on national measures that are not in line with the agreements. The number of STCs has increased to an annual average of around 75 between 2008 and 2017, compared to an annual average of less than 30 in the period 1997–2007 (Espitia et al., 2022). This is a tiny fraction of all TBTs notified, implying that STCs cannot be used as even a proxy measure of regulatory trade costs. Still, because the WTO TBT committee is active in discussing STCs, they are quite often removed or reduced. Cernat and Boucher (2021) conclude, on the basis of a careful matching exercise at the 6-digit HS level, that the EU's pursuit of STCs in the TBT committee facilitated €83 bn of EU exports between 2010 and 2020.[2]

Regulatory trade costs are a derivative of *all* SPS and TBT measures. While in some instances, SPS and TBT measures might *facilitate* market access, the bulk of regulatory trade costs result from TBT and SPS measures, most of which are perfectly *in line with* the WTO disciplines. This does not mean that these two agreements have not been useful to world trade. On the contrary, by and large both agreements have influenced national regimes and processes regarding enactment, implementation, and enforcement of relevant laws and decrees. Moreover, quite apart from STCs, the permanent work of the TBT and SPS committees has almost certainly been most useful for a 'better (risk) regulation culture' by providing a mould in which national initiatives must fit, inducing a positive effect on trade (OECD and WTO, 2019).

Trade liberalization under the GATS has been underwhelming and barriers to trade in services remain substantial (Borchert et al., 2020). Trade costs in services are much higher than those in goods (Jafari and Tarr, 2017) and there has been less reduction for services over time than for goods. Ad valorem equivalents of regulatory trade costs for the most developed economies have been estimated at 16% for communication services, 20% for business services, 23% for transport services, 190% for insurance services, and 211% for other financial services (Benz and Jaax, 2022). The 'additional' commitments on services domestic regulation made by the 70 signatory economies mentioned above are not about regulatory substance; WTO members remain free to apply market access and national treatment limitations. Instead, the new commitments are about disciplines not unlike some of the provisions in the TBT and SPS agreements, specifically transparency (suspected to be still more problematic than in goods), legal certainty and predictability, and regulatory quality. Such disciplines have been shown to have a positive impact on trade in services as well as on participation in Global Value Chains (WTO, 2019; Hoekman, 2020).

[1]See Espitia et al. (2022, pp. 345–346).

[2]Of course, other WTO partners are also likely to benefit from the removal or reduction of STCs.

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2.2 Regional Trade Agreements

Regional and/or bilateral trade agreements have substantial potential to lower regulatory trade costs. Stone and Casalini (2022, pp. 369–390) show how important regional or bilateral trade agreements can be for the lowering of the costs of SPS measures for partners (see also Cadot and Gourdon, 2016),[3] first, by (further) streamlining SPS requirements, which tends to lower compliance costs; second, by providing reliable information about foreign products, which reduces home bias helping to lower the price impact of SPS measures; third, by regional or bilateral agreements, which tend to put a natural brake on protectionist-motivated intervention, including SPS measures; and fourth, more generally, by organizing joint structures, which facilitate trade-liberalizing agendas, via technical cooperation, sharing information on developing standards or regulations, or indeed developing standards together. Mutual recognition of conformity assessment procedures (in regional agreements) significantly lowers SPS-induced trade costs (Disdier et al., 2019).

As far as TBT provisions in regional agreements are concerned, between 1958 and 1990 very few agreements included TBT provisions. However, since 1991, on average some 10 new agreements that include TBT provisions were concluded each year, with commitments becoming progressively 'deeper' (Espitia et al., 2022, pp. 348, 356–357). The increasing importance of TBTs as a source of trade costs acts as an incentive for countries to enter into regional agreements. In contrast to standards and technical regulation, integrating conformity assessment measures is quite common in regional agreements. Espitia et al. (2022) do not specify what 'integration' of conformity assessment entails – probably 'mutual recognition' and 'equivalence' – but the effective functioning of MRAs is notoriously difficult to accomplish[4] and equivalence remains dependent on the importing country. For standards, 'harmonization' is the preferred approach, but what this implies remains unclear, including its actual impact on trade. It is most unlikely that many regional agreements will harmonize towards 'regional standards'. Presumably, partners might wish to 'harmonize' by adopting *international* standards, however standards are not legal instruments and are not decided by governments.

2.3 Mutual Recognition Agreements

Addressing regulatory differences with a view to lowering trade costs is a fundamental characteristic of the EU and the European Economic Area (EEA), because the radical principle of free movement (of goods and services) forces Member States to regulate in common. Outside the EU, the Trans-Tasman Arrangement[5] has remained a stand-alone case. Since the late 1990s, an extensive agenda of MRAs between the US and the EU has inspired other countries, making MRAs potentially interesting as one route to lower regulatory trade costs.[6] Examples include MRAs between the EU and several other countries and a few Asia-Pacific Economic Cooperation (APEC) initiatives, e.g. in electrical goods and telecoms equipment. However, the benefits of MRAs are quite limited. It is good to understand why. The mutual recognition implied in MRAs solely refers to the recognition by the relevant authorities in country A that (accredited) conformity assessment bodies [CAB] in country B can test goods against the technical standards or technical specification in a law of country A. The consequence is that producers or sellers in B can have their goods, which are to be exported to A, tested in their own country, thereby avoiding some (regulatory) trade costs, namely, bringing samples to A first which can be costly and tends to take more time. It might also be helpful that producers are familiar with their national CABs.

[3]This is also true for trade in services, where liberalization, insofar as it is negotiated, has occurred in recent regional trade agreements, not in the WTO.

[4]See Pelkmans and Correia de Brito (2015). Moving from an agreed text to a working MRA involves many steps.

[5]An explanation is given in Annex 2 of Correia de Brito et al. (2016).

[6]For an extensive survey, see the main text of ibid.

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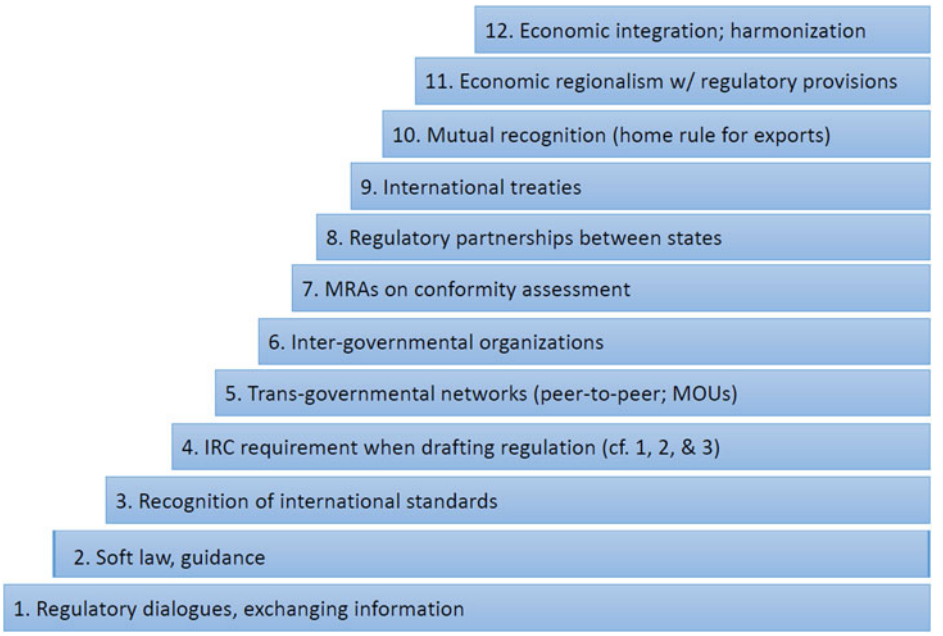

Figure 1. The ladder of international regulatory cooperation
Source: Chase and Pelkmans (2015, p. 20), as adapted and extended from OECD (2013).

For some specific goods, e.g. machinery, such MRAs are likely to save resources; in other cases, the difference is slight. It is crucial to appreciate that the principal costs of TBT regulation are not found in testing and certification but in compliance costs, which are more often than not a multiple of testing expenditures.

The principal reason why MRAs have proven to be problematic has to do with the reticence of regulators. The context in which regulators typically work is not conducive to tackling trade concerns. Their prime focus – indeed, their duty – is to ensure attainment of the risk regulation objectives in their home country. Typically, trade negotiators seek to make market access deals with partner countries. Seeking deals risks being a recipe for failure, as risk regulation is not a matter of 'give and take' negotiation. Beyond the non-discrimination and transparency principles in the SPS and TBT agreements, which essentially discipline national regulators to avoid protectionism (discrimination), regulators from two or more trading partners find it difficult to be dragged into negotiations about adaptation, let alone, regulatory alignment.

Pelkmans and Correia de Brito (2015) scrutinize US/EU MRAs in six sectors. They conclude that MRAs mostly generate only small cost reductions that deal with recognition of specific conformity assessment capabilities – hence, not changing anything in the prevailing regulatory regime in country A. MRAs are nonetheless very difficult to conclude and implement. APEC has also supported MRAs but only some member economies have pursued them, with coverage limited to specific telecom equipment and some cases of electrical safety.

3. International Regulatory Cooperation

International regulatory cooperation [IRC] can slowly and inconspicuously contribute to lower regulatory trade costs. But IRC is not well monitored, very imperfectly reported, and rarely considered as a genuine tool, mostly by sceptical academics. The OECD (1994, 2013, 2017) has been a tireless champion of IRC. To structure the open-ended notion of IRC, consider the IRC ladder

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in Figure 1. This has 12 steps, rising in ambition when moving upwards.[7] The first six steps do not involve formal obligations. Nevertheless, much highly useful work is almost continuously conducted, whether on technical classification of chemical substances, detailed analysis of taxation, or what constitutes 'better regulation'. When IRC becomes quasi-permanent (step 6) in some domains, mutual understanding and a-political approaches may well form a steppingstone for agreements or conventions. At step 10 (mutual recognition, as applied in the EU), the field of economic integration is entered. Indeed, mutual recognition does not work without unquestioned and well-enforced free movement.[8] But even here, the EU was eventually forced to enact two successive regulations[9] to improve the actual functioning of mutual recognition for companies operating in the single market. Common regulation, which does away with regulatory trade costs, is covered only in steps 11 and 12. For world trade, steps 10–12 simply do not apply.

MRAs on conformity assessment constitute step 7 in this ladder of regulatory cooperation. All lower steps are voluntary in nature. Though useful, the question is how useful are these steps for lowering trade costs? If Disdier et al. (2019) are correct about legal enforceability of IRC initiatives as a condition to be effective – whilst noting that such IRC in their sample takes place in free trade agreements (FTAs), thereby assuming a higher degree of trust – the lower 6 steps of IRC will not bring down regulatory trade costs more than marginally or very slowly. Step 7 on MRAs may help but the benefits tend to be highly goods specific and modest, if indeed they can be made to work. Step 9 (specific conventions) may be useful. This is the case for environmental agreements, although their meaning for trade varies enormously.[10]

How do regional agreements fare with respect to IRC and reducing regulatory trade costs? In East Asia and the Pacific recent regional agreements – the 2018 Comprehensive and Progressive Trans-Pacific Partnership (CPTPP) and the 2020 Regional Comprehensive Economic Partnership (RCEP) – include provisions on product regulation. The latter is 'shallow' on anything that can be expected to lower regulatory trading costs. CPTPP is 'deeper' in several respects but not in its chapters on TBT, SPS, 'regulatory coherence', and the environment. International standards are encouraged. Compared to the WTO, the CPTPP adds detail on SPS cooperation, consultation, and transparency; improves information flows with primary contact points and a duty to notify; emphasizes 'science' as a basis for risk assessment, hence, regulation and to discuss scope and findings of audits (customary in this area). These provisions are not controversial, may well help transparency, legal certainty, and regulatory quality to some extent, but overall add relatively little. The TBT chapter seeks to reduce 'unnecessary' nontariff barriers – without hard obligations – and to improve access to information on technical requirements. Most of the firmer measures are in a series of Annexes but even these do not go far. The chapters on 'regulatory coherence' and on environment are also not very 'deep', be it that the environment chapter is subject to dispute settlement. In short, CPTPP is – as far as these four chapters are concerned – mainly about IRC below step 7 (MRAs), with few hard obligations.[11]

In contrast, the EU-27 and the EEA-3 operate on step 12 ('economic integration and common goods risk regulation, including verification'). In actual practice, the UK also is still applying this regime,[12] and the British Standards Institute has been allowed to remain a member of CEN/CENELEC. Moreover, the EU's strategy to conclude 'deep and comprehensive' FTAs entails the incorporation of selective MRAs (an ambitious example is the Canada–EU FTA) and a

[7]Chase and Pelkmans (2015, p. 20) expand the IRC ladder first proposed in OECD (2013) from 11 to 12 steps.

[8]For detailed analysis, see Pelkmans (2012).

[9]The latest one being Reg. 2019/515.

[10]Examples where trade relevance is high include CITES (endangered species), the London convention (marine dumping of waste), the Montreal ozone protocol (with specific products), the Basel Convention on hazardous waste, and the Rotterdam convention on prior consent for trade in hazardous waste.

[11]In the case of the US, matters appear even less promising nowadays. Bull (2022) argues that only an incrementalist approach to IRC might work, limited to only four of the six steps below MRAs.

[12]As a result of the UK–EU27 debate on the Level-Playing-Field. See Baldock et al. (2019).

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range of lower IRC steps. These may include commitments (rather than encouragements) to use international standards in goods regulations where appropriate or specified. All these FTAs are a bit different but, on the whole, relatively ambitious with respect to IRC's steps. The following countries have concluded such FTAs with the EU: Ukraine, Moldova, Georgia, and candidate countries having an association agreement,[13] Canada, Korea, Singapore, Vietnam, Colombia, Peru, Chili, the Mercosur countries, and New Zealand.[14] In 2018, the EU–Mexico FTA was upgraded ';in principle', with a range of provisions to align standards and deepen bilateral regulatory cooperation. FTA negotiations are ongoing with Indonesia [15] and Australia. Other negotiations with similar intent are stuck: Malaysia, Thailand, the Philippines, notwithstanding a 2021 agreement between the EU and the Association for Southeast Asian Nations (ASEAN) to strive for an EU–ASEAN FTA soon. The EU–India trade talks have been pursued as a stop-and-go process for more than 15 years, and were relaunched in 2022 (despite some scepticism in Brussels). Although the EU clearly attempts to pursue a worldwide FTA strategy – with 'deep and comprehensive' agreements, which would presumably help to reduce regulatory heterogeneity and its costs for trade. Many countries are not yet covered, the two most important ones being China and the US. Even without a FTA with the US, a number of bilateral MRAs and other accomplishments ought to be noted, including an US–EU Veterinary Equivalency Agreement (1999). Josling and Tangermann (2015) caution that the practical effects of this agreement have been modest, for two reasons: (i) there is a ranking of equivalence per product and only the highest ranked products (a small list) benefit from this recognition (i.e., the exporter's measures suffice for the importing country); (ii) few products have been added later to those with the highest ranking.

The EU and China have concluded a few agreements (e.g., air services; geographical indications for products; customs facilitation) but an FTA (proposed by president Xi in 2014) is not considered given the EU's prior conditions.[16] However, the EU and China have, stimulated by the summit, cooperated on a very wide range of economic and technical trade issues for over two decades, , as well as on the 'green' and 'social' aspects of sustainability. On the trade side, there is no systematic or annual reporting. On regulatory heterogeneity and its trade costs, no systematic information would seem to be available and – as far as this writer is aware – no new cooperation efforts are being undertaken other than those that are environmental and climate related. An important exception is that the EU and China have intensified cooperation on technical standards, with dedicated presence of CEN/CENELEC in Beijing, funded by the EU.

It follows that regulatory trade costs *are* addressed in many ways, both by trade negotiators and by national regulatory authorities, but almost without exception with the handbrake firmly on. The approaches typically centre on the lower steps of the IRC ladder and retain all the discretion that domestic regulators prefer. To what extent these efforts reduce regulatory trade costs is not known but great optimism seems unwarranted.[17] Moreover, as noted, the trend is that nontariff measures are bound to increase secularly as per capita incomes rise in developing countries. ASEAN has seen a more than three-fold increase in such measures in 16 years from 2000 to 2015.[18] Income growth causes the demand for risk regulation to increase. This trend underscores

[13]The EU–Turkey customs union included. Its annexes incorporate numerous EU directives specifying EU risk regulation which Turkey has enacted. Although little noticed, this alignment greatly promoted Turkey–EU goods trade and FDI into Turkey. Turkey has also adapted its regime of technical standards. It has been a member of CEN/CENELEC for 15 years.

[14]The FTA between the EU and New Zealand was concluded on 30 June 2022 and still has to be ratified by both partners. Negotiations with MERCOSUR were technically finished in 2022 but it is widely expected that the ratification process will be difficult at best and may lead to further reforms.

[15]The EU–Indonesia talks have dragged on for almost 10 years, despite the detailed technical preparation of a High-Level Group coming out with an *unanimous* report in May 2011.

[16]Pelkmans et al. (2018) provide an extensive analysis of such a FTA.

[17]The 2021 agreement on the Services Domestic Regulation Reference Paper has been estimated to potentially yield a cost reduction of some US$150 bn (WTO, 2019).

[18]See Ing et al. (2019, p. 91).

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the crucial importance of modest IRC to complement the TBT and SPS agreements in order to pre-empt moves in an adverse direction as far as non-tariff trade barriers are concerned. The same goes for services. Nonetheless, these IRC modes do not really foster regulatory convergence in earnest, so regulatory trade costs may well stay high.

In transforming itself into the ASEAN Economic Community, ASEAN has begun, hesitantly, to promote regulatory initiatives much higher up the IRC ladder (Pelkmans, 2016; Doan et al., 2019). ASEAN has concluded the ATIGA Agreement for the 'free flow' of goods. ASEAN has concluded a few MRAs and harmonized some regulatory regimes. In 2019, there were MRAs for electrical/electronic equipment, for good manufacturing practices for medicinal products, one on bio-equivalence (forthcoming) and one on the inspection system for food hygiene for prepared foodstuffs (forthcoming). Two more MRAs were under preparation: one on type approval for automotive products (not cars as such) and one on building and construction materials. As to harmonization, the early cosmetics directive, the electrical/electronic equipment regulatory regime, and the medical device directive have been enacted. Under preparation were two agreements on harmonized technical requirements, one on technical medicines, and one on health supplements. In some of these instances, value chains incorporating ASEAN production sites with a wider East Asia scope appear to have been critical factors.

Another example of gradualism based on IRC is the UN Economic Commission for Europe (ECE) Working Party 29 on vehicles and parts. In the IRC ladder (Figure 1), it is found at step 9. The basis is a 1958 Agreement regulating car type approval and the mutual recognition of such national approvals, a 1997 Agreement on uniform conditions for technical inspections, and a 1998 Agreement, which allows a system of self-certification.[19] Although ECE Working Party 29 began as a European venture, since 2000 it has turned into a global 'forum'. The EU has been a major driver for wider membership, mostly through FTAs (e.g., with Korea, Canada, and Japan) and technical cooperation (e.g., India, China, and the US). Although worldwide car and parts standardization should be beneficial for economic welfare, there is only one solid study (Freund and Oliver, 2015) estimating the economic benefits (for US–EU trade only). They suggest accepting that type approvals and US self-certification (subject to checks by the regulator) be mutually recognized for the simple reason that the level of safety is equivalent. Mutual recognition between the EU and US would bring efficiency, variety, and innovation as well as an estimated 20% increase in bilateral trade. Freund and Oliver suggest that this regulatory improvement would bring larger welfare gains than tariff removal.

A novel approach is IRC between national regulators, practiced in medical devices and medicines. In the International Medical Devices Regulatory Forum (IMDRF), the aim is to harmonize on a voluntary basis, preferably worldwide – e.g., a worldwide Unique Device Identifier. It is up to countries to legally incorporate the IMDRF deliverables in national law. As of end 2022, the International Council for Harmonization of technical requirements of medicines for human use had agreed on 137 Guidelines, up from 50 in 2014. These voluntary processes among regulators appear effective in reducing regulatory diversity.

4. Cost Reduction via Global Technical Standardization

Regulatory instruments for agriculture and industry frequently rely on standards. In services, however, this is rarely the case. Often standards and regulation are used interchangeably in colloquial wording. They are very different: standards are voluntary; regulations are legally binding instruments. Regulation can comprise references to specific standards as compulsory or as one of several options to comply. If use of a standard is compulsory for compliance with regulation, the standard has been transformed into legislation and loses its defining character.

[19]This reflected the high costs for the US to adopt type approvals. The US has yet to adhere to the practical implementation dimensions of the 1998 Agreement.

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In the EU's 'New Approach',[20] there are essentially two options: reliance on a 'European Harmonized Standard' (EHS) – which provides a presumption of free movement – or a company's claim of fulfilling the requirements of the relevant directive, in which case this must be explicitly confirmed by so-called Notified Bodies, EU-recognized conformity assessment bodies that have EU accreditation. Because an EHS cannot be prescriptive but is confined to setting safety or health performance thresholds (or minimum values or tolerances), including for problematic materials whilst leaving producers free to design the product as they deem fit, such an EHS can accommodate many product specifications.

Standard setting is not the same everywhere in the world. It is therefore of great importance that countries can rely on *world* standards for risk regulation. The more world standards exist, and the more frequently countries refer to them in their risk regulation, the fewer regulatory barriers in goods market would exist. International standards are developed by the International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), International Telecommunications Union (ITU), the Codex Alimentarius, the World Organization for Animal Health, and the International Plant Protection Convention.[21] These bodies have developed many standards and their accomplishments increase every year.

There are two central questions when assessing the importance and limitations of international standards. One is how to reduce and eventually pre-empt national standard setting which is not based on or identical to international standards. In the framework of (deep) FTAs, these discrepancies can be addressed. Pressures might also emerge in the world bodies to extend the number and reach of global standards and thereby reduce fragmentation. In China's case, standard setting long was a matter of the government; indeed, government control seemed imperative and – in more subtle ways – probably still is (Ruehlig, 2020). Following China's 2017 standardization reform, the technical influence of companies has increased considerably, but there standardization is still not comparable with the rest of the world: i.e. standardization as independent work conducted by private non-profit organizations. Amongst the major standard setting countries, the US is the only one allowing standards (on a specific issue) to be written by several bodies independently. In the American National Standards Institute (the US organization for standardization), there is a powerful tradition of fostering a *market* for standards. The strong conviction of practically all other countries, that standards' issues and technical solutions ought to be resolved in the cooperative setting of the relevant body, has still not fully swayed US standardizers.

The other question is how best to promote world standards. The status of the six international standards bodies mentioned above, which are recognized in the Annex of the TBT Agreement and in the main text of the SPS Agreement, has become entrenched in every relevant WTO meeting, in many FTAs, in recommendations of the OECD and APEC, and in declarations of the International Chamber of Commerce – a significant improvement compared to the pre-WTO period (before 1995). Yet Europe makes additional efforts.

The European strategy to promote international standards is unique. In 1991, the first version of the Vienna Agreement was concluded (followed by subsequent versions later) between the European Committee for Standardization (CEN) and the ISO, as well as the Lugano Agreement (followed by the Dresden and the Frankfurt Agreements) between the European Electrotechnical Committee for Standardization (CENELEC) and the IEC. These Agreements

[20]Adopted in 1985 (https://op.europa.eu/en/publication-detail/-/publication/9f7c3a42-449e-4ccc-9a29-5a544003b338/language-en). This approach was replaced with the New Legislative Framework in 2008, which added greater sophistication to the system, especially for conformity assessment and accreditation. See https://single-market-economy.ec.europa.eu/single-market/goods/new-legislative-framework_en.

[21]There is some controversy about the term 'international standard'. What if a standardization body originating from the US – where standardization is often a business model, unlike in most countries – tries to follow the notions of openness worldwide, public inquiry, etc. in promulgating its standards? The outcome might be regarded as an international standard too. This is the approach of the American Society for Testing and Materials International. See OECD (2021).

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pursue *joint* standardization between Europe and the world level. The underlying motto is 'One standard, one test – accepted everywhere.' Both the Vienna and Frankfurt Agreements give practical effect to the basic guidance in the Annex to the TBT Agreement that international standards have primacy over regional and national standards.[22] Normally, the ISO or IEC lead the entire process once the European standards bodies have expressed interest. Once the ISO or IEC and CEN and CENELEC, respectively, vote in favour (the ordinary scenario), the international standard will also become a European standard.[23] In other words, standardizers from many non-EU countries participate and the chair may come from another continent, but this is – as a rule – considered irrelevant: what matters is the motto (which drives out much inefficiency and uncertainty).

For the ISO, the Vienna agreement has been very stimulating: when Vienna began, no more than 178 documents were jointly developed to avoid unnecessary duplication. In October 2021, this had increased to some 5,500. Overall, ISO had developed nearly 24,000 standards as late as 2021. Hence, some 23% of these are identical to CEN standards. Seen from the EU perspective, some 34% of CEN standards are identical to ISO standards. In IEC, given electricity safety, connection and compatibility requirements, the incentive to go for world standards is greater: no less than 4,865 CENELEC standards were identical to IEC standards as of 2021, some 74% of all CENELEC standards, and another 6% (411) standards are based on IEC, together no less than 80%. For IEC, this amounts to some 53% of the stock of IEC standards in 2022, an impressive share. Here the EU truly leads by example, one that ought to be followed by all other members of ISO and IEC. It would further augment the stock of world standards and, for this reason alone, contribute greatly to lowering the costs of regulatory divergence.

Beyond Vienna and Frankfurt, the European Telecommunications Standards Institute (ETSI) is highly significant for a *global* approach to standards, complementary to (but far more agile than) the ITU. By design, ETSI has developed into the only truly global standard setter by letting leading companies from anywhere in the world, which have, or are developing, the technologies in this highly dynamic domain, take or join initiatives in the many technical committees. The ETSI has members from 63 countries in five continents and is therefore only a 'European' body when an EHS is required; however, only some 7% of ETSI standards are EHS. If the EU does not tinker with this successful model, ETSI will continue to act as a global digital standards setter and pre-empt or minimize regulatory trade costs in digital goods and services.

Finally, a word on the *control* of standardization – recently, it is frequently suggested that 'who sets the standard, has the market'. If this slogan were applied to international standardization by national standardization bodies, especially by the bigger countries, it would spell disaster. China's recent standardization strategy might suggest that the leadership expects international standardization being a 'winner' for them. However, standardization has a long tradition of openness and open inquiry of drafts lingers. Attempts of domination instead of cooperation are unlikely to succeed. Moreover, a standard is voluntary and imperial tendencies would be answered by non-adoption in markets. Nevertheless, some concern that China aims to increase influence and control of international standardization. Perhaps one has in mind one category of standards where cooperation is not always practiced. For network compatibility standards, found in e.g., telecoms, broadcasting, and internet equipment, compatibility if not interoperability is essential. If such standards are pushed by individual companies (so-called non-cooperative standard setting) in an innovative setting and succeed in attracting a strong customer base, there will be special cases where 'winner takes all'. It should also be considered that these are typically the advanced sectors where royalties or other patent payments have become very important.[24] China has

[22]See www.boss.cen.eu/media/CEN/ref/va_faq.pdf and www.iso.org/va for Vienna; https://boss.cenelec.eu/fadel/pages for Frankfurt.

[23]This implies that other or diverging national standards in the 34 CEN-CENELEC member countries must be withdrawn.

[24]For a rich survey, see Padilla et al. (2017).

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publicly spoken out in favour of 'autonomy' in order to avoid paying many billions of dollars yearly for using 'standard-essential patents'. Given that China has a large home market (which can be protected or distorted in favour of Chinese winners), the standard might sometimes 'have the market'. If that were to happen, one query is how open the standardization process will be, and whether and how all this would lead to regulatory trade costs for the global economy. However, in ETSI China has joined and is active in the truly global 3GPP. Because ETSI also comprises leading hi-tech companies, it remains to be seen how China's strategies will play out.

5. Conclusions

The benefits of risk regulation have significantly improved socio-economic welfare in OECD countries, increasingly so in middle-income countries, too, and gradually in developing countries in line with rising per capita incomes. At the same time, the consequences for international trade tend to be costly. Given recent empirical research on these regulatory trade costs, there is no doubt about the urgency to effectively address these costs in world trade of goods and services.

The forgoing review demonstrates there is a desire to work together, but usually limited to relatively light commitments whilst retaining discretion for regulators. One may usefully distinguish trade in economic integration groupings, which routinely pass joint risk regulation measures and ensure common enforcement from groupings that recognize the problem but find it difficult to move beyond noncommittal forms of IRC. The former comprises only the EU27, the EEA3, and probably the UK (for goods). More selective but still quite ambitious regulatory alignment is found in (EU) association countries and a few EU FTAs. The OECD advocates IRC and regularly publishes policy studies showing the potential of IRC to lower regulatory trade costs. However, in many important (other) bilateral and regional trade relations, regulatory trade costs are rarely addressed, although the trade facilitation route has become more popular in goods (since 2013) and services (in 2021 as a plurilateral). The ASEAN Economic Community has begun to pay more attention, but still only very selectively.

In world standardization, a silent evolution is taking place. The standardizers all over the world have gradually come to de-emphasize *national* standardization and shifted to international or regional (but often based on international) standards. Most conspicuous is the EU's strategy to give primacy to the writing of world standards: some 34% of CEN standards are identical to ISO standards, whereas some 80% of CENELEC standards are identical to or based on world (IEC) standards. The large majority of ETSI standards (as many as CEN and CENELEC together) are de facto acting as world standards. In a very different field, where regulations instead of standards are relevant, namely cars and parts, the EU has made great efforts to convince other countries to adhere to the UN-ECE WP29 agreed regulations, and this has had some results, be it that the US has yet to implement the 1998 Agreement and China is still adapting to it. In some specific cases of risk regulation (e.g., medicines and medical devices), regulators have formed informal conferences that have been able to agree on some common specifications and procedures.

All in all, the overall conclusion is mixed. There is an incredible amount of talk in many committees, and bilateral and other meetings tend to be full of elegant wording without commitments. But there are also elements of progress, between regulators, here and there between trade negotiators, and amongst standardizes at world level. Greater urgency is badly needed – actors should be more ambitious than just 'hastening slowly'.

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