

WTO Discussions on Technical Barriers to Trade and Implications for Asia-Pacific Regional Economic Integration

NAM Sang-yirl

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Il HOUNG LEE
President

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Korea Institute for International Economic Policy

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EXECUTIVE SUMMARY

As tariff barriers, of traditional and typical policy instruments in international trade, have been reduced significantly under preferential trade agreements as well as the multilateral trading system, non-tariff measures (NTMs), especially those of technical barriers to trade (TBT), become more and more important as means to control international trade. This study is to analyze and better understand TBT or more accurately, technical measures. Based on the analysis, it will attempt to identify some implications and ways to reduce TBT or to facilitate international trade, and ultimately contribute to enhancing economic integration in the Asia-Pacific region. The characteristics and trends of technical measures can be best identified and evaluated by the notifications of WTO members according to the Agreement on Technical Barriers to Trade (TBT Agreement), discussions in the WTO TBT Committee - especially specific trade concerns (STCs), and dispute settlement cases in TBT related issues. In fact, the number of TBT notifications have surged as various and comprehensive legitimate objectives of technical regulations were allowed and on other backgrounds since the launch of the WTO in 1995. It is noted, however, that TBT notifications are not regarded as TBT itself but as “potential” TBTs in this study. To analyze the trends and characteristics of TBT measures, this study utilizes the information in the WTO TBT notifications, STCs, and dispute settlement cases related to the TBT Agreement. Focus will be on the APEC member economies. Some trends and characteristics of TBT measures by the objective of regulation, by commodity, and by the country notified (e.g., developed and developing economies) will be analyzed and identified. Some of implications from the results are as follows. Due to the fact that technical measures are mostly domestic regulations but controlled at the border to restrict market access, there needs to be

consultation, cooperation and harmonization of regulation rather than competition and retaliation. There also needs to be developed a system for information and experience exchange, capacity building including on development and implementation of standards, technical regulation, and conformity assessment procedures, especially for developing economies. APEC is well positioned to lead international cooperation in TBT with its diverse members and related specific institutions.

Keywords: technical barriers to trade, TBT, NTMs, APEC, Asia-Pacific region, trade facilitation

JEL Classification: F13, F53, F55, O19

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I. Introduction

Tariff barriers, as traditional and typical policy instruments in international trade, have been decreasing rapidly under the multilateral trading system of the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO), and more recently with free trade agreements (FTAs) or regional trade agreements (RTAs). Accordingly, non-tariff barriers (NTBs) or non-tariff measures (NTMs) become more and more important as means to control international trade.¹ NTMs cover very broad range and include, for example, quantitative

¹ Throughout this study, the term NTMs rather than NTBs will be used since the former is the broader and more neutral term. In fact, NTMs can be regarded as NTBs when they have unnecessary negative effects on international trade, which is not always the case.

restriction (e.g., quota) and prohibition, customs procedures, pre-shipment inspection, sanitary requirements, goods standards and technical regulations, labelling requirement, etc. Among the NTMs, technical measures denoted in terms of number of technical barriers to trade (TBT) notifications to the WTO have been increasing significantly. The overall trends and characteristics of technical measures can be clearly identified and evaluated by the notifications of technical regulations and conformity assessment procedures to the WTO; discussions of, especially specific trade concerns (STCs), in the WTO according to the Agreement on Technical Barriers to Trade (TBT Agreement), and dispute settlement cases related to the TBT Agreement.

TBT is also important for the Asia-Pacific region and at the same time the Asia-Pacific region contributes to reducing TBT. The Asia-Pacific Economic Cooperation (APEC), at the center of the regional cooperative activities, is a summit-level regional economic forum where 21 Asia-Pacific economic leaders meet together every year to discuss current regional and global economic cooperation agenda.² The main goal of APEC is to strengthen the economic growth potential and prosperity in the Asia-Pacific region by promoting trade and investment liberalization and facilitation (TILF), and at the same time implementing economic and technical cooperation (ECOTECH). More specifically, APEC is in pursuit of faster and easier movement of goods, services, investment and people across borders through

² APEC was established in 1989 with 12 founding Asia-Pacific members and had current 21 member economies by 1998. The 21 APEC member economies are Australia, Brunei Darussalam, Canada, Chile, the People's Republic of China, Hong Kong (China), Indonesia, Japan, Republic of Korea, Malaysia, Mexico, New Zealand, Papua New Guinea (PNG), Peru, the Philippines, Russia, Singapore, Chinese Taipei, Thailand, the United States, and Viet Nam. For further information, refer to APEC webpage [<http://www.apec.org/About-Us/About-APEC/History.aspx>] (accessed on September 6, 2015) and Appendix C for the APEC 2015 Theme and Priorities.

improving customs procedures, inducing favorable business environment, and adjusting regulations and standards across the Asia-Pacific region. For example, APEC's initiatives to cooperate and harmonize regulatory systems is one of the key steps towards ultimate integration of the Asia-Pacific Community. International trade among the 21 member economies would be further facilitated with harmonized and identical standards across the region. APEC accounted for about 57 percent of world GDP and 47 percent of world trade in 2012.³ APEC has a wide spectrum of dynamic member economies in terms of economic development status as well as geographic distribution, which explains the reason why cooperation receives such strong focus at APEC and why cooperation is so important. APEC currently operates 46 fora including working groups, task forces, policy partnerships, expert groups, and industry dialogues including the Sub-Committee on Standards and Conformance (SCSC). APEC is also discussing possible pathways to establish the Free Trade Area of the Asia-Pacific (FTAAP) for comprehensive integration with technical barriers to trade as one of the key chapters of interest.

This study seeks to analyze the trends and characteristics of technical measures by observing notifications, STCs, and dispute settlement cases in the APEC member economies under the WTO TBT Agreement. Some characteristics of technical measures by country or country group (e.g., developed and developing economies), by commodity will be analyzed and identified. Based on the results from the analysis, some implications for APEC cooperation will be identified to reduce TBT, to facilitate international trade, and ultimately to enhance economic integration in the Asia-Pacific region.

³ Refer to APEC webpage [<http://www.apec.org>] (accessed on September 6, 2015).

1. Literature Survey

As a basis for having better understanding of non-tariff measures, UNCTAD (2012) offers a detailed classification of NTMs to identify and distinguish among the various forms as opposed to the usual broad definition of NTMs. NTMs are collected and classified according to the NTM classification system developed for this purpose.⁴ NTMs are classified between import-related measures and export-related measures, and then import-related measures are further divided into non-technical measures and technical measures (e.g., Sanitary and Phytosanitary (SPS) and TBT measure, pre-shipment inspection, and other formalities). It is designed to help construct databases for related information in a more organized fashion, thus achieving better understanding of the existence and inventory of various NTMs. However, the classification system does not consider the judgement on their legitimacy, necessity for public policy goals or appropriateness, and discrimination of those measures.

Cadot, Malouche and Saez (2012), published by the World Bank, examine broad issues related to streamlining and rationalizing NTMs. They try to offer a toolkit and guidelines for policy makers including definition, dataset and international regulations of NTMs as well as related issues, processes, institutions, country and regional experiences, and case studies.

⁴ Refer to UNCTAD webpage [<http://www.unctad.info/en/Trade-Analysis-Branch>] (accessed on July 28, 2015).

Table 1. Non-Tariff Measure Classification by Chapter

Imports	Technical measures	A	SANITARY AND PHYTOSANITARY MEASURES
		B	TECHNICAL BARRIERS TO TRADE
		C	PRE-SHIPMENT INSPECTION AND OTHER FORMALITIES
	Non technical measures	D	CONTINGENT TRADE-PROTECTIVE MEASURES
		E	NON-AUTOMATIC LICENSING, QUOTAS, PROHIBITIONS AND QUANTITY-CONTROL MEASURES OTHER THAN FOR SPS OR TBT REASONS
		F	PRICE-CONTROL MEASURES, INCLUDING ADDITIONAL TAXES AND CHARGES
		G	FINANCE MEASURES
		H	MEASURES AFFECTING COMPETITION
		I	TRADE-RELATED INVESTMENT MEASURES
		J	DISTRIBUTION RESTRICTIONS
		K	RESTRICTIONS ON POST-SALES SERVICES
		L	SUBSIDIES (EXCLUDING EXPORT SUBSIDIES UNDER P7)
		M	GOVERNMENT PROCUREMENT RESTRICTIONS
		N	INTELLECTUAL PROPERTY
		O	RULES OF ORIGIN
Exports		P	EXPORT-RELATED MEASURES

Source: UNCTAD (2012), p. 3.

Reflecting the growing importance of 'TBT' or technical measures in international trade, there emerged many analytical works including some survey articles for stocktaking on this subject. WTO (2005a) might be a good starting point and offers comprehensive survey of articles as well as issues on standards, international trade and the multilateral trading system, and the WTO. Based on previous literature, it explains in detail the reasons for setting standards, their effect on international trade, and international cooperation in response, in order to prevent creating TBT. It broadly classifies standards as a response to such issues as network externalities (e.g., compatibility standards), imperfect information (e.g., safety standards),

production and consumption externalities (e.g., environmental standards). It is noted that standards or technical measures can help markets function more effectively and bring benefits by enhancing compatibility between like products, thus overcoming information asymmetry and compensating for market imperfections or probable market failure. It also emphasizes that standards and technical measures can also be utilized as trade barriers by incurring higher costs for foreigners, especially developing countries. Two different ways for international cooperation such as harmonization and mutual recognition are discussed. It also evaluates that available databases on standards and technical measures are not so useful for the analysis of effects on international trade and welfare in that they are not usually classified in a way that reflects their functions as well, as they do not usually contain information on trade restrictiveness. It is noted that previous analyses convey somewhat ambiguous results of linkages between standards and international trade, and then welfare.

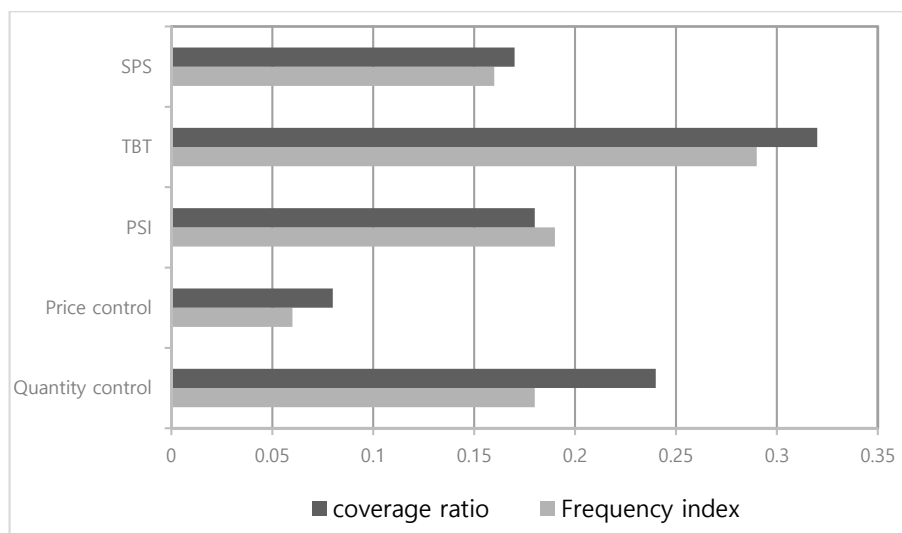
WTO (2012) is a recent update of WTO (2005a) even though it covers a much broader subject - non-tariff measures in general and more specifically, measures on services. It recognizes regulatory measures including TBT and SPS in goods, and domestic and behind-the-border regulations in services as new and pressing challenges for international cooperation in the 21st century. Such measures can serve to attain legitimate public policy goals on one hand, but they may be utilized as a means of protectionism on the other. Therefore, NTMs might have mixed and ambiguous effects on international trade. For example, standards as well as harmonization and mutual recognition often have positive effects on international trade in manufactured goods with enhanced compatibility and network effect, while regulatory standards in agricultural products may restrict international trade. Besides, conformity assessment procedures are often recognized as quite burdensome by

businesses and companies.

Some of the literature focus on issues related to developing countries. UNCTAD (2013) is a recent example and recognizes that market access of developing countries is increasingly and significantly dependent upon compliance with widespread regulatory measures related to international trade. Based on newly collected data, TBT is analyzed as the most frequently and broadly utilized non-tariff measures by explaining about 30 percent of NTMs and international trade of average countries. In addition, restrictive and distortionary effects of NTMs may be biased against developing countries, even though without intention. It offers a quite comprehensive review of empirical case studies on NTMs including technical measures, SPS and TBT from a developing country perspective. In sum, general message from empirical studies on NTMs is that the effects of NTMs depend not only on NTMs themselves but also on their procedures and institution of application, and have complicated and diverse effects accordingly. It is noted that one of the main difficulties in the analysis of the effects of NTMs is the scarcity of related data that is both consistent and comparable.

From empirical studies, not all technical measures seem to have negative effects on international trade. For example, Moenius (2004) analyzes the impact of standards, both country specific and harmonized, on international trade and finds that standards, in general, promote international trade in the manufacturing sector where information costs are relatively more important but suppress international trade in the agricultural sector where compliance costs are relatively more important. Reyes (2011) also finds that standards would have trade diverting effects in that harmonization of SPS and TBT regulations tend to increase exports from developed countries but have ambiguous impact on exports from developing countries due to differences in compliance costs across countries.

**Figure 1. Non-Tariff Measure Based on Frequency Index and Coverage Ratio
(all countries, unweighted)**



Note: Simple averages across all countries for five main chapters of the UNCTAD's NTM Classification. PSI refers to pre-shipment inspection and other formalities.

Source: UNCTAD (2013), p. 5.

As a country specific empirical study, Bao and Qui (2010) examine the impact of TBT measures by China on its imports using both the frequency index and coverage ratio for 1998-2006 and recognize that TBT have both trade promotion and trade restriction effects. They find that TBT has trade restrictive effects in terms of the frequency index but has no significant effects with coverage ratio in spite of significant trade restrictive effects for the pre-WTO period of China (1998-2001). By product, TBT measures of China have trade restrictive effects for agricultural products but have trade promoting effects for manufacturing products.

However, they conclude that it is still premature to decide whether TBT promote or restrict international trade in general since preexisting empirical studies including theirs deliver different results depending on the country, industry, and time period in concern. Yoon, Li and Hossain (2014) is another country-specific empirical study, on Korea as a respondent to technical measures of other countries. They perform an empirical analysis of the effect of technical regulations of 30 trading partner countries on Korea's bilateral exports for 2002-2010 utilizing WTO TBT notification data with the gravity model of international trade. They find that TBT reduces Korea's aggregate exports. In addition, for disaggregated sectors based on HS 2 digit, their empirical results show that TBT reduce Korea's exports in agricultural products, chemical products and electrical products but promote Korea's exports in most other manufacturing goods with statistically insignificant results in many sectors.

Some studies emphasize the importance of institutional factors and procedures applying technical measures as well as technical measures themselves. Besedina (2015) briefs on the role of NTMs in international trade or in export dynamics. NTMs are expected to increase compliance costs for exporters but export market shares would be reallocated towards more efficient firms. It is noted that the existing empirical evidences are mixed, both positive and negative, in terms of NTMs' impact on international trade or exports. One of the main conclusions of the paper is that TBT or SPS measure does not bring any changes in sectoral export dynamics. Possible explanations are that the variables used in the analysis may not capture changes the firms' behavior and that there might be lagged effect from the introduction of TBT or SPS (however, the results are not changed with two year lagged NTMs variable). A policy implication from the paper is that business environment

institutional factors of the home country such as internal barriers, corrupted practices and burdensome regulatory procedures are important determinants of export performance.

Technical measures are also an important issue in preferential trade agreements (PTAs). Chauffour and Maur eds. (2011) is a comprehensive analysis of challenges and issues of PTAs for developing countries. It covers very broad topics including product standards (Chapter 10), and TBT and SPS measures in practice (Chapter 11). Even though standards are regarded as one of the non-tariff barriers, they recognize that PTAs can contribute to reducing standards related barriers to procedures and that standards provisions in PTAs are likely to have welfare-enhancing effects on participating members through harmonization and recognition of equivalence provisions. Good practices for standards procedures in PTAs are expected to guide promotion of institutional developments in standards provisions as well. They also discuss best-practice provisions in PTAs concerning the treatment of TBT and SPS measures, and recommend use of international standards whenever possible. If technical measures cannot be harmonized, it is recommended that efforts be made to eliminate any duplication or multiple measures or tests for the same product. In addition, transparency as well as non-discrimination is emphasized as important for business and consumers in terms of technical measures of PTA provisions in practice.

For APEC activities, APEC (2012), per findings of the Committee on Trade and Investment's Subcommittee on Standards and Conformance (SCSC), recognizes and emphasizes the ways in which good regulatory practices (GRPs) can be used to strengthen implementation of the WTO TBT Agreement and reduce unnecessary obstacles to trade due to regulatory divergences regarding standards and

conformity assessment procedures among different member economies.⁵ It is recommended for GRPs to be strengthened and to be more relevant to the implementation of the core principles of the TBT Agreement and supportive of trade flows through (i) better internal coordination of regulatory process, (ii) regulatory impact analysis to identify trade-friendly options, and (iii) public consultation to ensure greater involvement of foreign producers and trade experts.

APEC (2009) is a study on cooperation through PTAs in APEC. It identifies convergences, divergences, and challenges in 42 regional trade agreements and free-trade agreements (RTAs/FTAs) concluded by APEC member economies following the proliferation of RTAs/FTAs in the Asia Pacific region. At the same time, it is intended to promote a higher level of convergence and consolidation of RTAs/FTAs by providing further ways and means to promote regional economic integration and possibly a Free Trade Area of the Asia-Pacific (FTAAP) as a long-term prospect. It offers analysis on 11 usual chapters in RTAs/FTAs including the TBT chapter. Through detailed provision in the TBT chapter, the level of difficulty of convergence is identified as high for (i) scope and coverage (of TBT chapter and government level), (ii) assessment of risk and equivalence, and (iii) consultation process. But it is identified as low and medium for other provisions of the TBT chapter. In addition, two important issues visibly reflected in 42 APEC member

⁵ The 1995 OECD recommendation on the quality of government regulation noted that regulatory quality is a shared value among OECD members, because the quality of regulation in one member affects the wealth of other members connected by trade or investment. Based on this idea, both the OECD country review program in 1997 and the APEC regulatory quality program were created. Good practices in terms of regulatory quality were identified and developed as internationally recognized GRPs. More specifically, if several economies can demonstrate that results of a new approach in terms of regulatory quality are good, this new approach might be adopted as a new GRP. In sum, it is not the practice itself but the result in terms of good regulation that is important. Refer to APEC (2012), p. 4.

related to RTAs/FTAs are identified as (i) establishment of the committee or chapter coordinators, consultation (30 out of 42 RTAs/TFAs have explicit articles) and (ii) negotiations on mutual recognition of the other parties conformity assessment procedures (21 out of 42 RTAs/TFAs have explicit articles). In contrast, two other important but less frequently mentioned issues are: (i) assessment of risk (3 out of 42 RTAs/FTAs have explicit articles) and (ii) sectoral annexes, for example, on electric & electronic equipment and motor vehicles (10 out of 42 RTAs/FTAs have explicit articles). Further updated information can be obtained in the webpage of Comparative Toolkit, Study on Identifying Convergences and Divergences in APEC FTAs/RTAs.⁶

2. Sources of Information on TBT

Sources of information on TBT, in practice, is often difficult to acquire given its diverse and dynamic characteristics. Some sources of information on TBT include survey of World Bank, UNCTAD TRAINS (Trade Analysis and Information System), annual reports on trade barriers by major countries (often including TBT), Perinorm database (on European and international standards), WTO TBT notifications, and the Integrated Trade Intelligence Portal (I-TIP) compiled by the WTO.⁷ Most of them have some limitations regarding their utilization as a

⁶ Refer to APEC webpage [<http://fta.apec.org>] (accessed on September 6, 2015).

⁷ Perinorm is a commercial database services operated by the consortium among AFNOR, BSI, and DIN. It specializes in European and international standards and technical regulations. Refer to PERINORM webpage [<http://www.perinorm.com>] (accessed on July 26, 2015). AFNOR, the French standardization organization, is an international services delivery network that revolves around 4 core competency areas: standardization, certification, industry press, and training. Refer to AFNOR

source for balanced and objective analysis. That is, they often represent only a partial picture or a specific country's viewpoint or interest on TBT, no-periodic or no recent updates, or more importantly, offer no information on trade restrictiveness.

Among them, UNCTAD TRAINS is often regarded as the most comprehensive database on international trade covering tariffs, MTMs including SPS and TBT measures as well as import flows by origin for more than 150 countries. Some characteristics and limitations of TRAINS as a source of information on NTMs and TBT, however, are well specified in UNCTAD (2005). For example, it is based only on information obtained from the importing country but not on exporters' notification complaints, contains no time series data, and some NTMs are specified and applied at a more aggregate level than a tariff line; making it difficult to identify products affected by the measure, and the data do not include information on the degree of restrictiveness of an NTM. In addition, it does not distinguish between measures consistent with the WTO Agreements and/or other international norms and those that are not.⁸

WTO TBT notifications contain information specific to TBT and cover all of the WTO members (161 as of April 26, 2015; accounted for 98 percent of global trade in 2014).⁹ In addition, it is a continuous process as an obligation of every WTO member by the TBT Agreement. That is, the information of WTO TBT

webpage [<http://www.afnor.org>] (accessed on July 26, 2015). BSI, as the UK National Standards Body, is the business standards company that helps organizations all over the world make excellence a habit. Refer to BSI webpage [<http://www.bsigroup.com>] (accessed on July 26, 2015). DIN, the German Institute for Standardization, exists to develop technical rules for the benefit of society as a whole, while safeguarding the public interest. Refer to DIN webpage [<http://www.din.de>] (accessed on July 26, 2015).

⁸ Refer to UNCTAD (2005).

⁹ WTO webpage [<http://www.wto.org>] (accessed on July 28, 2015) and WTO (2015a).

notifications is important as precursor to introducing new technical measures or amending pre-existing ones. However, one of the critical problems with respect to utilizing information in TBT notifications as TBT measures seems to be that they reflect only proposed new and to-be-revised technical measures, but not preexisting ones such as trade barriers. In addition, they do not contain the information on trade restrictiveness of technical measures and their consistency with the WTO Agreements and/or other international norms like other sources of information. In fact, the information in TBT notifications appear to report on members' own declaration on proposing technical measures; they do not constitute verified facts. Other members can have opportunities to discuss and verify it in meetings of the WTO TBT Committee and bilaterally, in between committee sessions. Therefore, it is necessary to utilize the information on TBT, including WTO TBT notifications, with clear understanding on their characteristics.¹⁰ Besides, I-TIP, compiled by the WTO, provides comprehensive information on trade policy measures.¹¹ I-TIP includes information on both tariff and non-tariff measures affecting not only trade in goods but also trade in services, trade in government procurement, information on FTAs/RTAs and the accession commitments of WTO members. In I-TIP, non-tariff measures are classified and considered separately into Anti-dumping (ADP), Countervailing (CV), Quantitative Restrictions (QR), Safeguards (SG), Sanitary and Phytosanitary (SPS), Special Safeguards (SSG), and Technical Barriers to Trade (TBT). For TBT measures, it contains information mostly based on the WTO TBT notifications and specific trade concerns raised by WTO members, by product, and year. Therefore, the I-TIP does not seem to add further information

¹⁰ Refer to Appendix A and Appendix B for related discussions.

¹¹ WTO I-TIP webpage [<http://i-tip.wto.org>] (accessed on September 6, 2015).

beyond WTO TBT notifications and specific trade concerns as far as TBT is concerned.

WTO (2015c) contains decisions, recommendations and rules of procedure of the WTO TBT Committee since the launch of the WTO in January 1995. For example, it contains the essential information including good regulatory practice (GRP), the format and guidelines for WTO TBT notification procedures regarding technical regulations and conformity assessment procedures, criteria for “significant effect on trade on other Members (the value or other important aspects of imports, the potential growth of such imports, and difficulties for producers in other members in complying with the proposed technical regulations),” enhancement of Internet usage or electronic transmission of information via the Central Registry of Notifications (CRN, crn@wto.org) in notifications to facilitate access to and exchange of information by WTO members. It also contains information on the length of time allowed for comments for transparency procedures agreed in the WTO TBT Committee in 2002 and 2003 as “... the normal time limit for comments on notifications should be 60 days. Any member which is able to provide a time limit beyond 60 days, such as 90 days, is encouraged to do so and should indicate this in the notification.”¹² In addition, for timing of entry into force of technical regulations and understanding of “reasonable interval” under Article 12.2 of the TBT Agreement, it was decided in the TBT Committee in 2002 to be understood to mean normally a period of not less than six month following the 2001 Ministerial Decision.

¹² Refer to WTO (2015c), pp. 5-22.

II. TBT: Characteristics and Multilateral Cooperation¹⁴

1. Technical Measures as Potential TBT

By now, the term, technical barriers to trade or 'TBT', has become much familiar to people in general as it often constitutes one of the keywords in news briefings regarding the economy in the globalized world. However, it may not be easy to exactly define and understand the term, since its range and scope is very broad and involves judgement of legitimacy or necessity. The WTO Agreement on Technical Barriers to Trade (TBT Agreement) might be the most appropriate reference for defining and understanding TBT. Based on the TBT Agreement, the term, TBT, can be somewhat loosely defined for purposes of analysis of this study as follows.

Some measures related to technical regulation, standards, and/or conformity assessment procedures form technical barriers to trade (TBT) when they create unnecessary obstacles to trade or when they are more trade-restrictive than necessary to fulfil a legitimate objective, taking account of the risks non-fulfillment would create.¹⁵

¹⁴ Throughout this paper, "multilateral cooperation" is not confined to cooperative activities defined in trade norms and international agreements related to TBT but includes any discussions, activities, efforts, projects and their results to contribute to reducing TBT among different countries.

¹⁵ Surprisingly enough, the WTO TBT Agreement does not explicitly define the term TBT. The definition in this study is mainly based on the Preamble, Article 2.2 (for technical regulation), Article 5.1.2 (for conformity assessment procedures), and "Annex 3 Code of Good Practice for the Preparation, Adoption and Application of Standards (for standards)" of the WTO TBT Agreement. Refer to WTO (1995).

As a matter of fact, the WTO TBT Agreement itself has not explicitly defined the term TBT. It only gives definitions of the main elements of TBT, such as technical regulation, standard, and conformity assessment procedures in the “Annex 1 Terms and Their Definitions for the Purpose of this Agreement,” and the circumstances in which they constitute TBT.

For further discussion, it might be useful or even necessary to differentiate TBT measures (or more broadly, technical measures) from TBT. We can usually observe some measures related to TBT but not TBT itself. Technical measures might be regarded as TBT if they are not legitimate or unnecessary, that is, “more trade-restrictive than necessary to fulfil a legitimate objective” according to the TBT Agreement. However, even with the WTO TBT Agreement, it is not often clear-cut whether some technical measures are legitimate/necessary or not. In sum, all technical measures are not necessarily TBT itself; yet are potential TBTs.

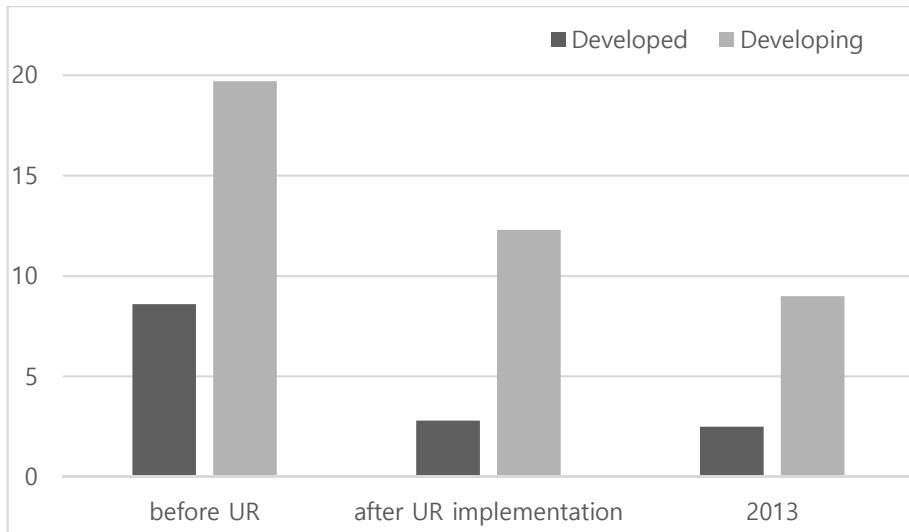
2. Proliferation of Technical Measures

We can observe proliferation and diffusion of technical measures or potential TBTs during last two decades since the launch of the WTO.¹⁶ Several phenomena in the background can provide explanations for these trends. First of all, TBT measures emerged as an alternative trade policy instrument relative to traditional means of managing international trade, such as tariffs and quotas. The traditional policy instruments have been abolished or significantly reduced with FTAs/RTAs as well as under the multilateral trading system of GATT and its successor, the WTO. Second, there were ever increasing needs for quality and safety assurance of

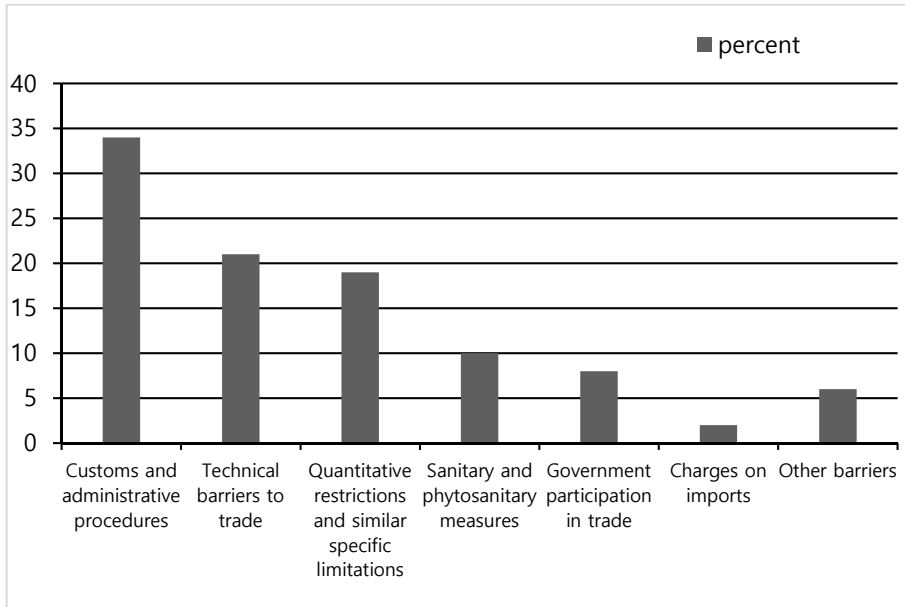
¹⁶ Refer to Nam (2005) and WTO (2015b).

imports with fast growth of international trade as countries become more open to and more dependent upon international trade. Third, in addition, there emerged enhanced awareness and interests regarding quality of life in connection with; for example, safety, consumer protection, protection of the environment, etc.

Figure 2. Average Applied Tariff Rates by Development Stage, non-agricultural products (percent)



Sources: Data from Nam (2005), p. 21 and WTO (2014a).

Figure 3. NTB Notifications in Doha Round NAMA Negotiations, by Category

Source: Johnson (2008), p. 1, compiled from WTO (2005b).

3. Multilateral Cooperation, the WTO TBT Agreement

Multilateral discussions and efforts have been successful in establishing rules and regulations on TBT (often called as the Standard Code following the Tokyo Round (1973-1979) under GATT. Subsequently, it has progressed, as a result of the Uruguay Round, to become the WTO Agreement on Technical Barriers to Trade (TBT Agreement) with the launch of the WTO in 1995.¹⁷

¹⁷ Refer to Nam (2005) for more detailed discussion.

The WTO TBT Agreement aims to ensure that standards, technical regulations, and conformity assessment procedures do not create unnecessary obstacles to trade.¹⁸ At the same time, however, it is a foregone conclusion that WTO members will take technical measures for certain policy objectives (legitimate objectives). That is, “no country should be prevented from taking measures necessary to achieve legitimate objectives.” The legitimate objectives of taking technical measures are very broad and comprehensive, mostly not directly related to trade policy objectives and, *inter alia*, for national security requirements. These objectives include: for ensuring the quality of exports, protection of human health or safety, animal or plant life or health, of the environment; or for the prevention of deceptive practices.¹⁹ But, in practice, it is often difficult to identify the legitimacy and protective effects of technical measures, whether intended or not.

For this and other reasons, the TBT Agreement requires adherence to some general rules and regulations of the WTO Agreements and mandates transparency of procedures related to proposing, introducing and applying technical measures. Non-discrimination principle including the most-favoured-nation (MFN) treatment and the national treatment is also applied to TBT measures as one of the basic rules in GATT 1994.²⁰ Other specific rules related to technical measures are as follows.

First, (use international standards) to harmonize with relevant international standards, guidelines and recommendations of appropriate international standardizing bodies (with some exceptions - when ineffective or inappropriate due to, for

¹⁸ Refer to the Preamble, Article 2.2, Article 5.1.2, and Annex 3 E of the TBT Agreement.

¹⁹ Refer to the Preamble and Article 2.2 of the TBT Agreement.

²⁰ Refer to Article 2.1, Article 5.1.1 and Article 5.2.1 of the TBT Agreement.

instance; climatic, geographical factors, or technical problems.²¹

Second, (TBT notification) to notify technical content of a proposed technical regulation or conformity assessment procedures at an early appropriate stage, if it may have a significant effect on trade of other members.²²

Third, (comment period) to allow reasonable time for other members to make comments on a proposed technical regulation or conformity assessment procedures, discuss these comments, and take the results of these discussions into account.²³ Subsequently, WTO members agreed to recommend 60 or more days in meetings of the TBT Committee.

Fourth, (publish technical measures and time to adapt) to promptly publish or make available adopted technical regulation or conformity assessment procedures, and allow a reasonable interval between publication and entry into force of technical regulation or conformity assessment procedures.²⁴ Subsequently, in the 2001 Ministerial Decision, Ministers stated that "... the phrase 'reasonable interval' shall be understood to mean, normally, a period of not less than 6 months..."²⁵

Fifth, (enquiry point) to provide relevant information and assistance by establishing one or more enquiry points.²⁶

Besides, since TBT is dynamic and often cumulative in nature with technical

²¹ Refer to Article 2.4 and Article 5.4 of the TBT Agreement.

²² Refer to Article 2.9 and Article 5.6 of the TBT Agreement. Even though standards is denoted as one of the elements comprising TBTs in the TBT Agreement, WTO members are not required to make notifications on standards since it is not mandatory but voluntary in nature by the definition of the TBT Agreement.

²³ Refer to Article 2.9 and Article 5.6 of the TBT Agreement.

²⁴ Refer to Article 2.12 and Article 5.9 of the TBT Agreement.

²⁵ Refer to WTO (2015c), p. 25.

²⁶ Refer to Article 10 of the TBT Agreement.

progress, these characteristics of TBT are adequately reflected in the TBT Agreement.

First, (technical assistance) to grant technical assistance to other members, especially the developing economy members, regarding the preparation of technical measures, the establishment of national standardizing bodies, and participation in the international standardizing bodies.²⁷

Second, (special and differential (S&D) treatment) to provide differential and more favourable treatment to developing member economies to the TBT Agreement.²⁸

Third, (the TBT Committee) to establish a committee on TBT and meet no less than once a year, affording members the opportunity for consultation on any matters relating to the operation of the TBT Agreement or the furtherance of its objectives.²⁹

Fourth, (dispute settlement) to afford members the opportunity for consultation and dispute settlement with respect to any matter affecting the operation of the TBT Agreement under the auspices of the Dispute Settlement Body (may establish a technical expert group to assist dispute settlement).³⁰

Fifth, (annual and triennial review) to review annually and at the end of each

²⁷ Refer to Article 11 of the TBT Agreement. In practice, the TBT Committee has held workshops for sharing experiences and education on: technical assistance, labelling, information exchange through electronic means, suppliers' declaration of conformity (SDoC), conformity assessment procedures (CAP), best regulatory practices, international standards and economic development, regulatory co-operation, etc.

²⁸ Refer to Article 12 of the TBT Agreement.

²⁹ Refer to Article 13 of the TBT Agreement.

³⁰ Refer to Article 14 of the TBT Agreement.

three-year period the implementation and operation of the TBT Agreement (by the TBT Committee).³¹

4. Information and Characteristics of TBT

Among the available sources, WTO TBT notifications contain information specific to TBT and cover all of the WTO members (161 as of April 26, 2015 that accounted for 98 percent of global trade in 2014).³² In addition, it is a continuous process, as an obligation to WTO members mandated by the TBT Agreement. With those characteristics, WTO TBT notifications, as a precursor to introduction of new technical measures or amendment of pre-existing ones, are unique and official sources of information on TBT or more exactly, technical measures. Again, it is necessary to utilize information on TBT with clear understanding on their characteristics, including WTO TBT notifications. Throughout this study, the analysis of TBT will be based mostly on the information from the WTO TBT notifications complemented by other information such as specific trade concerns (STCs) and dispute settlement cases related to the TBT Agreement.

It might be helpful to understand some general characteristics of TBT or technical measures relative to traditional trade barriers, especially tariffs. A tariff is a trade barrier in itself, directly raising costs of international trade and reduce international trade volume but do not usually ban market access unless the raised cost is prohibitively and therefore exceptionally high. In addition, tariff has no further practical impacts on market access nowadays. In contrast, market access will be

³¹ Refer to Article 15.3 of the TBT Agreement.

³² Refer to WTO webpage [<http://www.wto.org>] (accessed on July 28, 2015) and WTO (2015a).

denied if a certain technical measure or requirement is not fulfilled. However, not every technical measure or TBT notification of technical regulation or conformity assessment procedures forms TBT. For example, harmonized standards or technical regulation may reduce costs of trade and increase trade volume. In fact, TBT notifications related to the objectives of lowering or removal of trade barriers, harmonization, and trade facilitation explain about 6.5 percent of 12,457 stated objectives in the notifications during 1995-2014.³³ Besides, it is allowed as well as required to introduce technical measures based on legitimate objectives denoted by the TBT Agreement.

With these characteristics, frequency index based on technical measures, especially number of TBT notifications, often used in identification and trade impact analysis of technical measures, needs to be complemented by further information. In addition, technical measures might have more distortionary effects against developing countries, or small and medium enterprises for similar reasons, and their trade for development; due to relatively limited institutional, physical and human infrastructure and capacity.

The following parts are to overview technical barriers to trade with WTO discussions since the establishment of the WTO in January 1995. More specifically, they are to analyze WTO TBT notifications complemented with specific trade concerns (STCs) raised in the TBT Committee meetings and dispute settlement cases related to the TBT Agreement. A focus will be on the analysis of technical measures and trends of Asia-Pacific region or APEC member economies and attempts will be made to identify, if any, characteristics of developed and developing

³³ Refer to WTO (2015b), Note that notifications may cite multiple objectives.

member economies of APEC and implications for Asia-Pacific regional cooperation.³⁴

³⁴ For more information on APEC and the theme and priorities of APEC 2015, refer to Appendix C, Appendix D, and Appendix E.

III. WTO TBT Notifications: Trends and Characteristics

1. WTO TBT Notifications of WTO and APEC Members³⁵

As already mentioned, TBT notification is an obligation of every WTO member (161 as of April 26, 2015) by virtue of the TBT Agreement. That is, “technical content of a proposed technical regulation (TR) or conformity assessment procedures (CAP) should be notified at an early appropriate stage, if it may have a significant effect on trade of other member.”³⁶ In addition, the TBT Agreement requires members to “allow reasonable time (afterward, it was agreed to recommend 60 or more days in the TBT Committee) for other members to make comments on the proposed technical measures, discuss these comments, and take the results of these discussions into account.” For standards, WTO members also need to accept and follow the Annex 3 of the TBT Agreement titled “Code of Good Practice for the Preparation, Adoption and Application of Standards” which requires them to take similar reasonable measures as technical regulations or conformity assessment procedures. Therefore, TBT notification is a precursor for introducing a new technical measure or amending a pre-existing one. It is an ultimate source of

³⁵ Two main sources of information are TBT Information Management System (IMS) and Annual Review of the Implementation and Operation of the TBT Agreement for each year by the WTO Committee on TBT. Refer to WTO TBTIMS webpage [<http://tbims.wto.org>] (accessed on August 31, 2015) and WTO webpage [<http://www.wto.org>] (accessed on July 28, 2015).

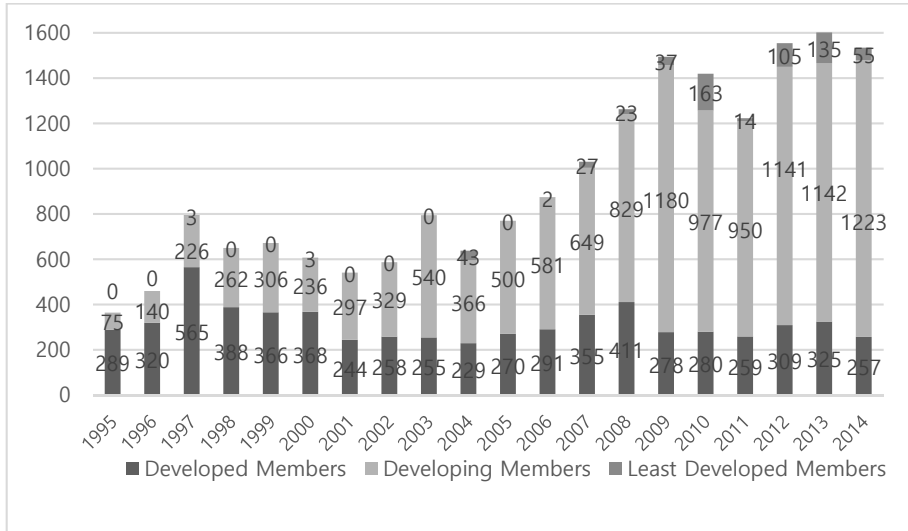
³⁶ Refer to Article 2.9 and Article 5.6 of the TBT Agreement.

information on TBT trends. However, it is important to understand technical content of TBT notifications as a potential TBT, but not a TBT itself.

We can observe the expansion and diffusion, of technical measures or potential technical barriers to trade. That is, the number of new WTO TBT notifications has increased more than four times during past two decades, from 364 in 1995 to 1,535 in 2014.³⁷ To put that into perspective, world trade (merchandise exports) has increased 3.6 times in value and 2.3 times in volume during 1995-2013.³⁸ In addition, developing countries including least developed countries (LDCs) explain about 83.3 percent (LDCs explain 3.6 percent) of new notifications in 2014, which has increased from 20.6 percent (LDCs explain 0.0 percent) in 1995. Note that the rapid increase of TBT notifications during 2005 and 2009 is mostly related to the surge of new notifications from developing members from 500 in 2005 to 1,180 in 2009, which seems to mostly harmonize their technical regulations with international standards. Afterward, the number of new notifications from developing members seems to have stabilized between 1,000 and 1,200 during the period from 2009 to 2014, and the similar changes in the number of new TBT notifications, between 1,200 and 1,600, were observed for both developed and developing members during the same period. These dramatic changes denote that potential TBT

³⁷ We need to differentiate the number of new TBT notifications from that of total TBT notifications. Total notifications include new notifications and revisions, addenda, corrigenda, and supplements for previous new notifications. In addition, regular notifications includes new notifications and revisions. WTO TBTIMS is mostly based on regular notifications but does not offer information on new notifications separately. Regular notifications seems to be the most appropriate for the purpose of analyzing TBT since they include new technical measures and meaningful changes. Therefore, the following analyses in this study will be based on regular notifications unless otherwise mentioned. For comparison, the number of total TBT notifications is 2,239 in 2014, a nearly six-fold increase from 389 in 1995.

³⁸ Refer to WTO (2014c).

Figure 4. New WTO TBT Notifications by Development Status (1995-2014, number)

Source: WTO (2015b), p. 4.

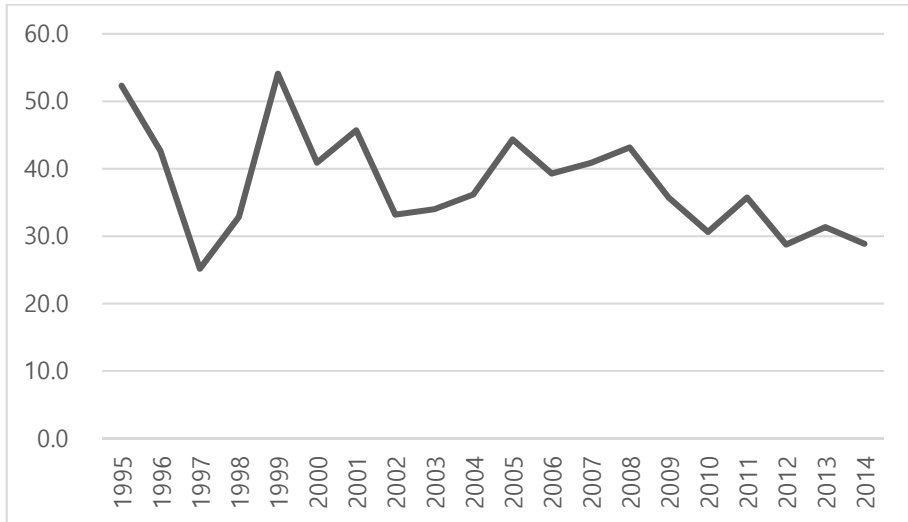
has been diffusing rapidly from developed to developing countries.

Taken as a whole, APEC members account for about 36.0 percent of regular TBT notifications during 1995 and 2014. By year, the share of APEC members has decreased from 52.3 percent in 1995 to 28.9 percent in 2014. For individual APEC member economies, the most active members during 1995 and 2014 are US (1,140 notifications), China (1,063), Japan (706), Korea (647), Canada (580), Thailand (543), and Mexico (459). They together accounted for about 75.5 percent of APEC's aggregate regular notifications during the same period, and their share has decreased from 81.2 percent in 1995 to 61.9 percent in 2014. That is, potential TBT seems to have decreased in APEC relative to the world as a whole and diffused

among APEC member economies.

In addition, TBT notifications of APEC members can be classified between those from developed and developing economies. In terms of regular notifications, APEC developing members explain about 60.1 percent during 1995 and 2014, and their share has increased from 33.5 percent in 1995 to 70.7 percent in 2014 with some fluctuations. Overall, it seems to be that APEC members are not so active in TBT notifications relative to their share in global trade. Within APEC, however, TBT notifications are rather concentrated for some leading member economies and their share have somewhat decreased during 1995 and 2014. Besides, the share of APEC developing members seem to be increasing relative to developed members in regular notifications.

Figure 5. APEC Members' Share in Regular TBT Notifications (1995-2014, percent)



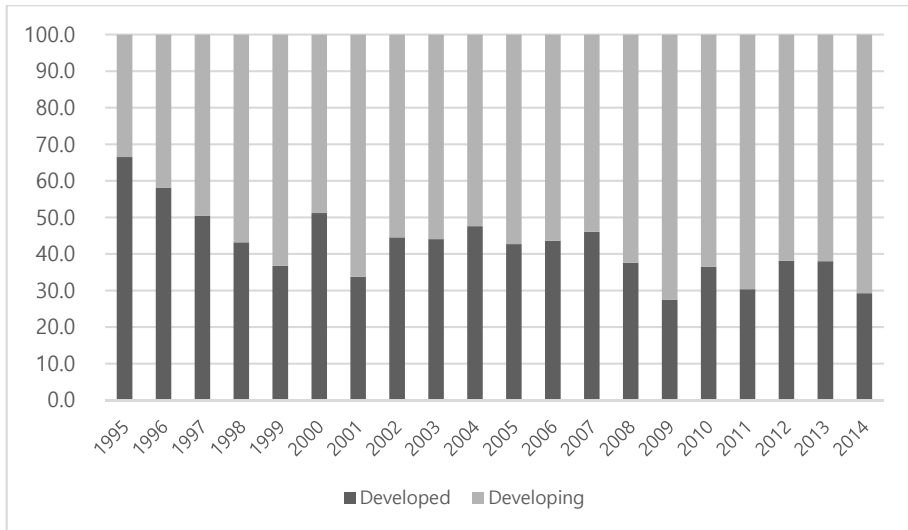
Sources: Data retrieved from Annual Review of the WTO TBT Committee for 1995-2013 and WTO TBTIMS webpage [<http://tbims.wto.org>] (accessed on August 31, 2015) for 2014.

**Table 2. Regular TBT Notifications by APEC Member
(1995, 2014, and 1995-2014, number)**

	1995	2014	1995-2014
Australia	20	4	194
Brunei Darussalam	0	0	2
Canada	29	31	580
Chile	0	44	362
China, People's Republic of	0	47	1,063
Hong Kong, China	6	2	76
Indonesia	0	9	94
Japan	48	26	706
Korea, Republic of	13	85	647
Malaysia	1	18	215
Mexico	29	12	459
New Zealand	1	3	99
Papua New Guinea	0	0	1
Peru	0	11	68
Philippines	0	11	242
Russia	0	13	41
Singapore	8	3	38
Chinese Taipei	0	39	187
Thailand	7	10	543
US	29	68	1,140
Viet Nam	0	15	51
APEC Sum	191	451	6,808
APEC Share (%)	52.3	28.9	36.0
(Reference: WTO Total)	365	1,559	18,886

Sources: Data retrieved from Annual Reviews of the WTO TBT Committee for 1995-2013 and WTO TBTIMS webpage [<http://tbims.wto.org>] (accessed on August 31, 2015) for 2014.

Figure 6. APEC Members' Regular TBT Notifications by Development Status (1995-2014)



Note: APEC developed member economies include Australia, Canada, Japan, New Zealand, and the US. Other APEC members are classified as developing member economies.

Sources: Data retrieved from Annual Review of the WTO TBT Committee by year (WTO (1996), WTO (2006), WTO (2007), WTO (2008), WTO (2009), WTO (2013), WTO (2014b), WTO (2015b), etc.) and TBTIMS webpage [<http://tbims.wto.org>] (accessed on August 31, 2015).

2. By Technical Regulation and Conformity Assessment Procedures

WTO TBT notifications can be classified as those regarding technical regulations or conformity assessment procedures, or both in some cases.³⁹ Notifications related to technical regulations are those notified by the Article 2.9.2, Article 2.10.1,

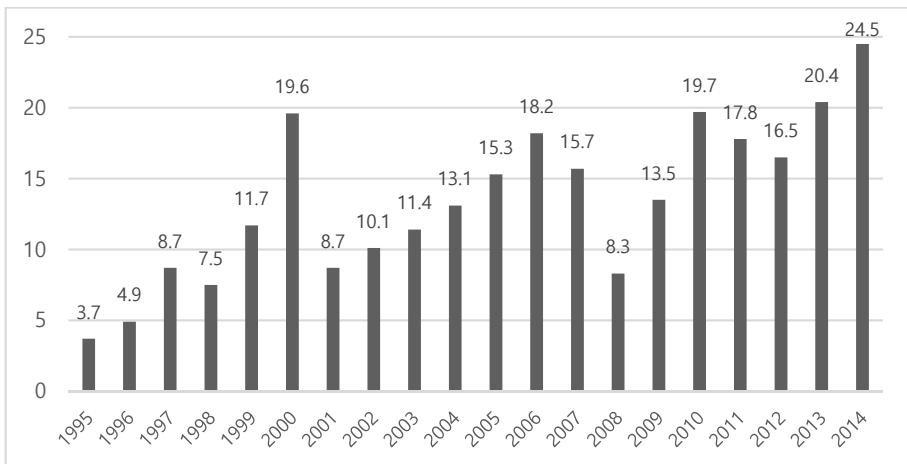
³⁹ As already discussed, WTO members do not need to make a notifications on standards related issues.

and Article 3.2 of the TBT Agreement. In turn, conformity assessment procedure related notifications are those notified by the Article 5.6.2, Article 5.7.1, and Article 7.2 of the TBT Agreement. The share of TBT notifications for conformity assessment procedures in APEC member economies has revealed increasing trends overall during 1995 and 2014, even with fluctuations and sharp decreases between 2006 and 2010.

The share of TBT notifications related to conformity assessment procedures in APEC member economies is 14.3 percent for the whole period of 1995-2014. The share increased from 4-5 percent during 1995 and 1996 to 8-18 percent during 1998 and 2006, decreased significantly to 8.3 percent by 2008, and recovered afterwards to 24.5 percent in 2014. The sharp decrease of the share of regular TBT notifications related to conformity assessment procedure during 2007 and 2009 also seems to be linked to the surge of notifications from developing members from 227 in 2007 to 337 and 386 in 2008 and 2009, respectively, mostly to harmonize their technical regulations with international standards. Afterwards, the number of notifications from APEC developing member economies seems to have stabilized between 280 and 320 during 2010 and 2014, and with these changes the share of TBT notifications related to conformity assessment procedure is increasing again from 8.3 percent in 2008 to 24.5 percent in 2014. Overall, the increasing trend share of TBT notifications related to conformity assessment procedure among APEC members seems to reflect the importance of conformity assessment procedures relative to technical regulation in recent periods. Therefore, it is important to understand not just typical technical regulations but also conformity assessment procedures such as test and certification procedures, as they take on greater importance as potential TBTs.

By development status, there were large gaps in the share of CAP related notifications between developed and developing member economies of APEC. More specifically, developing members in APEC have a significantly larger share of CAP related notifications relative to APEC developed members, especially for 2005 and on. They have rapidly increasing share of CAP related notifications even with significant fluctuations, around 20-30 percent, during 2010-2014. These trends seem to be closely related to the efforts of many APEC developing members to harmonize their conformity assessment procedures to international standards. In contrast, developed members of APEC represent around 10-15 percent share of CAP related notifications since 2000 and 9.7 percent in 2014.

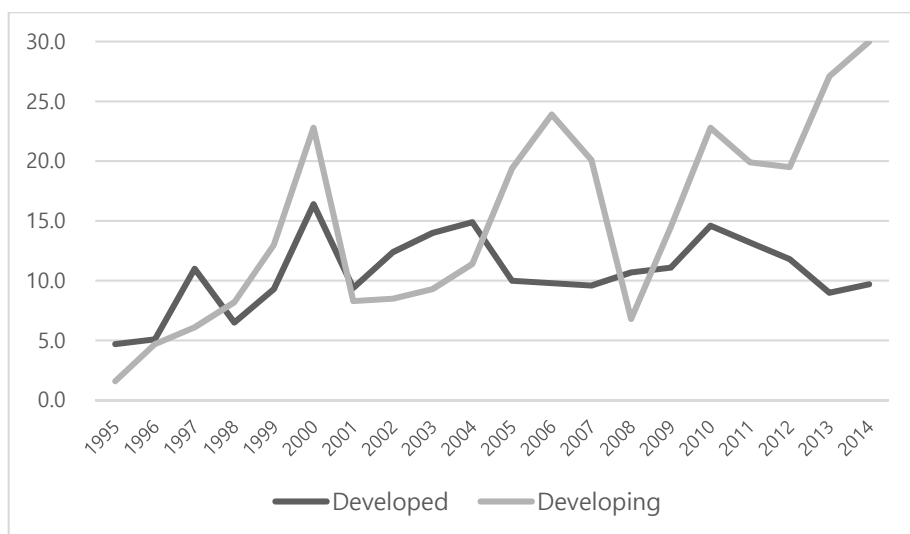
Figure 7. Share of CAP Related TBT Notifications in APEC (1995-2014, percent)



Note: Conformity assessment procedure related notifications are those notified by the Article 5.6.2, Article 5.7.1, and Article 7.2 of the TBT Agreement. Some notifications may be related to both technical regulation and conformity assessment procedures.

Sources: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015), and from the Annual Review of the TBT Committee for 2005-2008 (WTO (2006), WTO (2007), WTO (2008), and WTO (2009)) since the relevant data were not available for retrieval from the WTO TBTIMS database.

Figure 8. Share of CAP Related TBT Notifications by Development Status in APEC (1995-2014, percent)

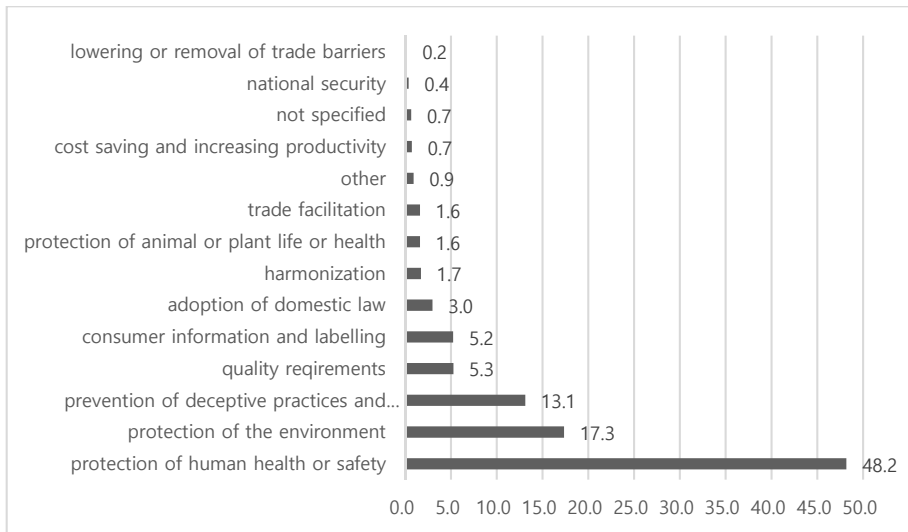


Sources: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015) and Annual Review of the TBT Committee by each year.

3. By Stated Objectives of Regulation

It should be noted that the stated objectives of TBT notifications are declared by the notifying member that proposes to introduce new measures or amend pre-existing technical regulation or conformity assessment procedures according to the notification form. Therefore, the objectives cannot be ascertained beforehand by other members or the WTO, even though other members would be afforded opportunities to discuss in the TBT Committee meetings afterwards.

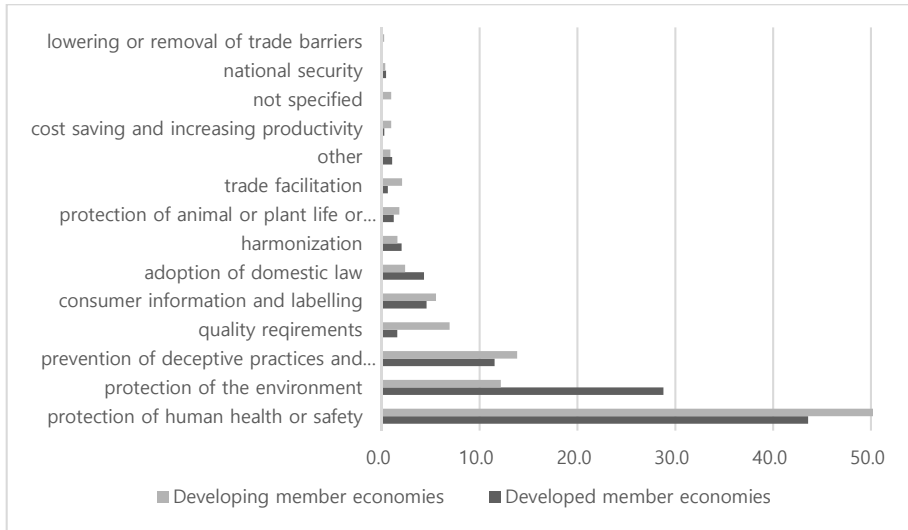
**Figure 9. APEC Member Economies' TBT Notifications by Stated Objectives
(1995-2014, percent)**



Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

In terms of stated objectives of regulation, TBT notifications of APEC members are heavily concentrated on product safety, followed by protection of the environment, and consumer protection. More specifically, protection of human health or safety accounts for 48.2 percent followed by protection of the environment at 17.3 percent, and prevention of deceptive practices and consumer protection (13.1 percent) for the whole period of 1995-2014. The shares of objectives more directly related and specific to product quality, lowering trade barriers, or trade facilitation are relatively small. That is, the share of quality requirements is 5.3 percent, harmonization 1.7 percent, trade facilitation 1.6 percent, and lowering

Figure 10. APEC Member Economies' TBT Notifications by Stated Objectives and Development Status (1995-2014, percent)



Note: APEC developed member economies include Australia, Canada, Japan, New Zealand, and the US. Other APEC members are classified as developing member economies.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

or removal of trade barriers 0.2 percent during the same period, respectively.

APEC can be further divided into developed and developing member economies. Notifications of both developed and developing member economies are concentrated in top three objectives: protection of human health or safety, protection of the environment, and prevention of deceptive practices and consumer protection with the aggregate share of 83.9 percent for developed members and 76.3 percent for developing members during 1995 and 2014, respectively. However, developed member economies showed a relatively larger share of protection of the

environment (28.8 percent vs. 12.2 percent for developing members) and adoption of domestic law (4.3 percent vs. 2.4 percent for developing members) during 1995 and 2014. In turn, developing member economies showed a relatively larger share of protection of human health or safety (50.3 percent vs. 43.6 percent for developed members), quality requirements (6.9 percent vs. 1.6 percent for developed members), and trade facilitation (2.1 percent vs. 0.6 percent for developed members) during 1995 and 2014.

4. By Product

It might not be easy or even possible for many cases to classify exactly TBT notifications by product concerned, due to limited information in the notifications. However, this study attempts to classify them by broad product category or industrial sector. For the purpose of analysis, the notifications are classified into nine broad product groups or industrial sectors based on two digit HS (harmonized system) code in this study. There are three broad product categories or industrial sectors have relatively large shares in the APEC TBT notifications, such as electric and electronic equipment, measuring and precision instruments (19.0 percent), rubber and chemical products (16.2 percent), and boilers and machinery (15.5 percent) followed by agricultural and fishery products, foods (13.8 percent) and transportation equipment (13.2 percent) during 1995 and 2014. They seem to be closely related to the objectives of regulation such as protection of human safety and health, and protection of the environment. In practice, however, TBT notifications are distributed over a broad range of products, or virtually any product being traded among countries.

Table 3. Product Category or Sector Classification for Analysis

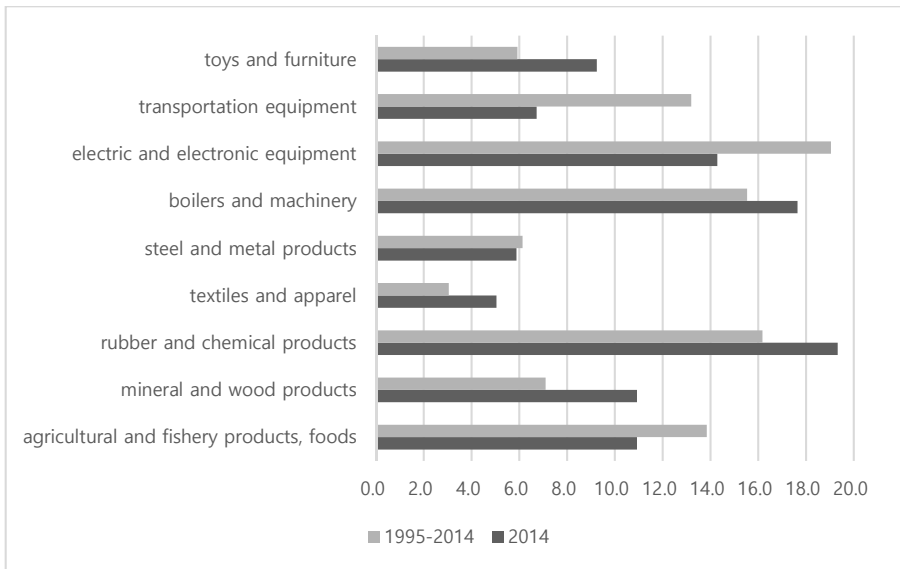
HS code	Product Category/Industrial Sector
01-24	agricultural and fishery products, foods
25-27, 41-49, 68-71	mineral and wood products
28-40	rubber and chemical products
50-67	textiles and apparel
72-83	steel and metal products
84	boilers and machinery
85, 90, 91	electric and electronic equipment, measuring and precision instruments
86-89	transportation equipment
92-97	toys and furniture, etc.

Source: Classified by author.

In 2014, for comparison, rubber and chemical products (19.3 percent), boilers and machinery (17.6 percent), mineral and wood products (10.9 percent), toys and furniture (9.2 percent), textiles and apparel (5.0 percent) gain in terms of their shares relative to those during 1995 and 2014, respectively. But electric and electronic equipment, measuring and precision instruments (14.3 percent), agricultural and fishery products, foods (10.9 percent), and transportation equipment (6.7 percent) lost their shares in 2014 relative to those during 1995 and 2014, respectively. By economic development status, developed member economies of APEC have larger shares with respect to rubber and chemical products (19.6 percent), transportation equipment (17.5 percent), agricultural and fishery products, food (17.2 percent), and toys and furniture (7.4 percent) relative to APEC developing member economies during 1995 and 2014. Symmetrically, APEC developing member economies have larger shares in electric and electronic equipment (24.9 percent), boilers

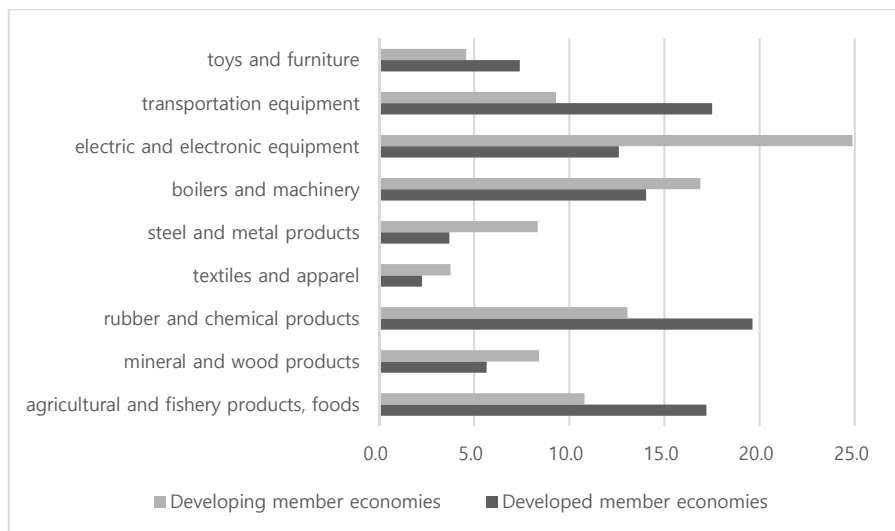
and machinery (16.9 percent), steel and metal products (8.3 percent), mineral and wood products (8.4 percent), and textiles and apparel (3.8 percent) relative to APEC developed member economies during the same period. It seems to be that countries tend to introduce technical measures more frequently for their imports relative to their exports.

Figure 11. APEC Member Economies' TBT Notifications by Product Category (1995-2014, 2014, percent)



Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

Figure 12. APEC Member Economies' TBT Notifications by Product Category and by Development Status (1995-2014, percent)



Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

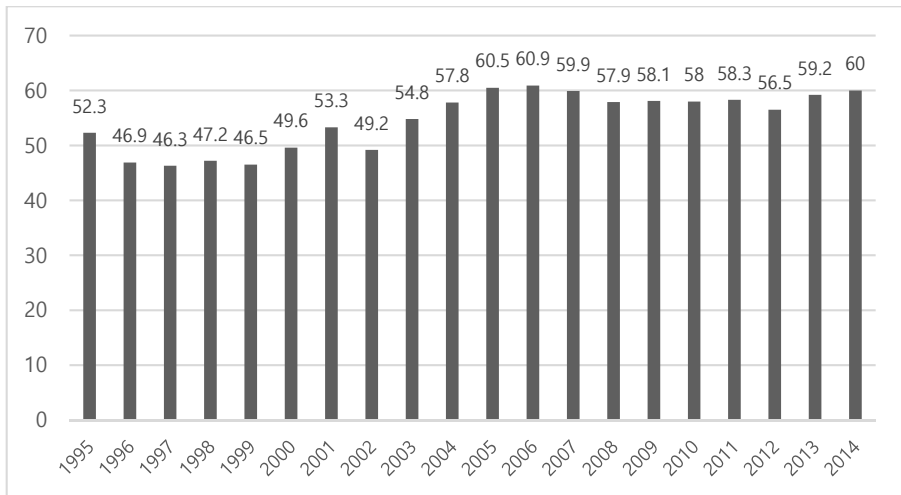
5. Average Comment Period of TBT Notifications

For TBT notifications, it is recommended that countries provide a minimum of 60 or more days, and are encouraged to provide 90 days or more, as agreed in the TBT Committee meetings.⁴⁰ There has been gradual improvement in the average comment period for the whole WTO TBT notifications since the launch of the WTO except during global financial crisis in 2008 and afterwards. The average

⁴⁰ It is not specified in the TBT Agreement but agreed in the TBT Committee in 2000 and 2003. Refer to WTO (2015c).

comment period was 46-52 days in 1995-1999, 50-58 days in 2000-2004, 58-60 days in 2005-2014. In 2014, average of comment periods specified in 1,345 new notifications was 60.0 days.

Figure 13. Average Comment Period Allowed for Regular TBT Notifications (1995-2014, days)



Note: Some notifications do not specify a comment period or have lapsed one. For example, the number of notifications that do not specify a comment period is 40 and additional 15 notifications (15.1 percent) have a lapsed comment period out of total 365 notifications in 1995. For comparison, 190 notifications (12.4 percent) do not specify a comment period, stated as “non-applicable,” or have a comment period lapsed out of 1,535 new notifications in 2014. Refer to WTO (1996) and WTO (2015b).

Sources: WTO (1996) and WTO (2015b), p. 10.

However, it needs to be noted that some notifications do not specify a comment period, and are stated as “non-applicable,” or comment period has lapsed. For example, the number of notifications that do not specify a comment period is 40 and additional 15 notifications (15.1 percent) have a lapsed comment period out

of 365 regular notifications in 1995. For comparison, 190 notifications (12.2 percent) do not specify a comment period, stated as “non-applicable,” or had their comment period lapsed; out of 1,559 regular notifications in 2014.⁴¹

For APEC TBT notifications, there has also been rapid progress in the length of the comment period. For example, the share of notifications with 60 or more days of comment period has increased from 20-30 percent during 1995-2000 to 30-50 percent during 2001-2004, and 50-70 percent during 2005-2014. The share was 70.7 percent in 2014. At the same time, the share of notifications with comment periods “not specified” or lapsed has decreased, with severe fluctuations from 12.6 percent in 1995 to 4.0 percent in 2014.

Figure 14. Share of APEC TBT Notifications Provided with a Comment Period of 60 or More Days (1995-2014, percent)

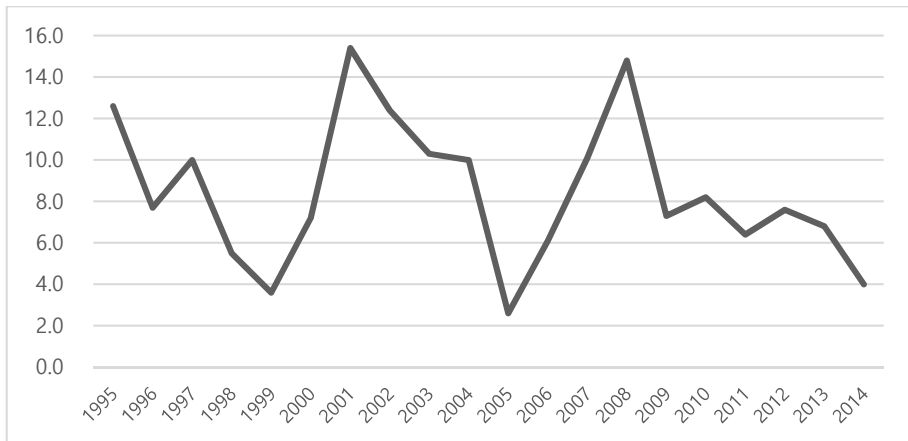


Sources: Author's calculation with data from the Annual Reviews of the TBT Committee for 1995-2013 and WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015) for 2014.

⁴¹ Refer to WTO (1996) and WTO (2015b).

It needs to be noted that a significant share of APEC TBT notifications have provided a comment period less than the recommended 60 days, “not specified” or lapsed, which means that there is further room for improvement in terms of transparency of TBT procedures.

Figure 15. Share of APEC TBT Notifications Comment Period Not Specified or Lapsed (1995-2014, percent)



Sources: Author's calculation with data from the Annual Reviews of the TBT Committee for 1995-2013 and WTO TBTIMS webpage [<http://tbtime.wto.org>] (accessed on August 31, 2015) for 2014.

By development status, APEC developing members have surpassed APEC developed members in the share of notifications provided with 60-plus days of comment period, since 2004. At the same time, APEC developing members have outperformed APEC developed members in the share of notifications with comment periods “not specified” or lapsed starting from 2007 or more accurately from 2011. The US, representing a relatively large share of TBT notifications in APEC, seems to have contributed to these trends to some extent, especially during 2006-2008.

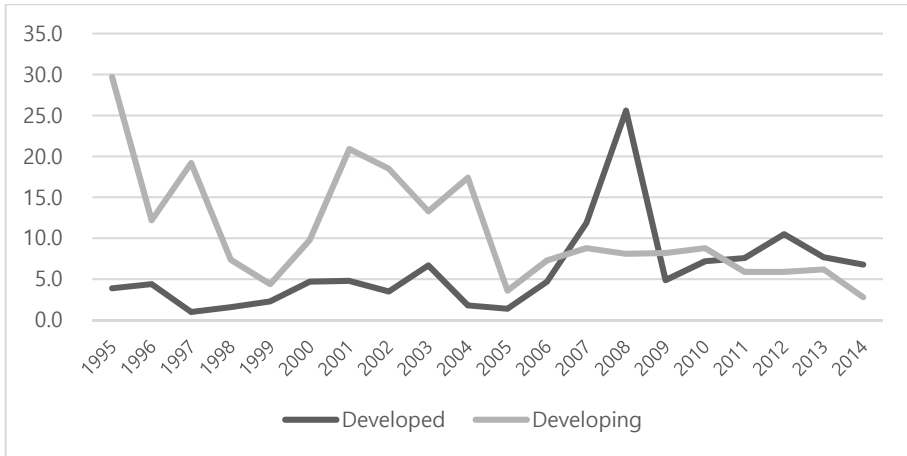
For example, the shares of notifications providing 60 or more days of comment period in US TBT notifications were quite low -that is, 34.7 percent in 2007, 12.3 percent in 2008, and 14.7 percent in 2009, respectively. In addition, the share of notifications with comment periods not specified or lapsed in US TBT notifications was 46.2 percent in 2008. APEC developing economies actually appeared to significantly improve transparency in TBT procedures, shown by rapidly-growing number of their notifications, especially from 2005.

Figure 16. Share of APEC TBT Notifications Provided with a Comment Period 60 or More Days by Development Status (1995-2014, percent)



Sources: Author's calculation with data from the Annual Reviews of the TBT Committee for 1995-2013 and WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015) for 2014.

Figure 17. Share of APEC TBT Notifications Comment Period Not Specified or Lapsed by Development Status (1995-2014, percent)



Sources: Author's calculation with data from the Annual Reviews of the TBT Committee for 1995-2013 and WTO TBTIMS webpage [<http://tbttms.wto.org>] (accessed on August 31, 2015) for 2014.

IV. Specific Trade Concerns

1. TBT and STCs

WTO TBT notifications contain important information on technical measures that may affect international trade of other members. However, they are potential TBTs but not necessarily TBT itself. In fact, the WTO TBT Committee was established, based on the TBT Agreement, “for the purpose of affording Members the opportunity of consulting on any matters relating to the operation of this Agreement or the furtherance of its objectives, and shall carry out such responsibilities as assigned to it under this Agreement or by the Members.”⁴²

WTO members have been utilizing the TBT Committee meetings as opportunities to discuss and raise issues related to certain technical measures of standards, technical regulations, and conformity assessment procedures; proposed with notification, currently in force, or maintained by other members, which is called specific trade concerns (STCs) related to the TBT Agreement. Therefore, TBT notifications need to be and can be complemented by additional information such as the STCs, concerning which WTO members raised issues at the TBT committee meetings for trade related technical measures of other members. Besides, STCs can be regarded as being much closer to actual TBT compared with TBT notifications.

⁴² Refer to Article 13.1 of the TBT Agreement and WTO (2011).

2. Aggregate Number of STCs Raised⁴³

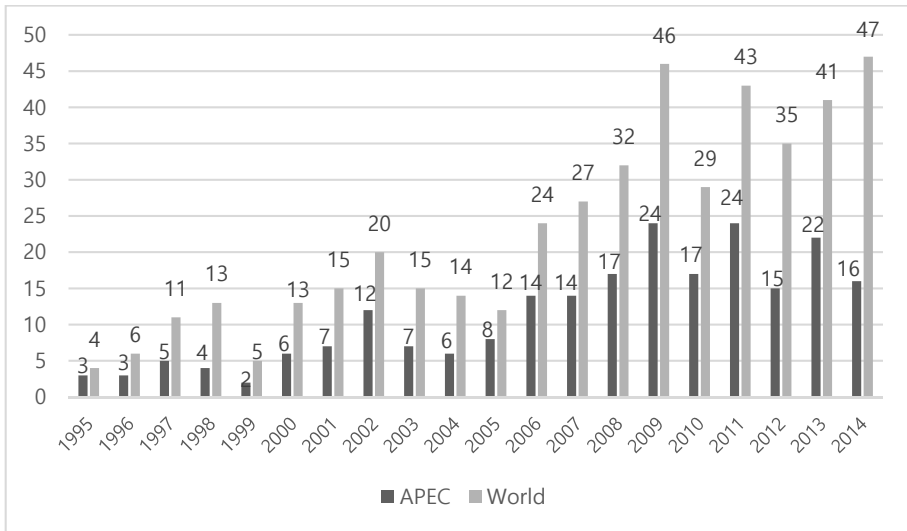
There have been 452 STCs raised related to the TBT Agreement during the period 1995-2014; among them, 226 STCs (50.0 percent) involve with APEC member economies as the ‘maintaining sides’ of technical measures. For reference, APEC members represented 47.0 percent of world trade in 2012 and 38.3 percent of WTO TBT notifications during 1995-2014. Therefore, APEC members seem to be more active in utilizing practical TBT measures relative to their share in global trade but were not as active in notifying and introducing TBT measures or potential TBTs.

Number of new STCs raised by year is showing overall increasing trends with some fluctuations both in the WTO and among APEC members as the maintaining sides of technical measures. However, the share of APEC members has been showing mostly decreasing trends from 66.7 percent in 2006 to 34.0 percent in 2014, which seems to be relative to improvement in terms of TBT measures in APEC members. In terms of individual APEC member economy as the maintaining side of technical measures, STCs are quite concentrated in a few members such as China (49 cases), US (47 cases), and Korea (30 cases) during 1995-2014. They together explain about 55.8 percent of total APEC member related STCs as the maintaining side of technical measures during the same period. They are followed by Indonesia (17 cases), Mexico (13 cases), Japan (11 cases), Canada (10 cases), and Russia (10 cases). It can be seen that no STCs were raised for technical measures of Brunei Darussalam, Papua New Guinea, and Singapore during 1995-2014.

⁴³ Refer to WTO (2011) and following annual reviews of the WTO TBT Committee. WTO (2011) offers a quite comprehensive analysis on STCs from January 1995 and June 2011.

By development status, APEC developing members account for 153 APEC STCs (about 67.7 percent of APEC total) as maintaining sides of technical measures during 1995-2014. For comparison, APEC developing members explain about 54.0 percent of total APEC TBT notifications during 1995-2014. Therefore, APEC developing members are more active in utilizing technical measures potentially inconsistent with the TBT Agreement relative to APEC developed members.

Figure 18. Number of New STCs Raised by World and APEC (1995-2014)



Note: APEC means that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STCs.

Sources: WTO (2011) and WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

**Table 4. STCs by APEC Member as the Maintaining Side of Technical Measures
(1995-2014, number)**

APEC Member	1995-2014
Australia	2
Brunei Darussalam	0
Canada	10
Chile	4
China, People's Republic of	49
Hong Kong, China	2
Indonesia	17
Japan	11
Korea, Republic of	30
Malaysia	3
Mexico	13
New Zealand	3
Papua New Guinea	0
Peru	6
Philippines	1
Russia	10
Singapore	0
Chinese Taipei	5
Thailand	9
US	47
Viet Nam	4
APEC Sum	226
APEC Share (%)	50.0
(Reference: WTO Total)	452

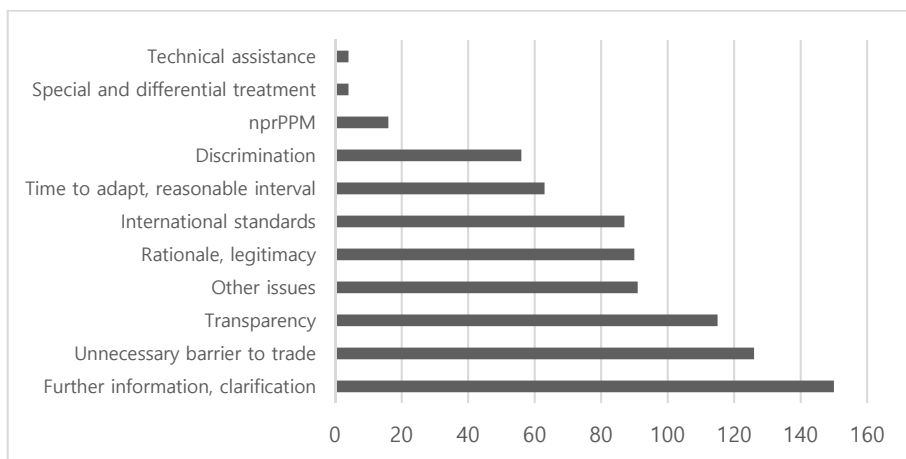
Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

3. By Type of Concerns Raised

By type of concerns raised for APEC members as the maintaining side of technical measures, further information and clarification (150 cases, 18.7 percent) is the

most frequent, followed by unnecessary barriers to trade (126 cases, 15.7 percent), and transparency (115 cases, 14.3 percent). The remaining concerns are other issues (91 cases, 11.3 percent), rationale and legitimacy (90 cases, 11.2 percent), international standards (87 cases, 10.8 percent), time to adapt, reasonable interval (63 cases, 7.9 percent), discrimination (56 cases, 7.0 percent), and nprPPM (16 cases, 2.0 percent).⁴⁴

Figure 19. Type of Concerns Raised for APEC STCs Measures (1995-2014, number)



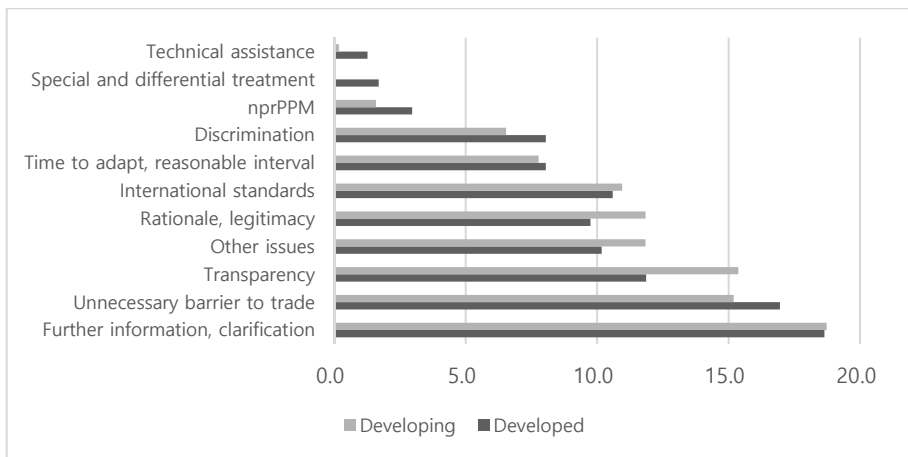
Note: More than one type of concern may be raised for each STC-related technical measure. APEC means that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STC cases.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

⁴⁴ nprPPM refers to non-product related process and production methods.

“Other issues” includes complexity, lack of scientific evidence, intellectual property, etc.⁴⁵ “Time to adapt, reasonable interval” refers to the period between the publication of technical regulations and conformity assessment procedures, and their entry into force.⁴⁶ Some STCs are specifically related to developing country concerns such as special and differential treatment (4 cases, 0.5 percent), and technical assistance (4 cases, 0.5 percent). It needs to be noted that more than one type of concerns may be raised for a certain STC-related technical measure.

Figure 20. Type of Concerns Raised for APEC STCs Measures by Development Status (1995-2014, percent)



Note: More than one type of concerns may be raised for each STC related technical measure. ‘APEC’ signifies that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STC cases.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

⁴⁵ Refer to WTO (2011).

⁴⁶ Refer to WTO (2011).

By development status, developed and developing members in APEC represent roughly similar distribution of STCs by type of concerns raised. Nevertheless, APEC developing members as the maintaining side of technical measures have somewhat larger shares in transparency (87 cases, 15.4 percent) and rationale and legitimacy (67 cases, 11.8 percent) relative to APEC developed members. In contrast, APEC developed members as the maintaining side of technical measures have somewhat larger shares in unnecessary barrier to trade (40 cases, 16.9 percent), discrimination (19 cases, 8.1 percent) and nprPPM (7 cases, 3.0 percent) as well as in typical concerns related to development cooperation such as special and differential treatment (4 cases, 1.7 percent) and technical assistance (3 cases, 1.3 percent) relative to APEC developing members.

4. By Technical Regulation and Conformity Assessment Procedures

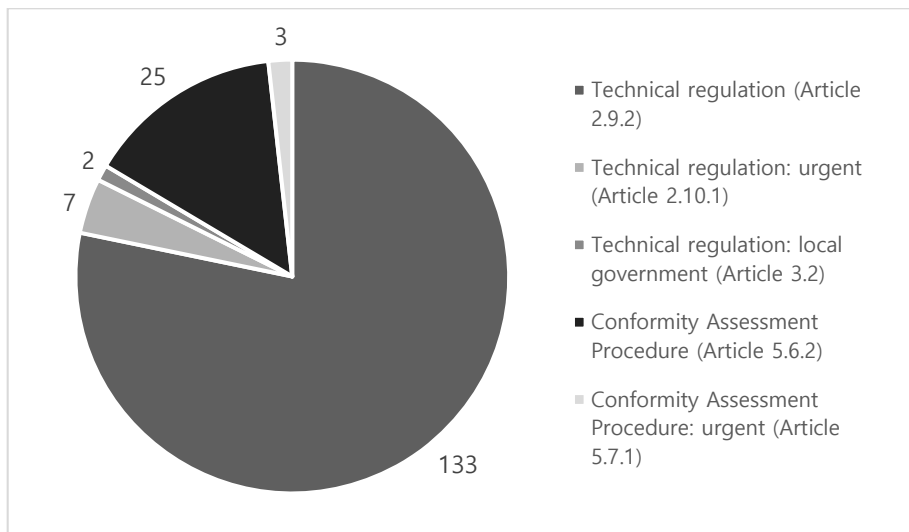
About 70 percent of STCs are related to notified measures of WTO members to the WTO TBT Committee, which means that the rest, or about 30 percent of STCs, are related to non-notified technical measures.⁴⁷ This, in turn, requires further efforts to enhance the legitimacy and transparency of technical measures based on the TBT Agreement.

Regarding notified measures of STCs with APEC members as the maintaining side of technical measures, about 83.5 percent (including 4.1 percent of notifications with urgent problems) are related to technical regulations (Article 2.9.2 and Article 2.10.1 of the TBT Agreement) and the rest, about 16.5 percent (including

⁴⁷ Refer to WTO (2011).

1.8 percent of notifications with urgent problems), are related to conformity assessment procedures (Article 5.6.2 and Article 5.7.1 of the TBT Agreement). These shares of STCs related to technical regulations and conformity assessment procedures are roughly similar to those for TBT notifications during 1995-2014 (85.7 percent and 14.3 percent, respectively).

Figure 21. APEC STCs Measures by Notified Article of the TBT Agreement (1995-2014, number)



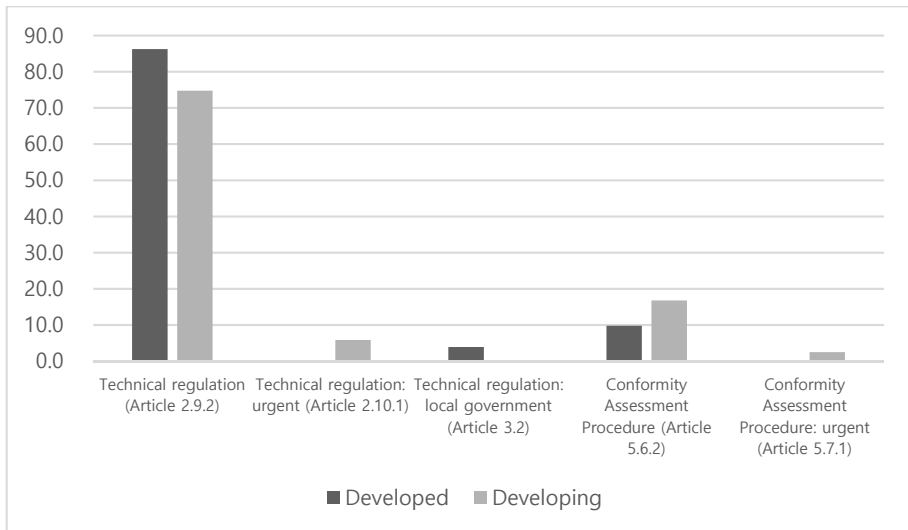
Note: More than one article of the TBT Agreement may be notified for each STC-related technical measure. 'APEC' means that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STC cases.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

By development status, APEC developing members have a somewhat larger share of conformity assessment procedures related to STCs as the maintaining side

of technical measures relative to APEC developed members. In addition, APEC developing members have STCs as the maintaining side of technical measures related to urgent measures regarding both technical regulation (5.9 percent) and conformity assessment procedures (2.5 percent). In contrast, APEC developed members have somewhat larger share of STCs related to technical regulation as the maintaining side of technical measures, relative to APEC developing members.

Figure 22. APEC STCs Measures by Notified Article of the TBT Agreement and by Development Status (1995-2014, percent)



Note: More than one article of the TBT Agreement may be notified for each STC-related technical measure. 'APEC' means that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STCs cases.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

In addition, APEC developed members have STCs related to technical regulation of local government as the maintaining side of technical measures but no STCs related to urgent measures for both technical regulation and conformity assessment procedures.

5. Number of TBT Committee Meetings Raise the Same Concern

As discussed before, the TBT Agreement states specifically that it will “establish a committee on TBT (the TBT Committee) and meet as frequently as necessary but no less than once a year, for the purpose of affording members the opportunity of consulting on any matters relating to the operation of the TBT Agreement or the furtherance of its objectives.”⁴⁸ In practice, the TBT Committee meets three times per year, on a regular basis.

As for the frequency of the TBT Committee meetings raised and discussed, in terms of each STC of APEC members as the maintaining side of technical measures during 1995 and 2014, about 62.1 percent of STCs are raised in one or two times in WTO TBT Committee meetings, 27.3 percent three to five times, and 10.6 percent more than five times.⁴⁹ As the committee meeting takes place three times a year, about 62.1 percent of STCs seem to be resolved within a year, and about 89.4 percent within two years cumulatively. Therefore, the TBT Committee meetings, or, more broadly speaking, the WTO multilateral discussion and consultation processes, are quite efficient in resolving resolve TBT related concerns and

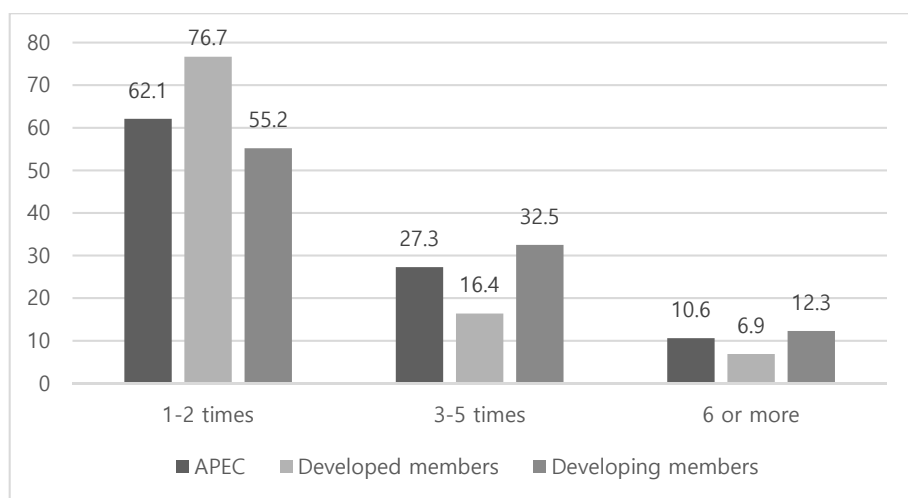
⁴⁸ Refer to Article 13 of the TBT Agreement.

⁴⁹ Refer to WTO (2011). It needs to be noted that since some STCs discussed one or two times and raised for first time in recent TBT Committee meetings, their share might be overestimated. They might be raised again in the subsequent TBT committee meetings.

issues of member countries.

By development status, APEC developed members have significantly larger shares of STCs which might have been resolved earlier, for example, within a year or two relative to APEC developing members. These phenomena seem to reflect fact that APEC developed members have more flexibility and better capacity for regulatory reform in technical measures than APEC developing members.

Figure 23. Number of TBT Committee Meetings at Which the Same STCs are Raised for APEC Members (1995-2014, percent)



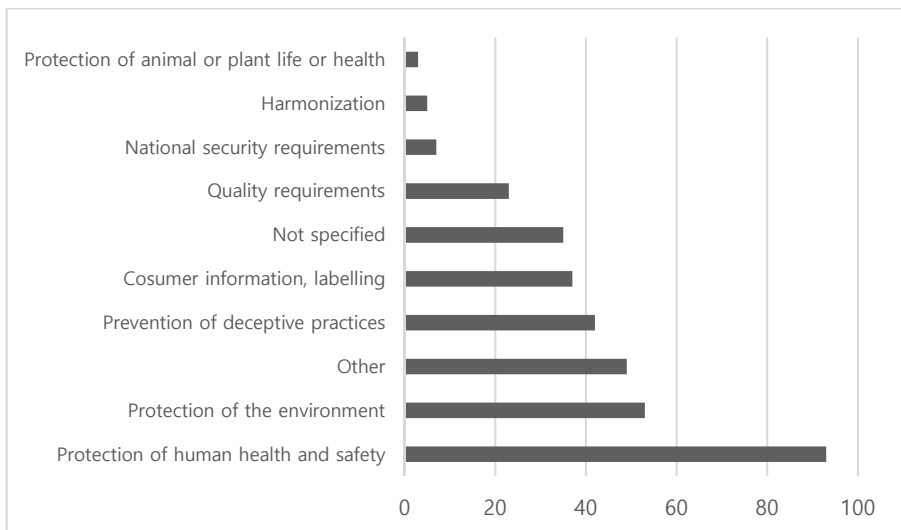
Note: 'APEC' means that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STCs cases.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

6. By Stated Objectives

By stated objectives in the notifications related to STCs for APEC members as the maintaining side of technical measures, protection of human health and safety (26.8 percent) has the largest share, followed by protection of the environment (15.3 percent), other (14.1 percent), prevention of deceptive practices (12.1 percent), consumer information, labelling (10.7 percent), and not specified (10.1 percent).

Figure 24. Stated Objectives in the Notifications for STCs Raised to APEC Members (1995-2014, number)

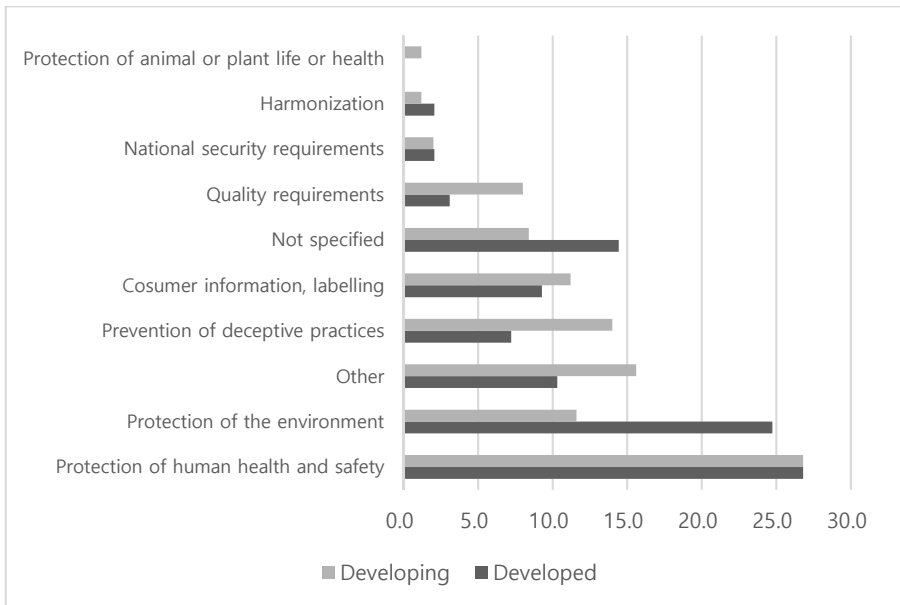


Note: For each TBT notification raised as STCs, there may be more than one stated objective. 'APEC' means that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STCs cases.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

They together explain about 89.0 percent of the total. Other objectives with relatively small shares are quality requirement (6.6 percent), national security requirements (2.0 percent), harmonization (1.4 percent), and protection of animal or plant life or health (0.9 percent). For comparison, aggregate TBT notifications irrespective of STCs were more concentrated on a single objective, protection of human health and safety (about 48.2 percent of APEC members' notifications during 1995-2014).

Figure 25. Stated Objectives in the Notifications for STCs Raised to APEC Members by Development Status (1995-2014, percent)



Note: For each TBT notification raised as STCs, there may be more than one stated objective. 'APEC' means that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STCs cases.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

By development status, APEC developing members have somewhat larger share in the stated objectives of other (15.6 percent), prevention of deceptive practices (14.0 percent), quality requirement (8.0 percent) related STCs as the maintaining side of technical measures relative to APEC developed members. In contrast, APEC developed members have somewhat larger share in the stated objectives of protection of the environment (24.7 percent) and not specified (10.1 percent) related STCs as the maintaining side of technical measures relative to APEC developing members. In fact, both APEC developed and developing members have relatively large share, about 25 percent, of unclear stated objectives such as “other” or “not specified”, respectively.

Therefore, there seems to be further room to enhance transparency of technical measures of APEC member economies in the process of their proposal and implementation.

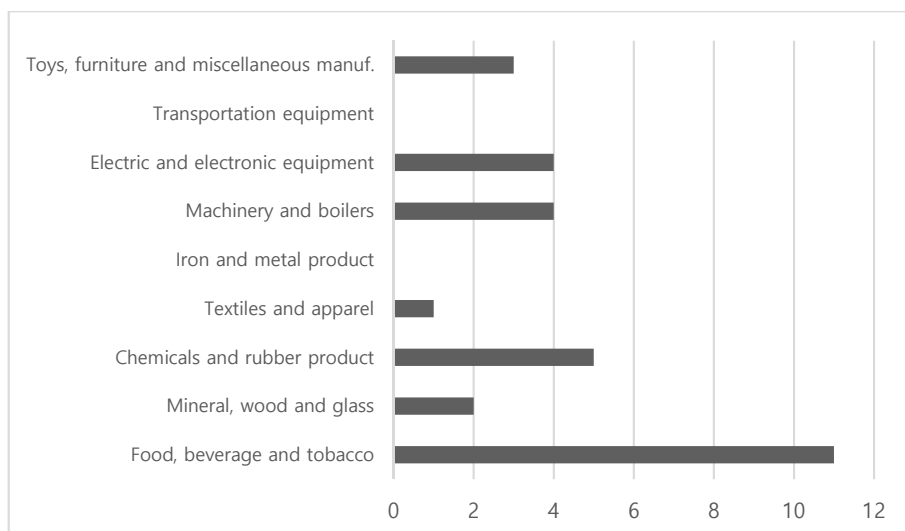
7. By Commodity

From the WTO TBTIMS database, only 30 out of 226 STCs that APEC members are related as the maintaining side of technical measures during 1995 and 2014 can be identified by commodity based on two digit HS classification. We cannot overemphasize the importance of offering sufficient and accurate information for any technical measures following the rules and regulations of, above all, the TBT Agreement in this regard. With understanding on the limitation in the STCs data, further analysis of STCs by commodity can be performed.

By commodity, food, beverage and tobacco (including agricultural and fishery products) explains the largest share (36.7 percent), followed by chemical and rub-

ber products (16.7 percent), machinery and boilers (13.3 percent), electric and electronic equipment (13.3 percent), and toys, furniture (10.0 percent). These five commodity groups together explain about 90.0 percent of total STCs for APEC members as the maintaining side of technical measures during 1995-2014. Mineral, wood and glass (6.7 percent) and textiles and apparel (3.3 percent) explain relatively small shares, respectively. No STCs of APEC members are related to transportation equipment, and iron and metal product sector. Again, these results might be misleading in that only 30 out of 226 STCs for APEC members can be identified by commodity group.

**Figure 26. STCs Raised for APEC Members by Commodity Group
(1995-2014, number)**

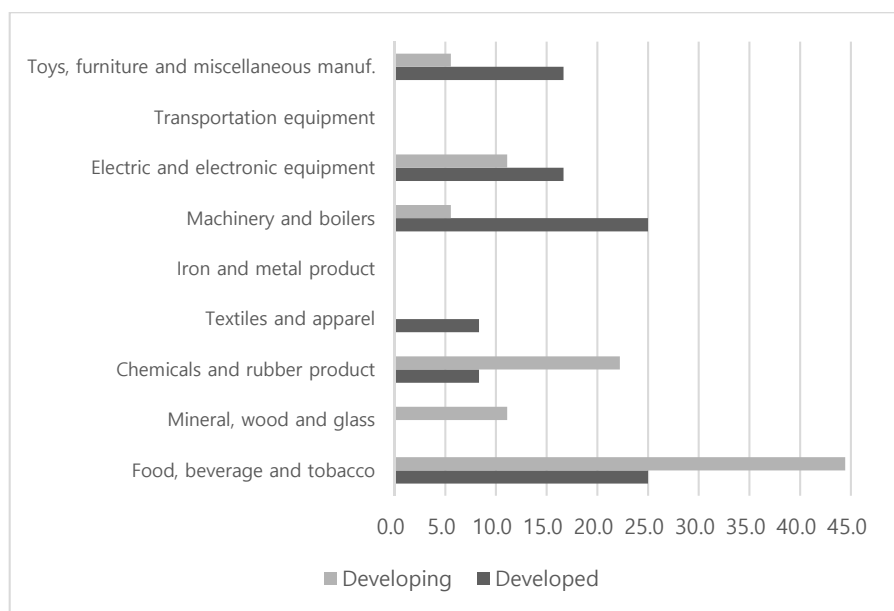


Note: 'APEC' means that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STCs cases.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

Compared with those of TBT notifications of APEC members during 1995-2014, food, beverage and tobacco has much larger share (13.8 percent for TBT notification) but transportation equipment has much smaller share (13.2 percent for TBT notification). These differences might support the fact that TBT notifications are not necessarily TBT itself but potential TBT.

Figure 27. STCs Raised for APEC Members by Commodity Group and by Development Status (1995-2014, percent)



Note: 'APEC' means that APEC member economies are involved as respondents or as the maintaining side of technical measures for the STCs cases.

Source: Data retrieved from WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015).

In addition, APEC members has somewhat differentiated trends between developed and developing member economies. For instance, APEC developed economies have somewhat larger shares of STCs as the maintaining side of technical measures in machinery and boilers (25.0 percent), toys, furniture and miscellaneous manufacturing goods (16.7 percent), textiles and apparel (8.3 percent) relative to APEC developing members. In contrast, APEC developing economies have somewhat larger shares of STCs as the maintaining side of technical measures in food, beverage and tobacco (44.4 percent), chemical and rubber products (22.2 percent), and mineral, wood and glass (11.1 percent) relative to APEC developed members.

V. Dispute Settlement Cases

1. WTO Dispute Settlement Procedure

The WTO procedure for resolving trade conflicts under the Dispute Settlement Understanding (DSU) is indispensable for enforcing the rules and hence for ensuring trade without unnecessary obstacles. DSU, as one of the outcomes of the Uruguay Round (UR) negotiations, is the main WTO agreement on settling disputes.⁵⁰ The agreement focuses on the efficient and prompt dispute settlement for proper functioning of the whole multilateral trading system, the WTO. A dispute arises when a WTO member government (complainant) believes another member government (respondent) is violating an agreement or a commitment the latter made in the WTO. WTO members have obligations and rights under the WTO Agreements as a result of negotiations among the member governments. Should disputes arise, WTO members settle them through the Dispute Settlement Body.

During the GATT period before the launch of the WTO, there also existed a dispute settlement procedure.⁵¹ However, it was not so helpful without having a fixed timespan by each step. That is, rulings were often blocked, and many cases were delayed for many years before any conclusion was reached. As a result of the UR, DSU specified explicit timespans by each step for dispute settlement. By fol-

⁵⁰ WTO dispute settlement webpage [https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm] (accessed on July 31, 2015).

⁵¹ The content of this paragraph is adapted from “Understanding the WTO: Settling Disputes” in WTO dispute settlement webpage [https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm] (accessed on July 31, 2015).

lowing a specified timespan, a dispute case would take about one year from consultation to a first ruling without appeal and about three to four months longer with appeal. In practice, however, about 136 dispute cases, out of 369 by January 2008, had reached the full panel process and the majority of the cases were notified as settled bilaterally or having a prolonged consultation.⁵² Therefore, it is important to settle dispute by mutual consultation before giving judgement.

For each step of a dispute settlement procedure, target timespans are specified with some flexibility in the agreement. The first step is consultations and mediation between the members concerned, and consultation and mediation is also possible for any following steps.

Table 5. Dispute Settlement Procedures and Timespan by Step

STEP	TIMESPAN
Consultations, mediation, etc.	60 days
Panel set up and panelists appointed	45 days
Final panel report to parties	6 months
Final panel report to WTO members	3 weeks
Dispute Settlement Body adopts report (if no appeal)	60 days
(without appeal)	Total: 1 year
Appeals report	60-90 days
Dispute Settlement Body adopts appeals report	30 days
(with appeal)	Total: 1 year 3-4 months

Note: Total timespans are approximates.

Source: WTO dispute settlement webpage [https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm] (accessed on July 31, 2015).

⁵² Refer to WTO dispute settlement webpage [https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm] (accessed on July 31, 2015).

2. Dispute Settlement Cases Related to the TBT Agreement

There have been 50 dispute settlement cases related to the TBT Agreement by the date of consultation requested, which is about 10.2 percent of total 488 cases in the WTO during 1995-2014. Among them, APEC members are involved in 24 cases (48.0 percent) as respondents and 32 cases (64.0 percent) as complainants of the dispute settlement cases related to the TBT Agreement during the same period.

Table 6. Dispute Settlement Cases Related to the TBT Agreement: APEC Members as Respondent and/or Complainant (1995-2014)

	Number of Cases	Share of Total (%)
World Total	50	100.0
APEC Members as Respondent	24	48.0
APEC Members as Complainant	32	64.0
APEC Members as Both Respondent and Complainant	14	28.0
APEC Members as Either Respondent or Complainant	42	84.0

Source: Data retrieved from the WTO Dispute Settlement database.

Again, for reference, APEC members account for 47.0 percent of world trade in 2012 and 38.3 percent of WTO TBT notifications during 1995-2014. Therefore, APEC members are involved about the same proportion as their share in global trade as respondents in the dispute settlement cases related to the TBT Agreement; but involved as complainants in much higher proportion relative to their share in global trade. In addition, they seem to be more active in utilizing practical TBT measures relative to their share in TBT notifications as potential TBTs. It is also

worth noting that APEC members are involved as both respondent and complainant in 14 dispute cases (28 percent) and as either respondent or complainant in 42 (84.0 percent) dispute settlement cases related to the TBT Agreement during 1995-2014. Therefore, WTO dispute settlement mechanism in relation to the TBT Agreement is important for APEC members in that they are involved in 84.0 percent of dispute settlement cases related to the TBT Agreement as either respondents or complainants, or both.

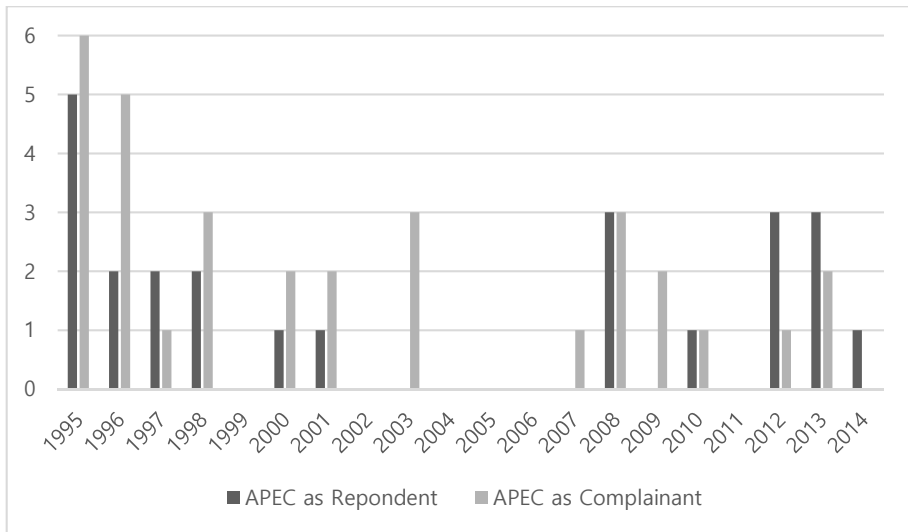
3. By the Date of Consultation Requested and Current Status

Number of dispute settlement cases related to the TBT Agreement for WTO members as a whole has been decreasing, becoming a long term trend.

The cases decreased by two to five a year between 1995 and 2003, and one to four a year between 2007 and 2014 even with some fluctuations in-between. APEC, as a whole, exhibited similar patterns as the WTO. More specifically, however, APEC has changed its role from a complainant (in relative terms) during 1995 and 2003 to neutrality (i.e., about the same number as respondent and complainant) or relative respondent between 2008 and 2014.

As for current status for dispute cases related to the TBT agreement with APEC members as respondents, eight cases are in consultation, and five cases are panel composed. In addition, six cases have been reported as being settled or terminated by withdrawal or mutually agreed solution, which might have been possible with active consultation during WTO dispute settlement procedures. Another four cases are classified as compliance proceedings ongoing/completed, and implementation notified by respondent. Authorization to retaliate was requested for the one case remaining.

Figure 28. Dispute Settlement Cases Related to the TBT Agreement: APEC Members as Respondents or Complainants (1995-2014, number)



Note: Dispute settlement case is counted by the date of consultation requested.

Source: Data retrieved from the WTO Dispute Settlement database.

Table 7. Dispute Settlement Cases Related to the TBT Agreement by Current Status: APEC Members as Respondents (1995-2014, number)

Current Status	Number of Cases
In consultation	8
Panel composed	5
Settled or terminated (withdrawn, mutually agreed solution)	6
Compliance proceedings ongoing/completed, implementation notified by respondent	4
Authorization to retaliate requested	1

Table 7. Continued

APEC Sum	24
(Reference: WTO Total)	50

Note: Dispute settlement case is counted by the date of consultation requested.

Source: Data retrieved from the WTO Dispute Settlement database.

4. By APEC Member

In terms of respondents, dispute settlement cases related to the TBT Agreement are concentrated in three APEC member economies and they together represent 83.3 percent of APEC's total, i.e., USA (11 cases), Australia (5 cases), and Korea (4 cases) between 1995 and 2014. The rests are Mexico (2 cases), Indonesia (1 case), and Russia (1 case).

Table 8. Dispute Settlement Cases Related to the TBT Agreement: APEC Members as Respondents (1995-2014, number)

APEC Member	No. of Cases
US	11
Australia	5
Korea	4
Mexico	2
Indonesia	1
Russia	1
APEC Sum	24
(Reference: WTO Total)	50

Note: Dispute settlement case is counted by the date of consultation requested.

Source: Data retrieved from the WTO Dispute Settlement database.

APEC members as respondents account for 24 cases (48.0 percent) of the total WTO dispute settlement cases related to the TBT Agreement during the period from 1995 to 2014. In addition, among major trading countries, China and Japan have no TBT Agreement-related dispute settlement cases as respondents from 1995 to 2014.⁵³

Table 9. Dispute Settlement Cases Related to the TBT Agreement: APEC Members as Complainants (1995-2014, number)

APEC Member	No. of Cases
Canada	10
US	9
Mexico	3
Chile	2
Indonesia	2
Peru	2
Australia	1
Japan	1
New Zealand	1
Philippines	1
APEC Sum	32
(Reference: WTO Total)	50

Note: Dispute settlement case is counted by the date of consultation requested.

Source: Data retrieved from the WTO Dispute Settlement database.

In terms of complainants, dispute settlement cases related to the TBT Agreement are somewhat more dispersed among APEC members compared to those of respondents. Three leading members are Canada (10 cases), USA (9 cases), Mexico (3 cases) and they collectively explain 68.8 percent of the APEC total. The rest

⁵³ China has been a WTO member since December 11, 2001.

include Chile, Indonesia, Peru account for two cases each, and Australia, Japan, New Zealand, and Philippines have one case each. APEC members as complainants represent 32 cases (64.0 percent) of the total WTO dispute settlement cases related to the TBT Agreement from 1995 to 2014. These represent greater number of cases relative to APEC members as respondents. Again, among major trading countries, China and Korea have no TBT Agreement-related dispute settlement cases as complainants from 1995 to 2014.

5. By Commodity or Related Technical Measure

Dispute settlement cases related to the TBT Agreement and APEC members as respondent can be classified only roughly by commodity or related technical measures, due to limited information offered in the WTO database. For some cases, it is not even possible to classify between by commodity and by related technical measure since they are mixed.

Dispute settlement cases, by commodity or related technical measures, are the most frequent in agricultural and fishery products, foods including tobacco (16 cases, 55.2 percent) followed by labelling (7 cases, 24.1 percent), rubber and chemical products (3 cases, 10.3 percent), textiles and apparel (2 cases, 6.9 percent) and transportation equipment (1 case, 3.4 percent).

Overall, primary and food products such as agricultural, fishery, and food products; live animal and meat, beverage, and tobacco account for a relatively large portion. The rest are industrial products such as matches, textiles and apparel, automobile, and labelling as technical measures. Therefore, it can be noted that TBT measures related to dispute settlement cases are not so much focused on technically sophisticated products similar to those of STCs.

Table 10. Dispute Settlement Cases Related to the TBT Agreement and APEC Members as Respondents: By Commodity or Related Technical Measure (1995-2014)

Product Category/Technical Measure	No. of Cases	Share (%)
agricultural and fishery products, foods	16	55.2
mineral and wood products	0	0.0
rubber and chemical products	3	10.3
textiles and apparel	2	6.9
steel and metal products	0	0.0
boilers and machinery	0	0.0
electric and electronic equipment, measuring and precision instruments	0	0.0
transportation equipment	1	3.4
toys and furniture, etc.	0	0.0
labelling*	7	24.1
SUM	29	100.0

Note: * Labelling is not a product category but a technical measure. There may be more than one commodity or technical measures related to a certain dispute settlement case.

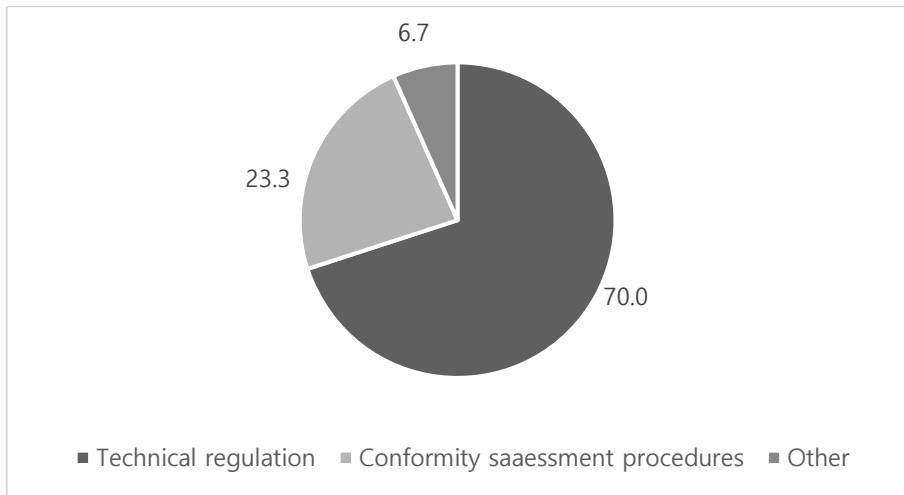
Source: Data retrieved from the WTO Dispute Settlement database.

6. By Article of the TBT Agreement

The 24 dispute settlement cases, related to the TBT Agreement and APEC members as respondent from 1995 to 2014, can be classified by cited Article of the TBT Agreement in request for consultation. It should be noted that certain dispute settlement cases may cite two or more articles. Since they cite 60 articles of the TBT Agreement, it corresponds to about 2.5 articles on average per dispute settlement case.

As for technical regulation, 41 cases cite Article 2 including Article 2.1 through Article 2.12 and one case cites Article 3 (42 cases in total). For conformity assessment procedures, nine cases cite Article 5 including Article 5.1 and Article 5.2, three cases cite Article 6, one case cites Article 7, and one case cites Article 8 (14 cases in total). The remaining two cases cite other articles, with one case citing Article 14.1, and the other citing Annex 1.

Figure 29. Dispute Settlement Cases Related to the TBT Agreement and APEC Members as Respondents: By Article Cited (1995-2014, percent)



Note: Total number of dispute settlement cases related to the TBT Agreement and APEC members as respondent was 24 from 1995 to 2014. Certain dispute settlement cases may be related to two or more articles. Technical regulation that correspond to the dispute cases cite Articles 2 and 3 of the TBT Agreement. Conformity assessment procedures that correspond to the dispute cases cite Article 5 through Article 8 of the TBT Agreement.

Source: Data retrieved from WTO dispute settlement webpage [https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm] (accessed on July 31, 2015).

Compared with TBT notifications or specific trade concerns, somewhat larger share (about 23.3 percent of total 60) of dispute settlement cases are related (citing related articles of the TBT Agreement) to conformity assessment procedures. Dispute settlement cases related to the articles of technical regulation in the TBT Agreement accounts for about 70.0 percent of total 60 cases, which is somewhat smaller compared to that of TBT notifications or STCs.

Table 11. Dispute Settlement Cases Related to the TBT Agreement and APEC Members as Respondents: By Article Cited (1995-2014)

Reference Article of the TBT Agreement	No. of Cases
Article 1 General Provisions	0
Article 2 Preparation, Adoption and Application of Technical Regulations by Central Government Bodies	16
2.1 non-discrimination: MFN and NT	9
2.2 legitimate objectives	8
2.3 changed circumstances	1
2.4 use of international standards	2
2.5 explain the justification	1
2.8 product performance based regulation	1
2.9 non-existence of relevant international standards	1
2.10 urgent problems	1
2.12 reasonable interval between publication and entry into force	1
Article 3 Preparation, Adoption and Application of Technical Regulations by Local Government Bodies and Non-Governmental Bodies	1
Article 4 Preparation, Adoption and Application of Standards	0
Article 5 Procedures for Assessment of Conformity by Central Government Bodies	7
5.1 non-discrimination: MFN and NT	1
5.2 transparency	1
5.7 urgent problems	0

Table 11. Continued

Article 6 Recognition of Conformity Assessment by Central Government Bodies	3
Article 7 Procedures for Assessment of Conformity by Local Government Bodies	1
Article 8 Procedures for Assessment of Conformity by Non-Governmental Bodies	1
Article 9 International and Regional Systems	0
Article 12 Special and Differential Treatment of Developing Country Members	2
Article 14 Consultation and Dispute Settlement and Article 14.1	1
Annex 1 Terms and Their Definitions for the Purpose of This Agreement	1
SUM	60

Note: Total number of dispute settlement cases related to the TBT Agreement and APEC members as respondents is 24 from 1995 to 2014. Certain dispute settlement cases may cite two or more articles.

Source: Data retrieved from WTO dispute settlement webpage [https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm] (accessed on July 31, 2015).

It needs to be noted that nine cases cite Article 2.1 (non-discrimination related to technical regulations), and eight cases cite Article 2.2 (legitimate objectives related to technical regulations). Again, there is a need to further enhance adherence to basic obligations of the TBT Agreement in this regard. No case cites Article 4 (Preparation, Adoption and Application of Standards) because standards is voluntary in nature by the definition in the TBT Agreement.

Only one case cites Article 2.10 (urgent problems related to technical regulation) but no case cites Article 5.7 (urgent problems related to conformity assessment procedures). Besides, two cases cite Article 12 (Special and Differential Treatment of Developing Country Members), one case cites Article 14.1 (Consultation and Dispute Settlement), and one case cites Annex 1 (Terms and their Definitions for the Purpose of this Agreement).

VI. Summary and Implications

Technical measures notified to the WTO, as potential TBTs, have been increasing and spreading rapidly via multilateral and regional trade liberalization, especially in terms of tariff reduction, and following expansion of international trade. Technical measures are introduced with diverse policy objectives and do not necessarily reduce the flow of international trade. In fact, they could facilitate international trade by, for example, improving information asymmetry or imperfect information (e.g., safety standards) and further exploiting network externalities (e.g., compatibility standards). Besides, technical measures are accepted and acknowledged if they are based on legitimate objectives as stated in the WTO TBT Agreement and do not create unnecessary obstacles to international trade. The available databases on standards and technical measures are often evaluated as not being so useful for the analysis of effects on international trade and welfare, in that they do not usually classify technical measures reflecting their functions. Besides, they do not usually contain information on trade restrictiveness of technical measures. It can also be noted that pre-existing analyses convey somewhat ambiguous results as to linkages between technical measures and international trade, along with welfare.

This study analyzed technical barriers to trade in APEC member economies utilizing WTO TBT notifications and discussions in the WTO TBT Committee since the launch of the WTO in 1995. One of the main interests of this study is to identify, if any, characteristics by development status or between developed and developing member economies for further cooperation in APEC. Some of the main results and implications from this study are as follows.

First, we cannot overemphasize the importance of enhanced understanding on the characteristics and trends of TBT as well as the TBT Agreement including the

essential principles of legitimacy and transparency of TBT measures and corresponding procedures. With limited information on TBT, WTO TBT notifications and discussion process on TBT is important, especially for APEC member economies, and they need to be utilized as complementary. In addition, the related information, values, and experiences need to be shared broadly among countries in the international trade network, in order to increase mutual benefit.

Distinct from tariffs as typical and traditional trade barriers, market access will be totally denied if a certain technical requirement is not fulfilled. In addition, TBT tends to develop dynamically and bring cumulative burdens. In practice, technical measures are allowed for achieving the broad range of the legitimate objectives noted in the TBT Agreement. WTO TBT notifications are unique and official sources of information on technical measures. However, they need to be understood as potential TBTs, but not TBTs themselves. WTO TBT notifications as potential TBTs are increasing and spreading from developed to developing members of APEC for broad range of products traded internationally. It can also be observed that the share and, hence, importance of conformity assessment procedures relative to standards and technical regulations in the WTO discussions are increasing.

STCs can be regarded as being much closer to actual TBTs and complementary to TBT notifications. Number of new STCs raised is showing an overall increasing trend, with the share of APEC members as maintaining side of technical measures decreasing significantly, which may be an improvement in APEC relative to the WTO as a whole. In addition, WTO dispute settlement mechanism in relation to the TBT Agreement is important for APEC members in that they are involved in the vast majority (84.0 percent) of dispute settlement cases related to the TBT Agreement as either respondents or complainants, or both.

It is noted that one of the main difficulties in the analysis of NTMs including TBT is the scarcity of related data with the requisite consistency and comparability. There should be prior monitoring, examination, commentary, and discussion in advance for the proposed technical measures regarding their necessity for legitimate objectives. However, transparency needs to be further improved in terms of introduction and implementation of TBT measures through, for example, TBT notifications and discussion procedures in the WTO TBT Committee. It is expected that the efficiency of information exchange and utilization is to be dramatically improved by utilizing the online database services such as the TBT Information Management System (TBTIMS) and the online submission of notification (TBT NSS).

Second, APEC members have been experiencing some structural changes in introduction and implementation of technical measures. Besides, differentiated structure and trends can be identified by APEC developed and developing members, which needs to be considered for international cooperation in TBT.

APEC members' share of TBT notification has decreased and spread among APEC member economies, mostly from developed to developing members. The share of APEC developing members within APEC has increased dramatically, with some fluctuations, as they tried to harmonize their technical measures with international standards. In addition, the share of technical measures related to conformity assessment procedures has significantly increased relative to technical regulations in STCs and dispute settlement cases as well as TBT notifications among APEC member economies. These trends are more significant, especially for APEC developing members. It is important to understand not just technical regulations but also conformity assessment procedures as potential TBT. Besides, APEC has also changed its role in dispute settlement cases related to the TBT Agreement

from relative complainant from 1995 to 2003 to neutrality (i.e., about the same number as respondent and complainant) or relative respondent from 2008 to 2014.

APEC developed members have significantly larger shares of STCs which might have been resolved earlier, for example, within a year or two relative to APEC developing members. By type of concerns raised in STCs, APEC developing members as the maintaining side of technical measures have somewhat larger profiles in terms of transparency, and rationale and legitimacy relative to APEC developed members whereas APEC developed members are more prominent with respect to unnecessary barrier to trade, discrimination, and nprPPM relative to APEC developing members. As for stated objectives of regulation, notifications of both APEC developed and developing member economies are concentrated on protection of human health or safety, protection of the environment, and prevention of deceptive practices and consumer protection. In addition, developed members having a relatively larger share in protection of the environment, whereas developing members having relatively larger share in terms of protection of human health or safety. By product categories or industrial sectors, APEC TBT notifications are widely spread over a diverse range of products with relatively large percentages in electric and electronic equipment, chemical products, and machinery. In practice, however, APEC developed members have larger shares in chemical products and transportation equipment and APEC developing members have larger shares in electric and electronic equipment, and machinery.

Third, there need to be somewhat differentiated approaches from traditional trade barriers, i.e., tariffs, due to the fact that technical measures are mostly domestic regulations with diversity but controlled at the border to restrict market access. There also needs to develop a system based on consultation and regulatory cooperation for information and experience exchange, capacity building that includes

development and implementation of standards, technical regulation, and conformity assessment procedures, especially for APEC developing member economies.

That is, it is more appropriate to value cooperation, harmonization and mutual recognition of technical regulation and conformity assessment procedures rather than competition and retaliation among trading partner countries, or more specifically, APEC and the WTO members. Good regulatory practices (GRPs) can be utilized to harmonize technical measures and to support implementation of multilateral rules and principles, especially the TBT Agreement. There is much room for improvement in this sense. For example, the average comment period for TBT notifications in 2014 is 60.0 days as was agreed to and recommended in the WTO TBT Committee but 12.4 percent of new notifications do not specify a comment period or have a lapsed one in the same year, not to mention about 30 percent of STCs are related to non-notified technical measures. In addition, standardization as well as harmonization and mutual recognition often have positive effects on international trade in typical manufactured goods with enhanced compatibility and network effect. Since technical regulations deviated from international standards may restrict international trade, which is often the case in agricultural products, international standardization and harmonization with the international standards cannot be overemphasized. Conformity assessment procedures, especially if duplicative, are often recognized as quite burdensome. Mutual recognition of conformity assessment results or regulatory reform such as suppliers' declaration of conformity (SDoC) combined with appropriate market surveillance system should be broadly considered and implemented as a practical solution if potential risk from non-compliance is relatively low.

It is noted that the impacts of TBT depend not only on technical measures

themselves but also on their procedures and institutions applying them, and concomitantly have complicated and diverse effects. In terms of capacity building efforts, it needs to cover a whole system including physical infrastructure, especially electronic means, legal institutions, and human resource development. Cooperation among related international and regional organizations including standardization organizations and financial institutions would enhance the efficiency of the efforts.

Fourth, some progress can be identified from the WTO TBT notification and discussion process. At the same time, some issues and problems are also identified and needs further consideration and improvement.

For WTO TBT notifications, there has been rapid progress regarding the length of comment period, up to an average of 60 days in 2014, as agreed and recommended in the TBT Committee. There has also been significant improvement in the length of comment period for TBT notifications by APEC members. In addition, from the number of TBT Committee meetings that raised the same STC, it can be seen that about 62.1 percent of STCs of APEC members as the maintaining side of technical measures might have been resolved within a year, and about 89.4 percent within two years cumulatively. Therefore, the TBT Committee meetings or consultation processes are quite efficient in resolving TBT related concerns. For dispute settlement cases, about 136, out of 369 dispute cases by January 2008, had reached the full panel process and the rest majority of the cases have been notified as settled bilaterally or being in prolonged consultation. More specifically, for dispute cases related to the TBT agreement with APEC members as respondents, 6 out of 24 have been reported to be settled or terminated by withdrawal or mutually agreed solution, which might have been possible with active consultation during WTO dispute settlement procedures.

However, it needs to be noted that a significant share of TBT notifications by APEC members have provided a comment period of less than the recommended 60 days, “not specified” or lapsed, which means there is further room for improvement in terms of transparency of TBT procedures. About 70 percent of STCs are related to WTO members’ notified measures to the WTO TBT Committee, and the remaining 30 percent of STCs are related to non-notified technical measures. This, in turn, requires further efforts to enhance the legitimacy and transparency of technical measures based on the TBT Agreement. Even for the notified measures, both developed and developing members of APEC have a relatively large share, about 25 percent, of unclear objectives for STCs-related technical measures classified as “other,” especially for developing members, or “not specified,” especially for developed members, respectively. Therefore, there seems to be further room to enhance the transparency of technical measures of APEC member economies in the process of making their proposals and implementation. From the WTO TBTIMS database, only 30 out of 226 STCs of APEC members as maintaining side of technical measures during 1995-2014 can be identified by commodity based on two digit HS classification. We cannot overemphasize the importance of offering sufficient and accurate information for any technical measures following the rules and regulations of, above all, the TBT Agreement in this regard. It also needs to be noted that a relatively large share of dispute settlement cases cite Article 2.1 (non-discrimination related to technical regulation), and Article 2.2 (legitimate objectives related to technical regulation). Overall, basic rules of the TBT Agreement such as non-discrimination and legitimate objectives also account for a significant share in dispute settlement cases as well as in STCs.

Fifth, a cooperation mechanism of APEC as a whole needs to be developed, based on various APEC fora and FTAs/RTAs among APEC members as well as

the multilateral trading system. APEC can take a leading role in alleviating and removing TBT with its member economies that are widespread geographically and diverse in terms of development stages as well as various cooperative fora.

Provisions of the TBT Agreement need to be implemented completely in order to ensure necessity, legitimacy and transparency of technical measures and procedures. With the proliferation of FTAs/RTAs in and out of APEC, non-discrimination and transparency procedures are emphasized as bases of technical measures in the TBT chapter and provisions of FTAs/RTAs as well. For instance, 38 out of 42 FTAs/RTAs engaged by APEC members have a TBT chapter or related provisions. The TBT chapter or related provisions in FTAs/RTAs are likely to contribute to welfare-enhancing effects on participating members through, for example, harmonization and recognition of equivalence provisions. TBT chapters and provisions in FTAs/RTAs are also expected to guide and promote good institutional developments for technical measures. Basically, whenever possible, it is recommended that international standards be used, as best-practice provisions in FTAs/RTAs as well as the WTO TBT Agreement concerning the treatment of technical measures. It is also recommended to make efforts to eliminate any unnecessary burdens from duplicative conformity assessment procedures for the same product. Also, it would be efficient and helpful to incorporate and utilize the results of continued efforts in APEC to identify convergences, divergences, and challenges for 11 chapters including the TBT chapter in 42 FTAs/RTAs engaged by APEC member economies. More specifically, it needs to be noted that two important issues visibly reflected in TBT chapters and provisions of the 42 APEC member related RTAs/FTAs would be “establishment of the committee or chapter coordinators, consultation” and “negotiations on mutual recognition of the other parties CAP.” In addition, it should also be noted that two other important

but less frequently reflected issues might be “assessment of risk” and “sectoral annexes, for example, on electric & electronic equipment and motor vehicle” for more focused cooperation. They seem to offer useful guides for further APEC cooperation in TBT.

There are also characteristics specific to APEC, as opposed to global trends in TBT. APEC’s share in the number of WTO TBT notifications has been decreasing significantly since the launch of the WTO, which implies that potential TBT seems to be decreasing in APEC relative to the world as a whole. In addition, APEC has relatively much greater involvement in specific trade concerns related to TBT, especially for problems that are urgent and linked to conformity assessment procedures that have been resolved relatively early. APEC is well positioned to lead international cooperation in TBT with its diverse members and related specific cooperative institutions including Committee on Trade and Investment (CTI), SOM Steering Committee on Economic and Technical Cooperation (ECOTECH), Subcommittee on Standards and Conformance (SCSC), Small and Medium Enterprises Working Group (SMEWG), and Mutual Recognition Agreement Task Force (MRA TF) in the Telecommunications and Information Working Group (TELWG), etc.⁵⁴ For APEC activities, among others, it should be noted that Subcommittee on Standards and Conformance (SCSC) recognizes and emphasizes the ways in which good regulatory practices (GRPs) can be used to strengthen implementation of the WTO TBT Agreement and reduce unnecessary obstacles to trade due to regulatory divergences regarding standards and conformity assessment procedures among different member economies. For technical measures, it is recommended that GRPs be strengthened to be more relevant to the implementation of

⁵⁴ Refer to Appendix D and E for further information.

the core principles of the TBT Agreement and supportive of trade flows through transparency and consultation. More specifically, three directions are identified as important such as (i) better internal coordination of the regulatory process, (ii) regulatory impact analysis to identify trade-friendly options, and (iii) public consultation for greater involvement of foreign producers and trade experts.

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TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015)

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WTO dispute settlement webpage [https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm] (accessed on July 31, 2015)

WTO I-TIP webpage [<http://i-tip.wto.org>] (accessed on September 6, 2015)

WTO TBTIMS webpage [<http://tbtims.wto.org>] (accessed on August 31, 2015)

Appendix

A. Correlation between WTO TBT notifications and macroeconomic variables for APEC members

According to the WTO TBT Agreement, WTO members should notify “if a technical regulation or conformity assessment procedure may have a significant effect on trade of other members.”⁵⁵

To comprehend the overall picture, it might be helpful to check the relationship between (the number of) TBT notifications and other macroeconomic variables including international trade ($X+M$), size of the economy (GDP), openness to international trade ($(X+M)/GDP$), and tariff barriers (average applied tariff rate). This has been done for 21 APEC member economies with 2014 or the most recent year’s data. As a result, the number of TBT notifications is highly positive in terms of correlation with international trade and size of economy, and somewhat positively correlated with tariff barriers but somewhat negatively correlated with openness to international trade. As can be expected, size of economy and international trade show a highly positive correlation. Openness to international trade is somewhat negatively correlated with both economy size and tariff barriers. However, tariff barriers do not have any significant correlation with both the size of economy and international trade.

There seem to be two way relationships between TBT and international trade such that TBT might decrease international trade and at the same time international

⁵⁵ Refer to Article 2.9 and Article 5.6 of the TBT Agreement.

trade might need more TBT. However, for TBT, in terms of WTO notifications at the aggregate level, we might be able to observe the dominant effects of the latter in the correlation coefficients. This conjecture would be strengthened by the fact that TBT is somewhat positively correlated with tariff barriers

Table A1. Correlation Coefficients among WTO TBT Notifications and Other Variables (APEC members)

	Number of TBT notifications	International trade (X+M)	Size of economy (GDP)	Openness to international trade ((X+M)/GDP)	Tariff barriers, average applied
Number of TBT notifications		0.844	0.814	-0.356	0.299
International trade (X+M)			0.930	-0.138	0.090
Size of economy (GDP)				-0.314	0.002
Openness to international trade ((X+M)/GDP)					-0.328
Tariff barriers, average applied					

Note: All variables are measured in current US dollar or percent in 2014 or the most recent year from WTO (2014a), Korean Statistical Information Service webpage [<http://kosis.kr>] (accessed on July 28, 2015), and WTO TBTMS webpage [<http://tbtms.wto.org>] (accessed on August 31, 2015).

Therefore, it is suggested that there needs to have a better understanding of the characteristics of TBT and TBT notifications. When WTO TBT notifications are utilized as a measure of TBT, they need to be complemented by other information such as specific trade concerns (STCs) raised and discussed in the TBT Committee and dispute settlement cases, as they relate to the TBT Agreement. In addition,

TBT notifications need to be utilized at a more disaggregated level with more similar and distinct characteristics, for example, by the objectives of regulation.

B. Correlation between the share of APEC in WTO TBT notifications and world trade

In aggregate terms, it is worth checking the correlation between TBT notification and international trade. It is applied for APEC, again, for the correlation between its share in the number of TBT notification and its share in the world trade (imports). Annual data from 1995, the year of the launch of the WTO, to 2012 are utilized due to data availability.

Table A2. Correlation Coefficients Between the Share of APEC in WTO TBT Notifications and World Trade (1995-2012)

	APEC's TBT-share	APEC's TBT-share (-1)	APEC's TBT-share (-2)	APEC's TBT-share (-3)	APEC's TBT-share (-4)
APEC's M- share	-0.104	0.380	-0.164	-0.420	-0.002

Note: APEC's TBT-share and APEC's M-share denote APEC's share in the number of WTO TBT notifications and APEC's imports share in world trade, respectively.

The results show a slight negative correlation (-0.104) between the two variables for the same year. For the lag effects with one year to four years in APEC's share in the number of TBT notification, the correlations are shown as being significantly positive with one year lag (0.380) and negative with two year lag (-0.164), significantly negative with three year lag (-0.420), but having little correlation with four year lag (-0.002). According to the results, APEC's TBT notifications as proposed technical measures seem to affect APEC's imports negatively from second

and third year, and mostly deteriorated with adaptation.

C. APEC 2015 - Theme and Priorities

APEC sets a theme and priorities each year as its focal point for cooperation. APEC 2015 Philippines introduced the following theme and priorities, “focuses on powering a new generation of trade, investment and sustainable growth amid changing global conditions while expanding the benefits for more of the region’s 3 billion people. The bottom line is that the Asia-Pacific must tap new sources of growth and work towards new growth goals.”⁵⁶ Among them, “Removing barriers to SMEs, including entry to markets” and “Advocating modernization and standard conformance among SMEs” as the second priority, and “Strengthening global supply chain/global value chains in the APEC region” in the fourth priority seem to be closely related to APEC cooperation in TBT issues.

Table A3. APEC 2015 - Theme and Priorities

Theme
Building Inclusive Economies, Building a Better World
- promotion and advancement of inclusive growth in the Asia-Pacific region
Priorities
1. Investing in Human Capital Development
- Promoting knowledge-based economies
- Promoting science & technology education and innovation in APEC
- Developing job skills needed by APEC business in the 21st century
- Internationalization of education/cross-border education to develop APEC-wide skills

⁵⁶ Refer to APEC webpage [<http://apec2015.ph>] (accessed on July 28, 2015).

Table A3. Continued

2. Fostering Small and Medium Enterprises' (SMEs) Participation in Regional and Global Markets

- Removing barriers to SMEs, including entry to markets
- Promoting inclusive growth through sustainable and resilient SMEs
- Advocating modernization and standard conformance among SMEs

3. Building Sustainable and Resilient Communities

- Creating and promoting risk reduction and management in APEC economies
- Building resilient infrastructure
- Fostering business continuity
- Building SMEs' resilience to disaster
- Enhancing food security and the Blue Economy in the APEC region
- Promoting coastal management and marine conservation

4. Enhancing the Regional Economic Integration Agenda

- Strengthening regional economic integration through the Bogor Goals*
- Promoting connectivity through Trade in Services, which will focus on the people-to-people and institutional connectivity within the region
- Advancing financial markets aimed at creating stronger financial institutions within the region to better respond to prospective economic shocks
- Strengthening global supply chain/global value chains in the APEC region

Note: *The Bogor Goals are a set of targeted goals for realizing free and open trade and investment in the Asia-Pacific agreed by the APEC Economic Leaders in Bogor, Indonesia in 1994. It is agreed to pursue the long-term goal by further reducing barriers to trade and investment and by promoting the free flow of goods, services and capital among APEC economies as follows, "...to complete the achievement of our goal of free and open trade and investment in the Asia-Pacific no later than the year 2020. ...with the industrialized economies achieving the goal of free and open trade and investment no later than the year 2010 and developing economies no later than the year 2020."

Source: APEC Philippines 2015 Web page [<http://apec2015.ph>] (accessed on August 6, 2015)

D. APEC Sub-Committee on Standards and Conformance, SCSC⁵⁷

The APEC Sub-Committee on Standards and Conformance (SCSC) is a specific forum for cooperation in standards and TBT related issues. It is held with

⁵⁷ Refer to APEC webpage [<http://www.apec.org/Groups/Committee-on-Trade-and-Investment/Sub-Committee-on-Standards-and-Conformance.aspx>] (accessed on July 28, 2015).

the aim of reducing the negative effects that differing standards and conformance arrangements have on trade and investment flows in the Asia-Pacific region focusing on harmonized standards and conformance procedures.

Recent focuses of SCSC projects are as follows.

- Fostering Small and Medium Enterprises' (SMEs) Participation in the Regional and Global Economy: to exchange information on packaging and labelling requirements, share standards and conformance learning materials, and capacity building on standards and conformance, especially for SMEs
- Good Regulatory Practice: to survey APEC member economies' preferred approaches and practices in conformity assessment, the laws governing such practices, and examine the application of international standards to conformity assessment
- Food Safety: to build food safety laboratory testing capacity and facilitate trade ("Building Convergence in Food Safety Standards and Regulatory Systems")

E. APEC Mutual Recognition Arrangement Task Force (MRA TF) in Telecommunications and Information Working Group (TELWG)⁵⁸

The aim of the APEC Mutual Recognition Arrangement Task Force (MRA

58 Refer to APEC webpage [<http://www.apec.org/Home/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Telecommunications-and-Information>] (accessed on July 28, 2015) and [http://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Telecommunications-and-Information/APEC_TEL-MRA.aspx] (accessed on July 28, 2015).

TF) under the Telecommunications and Information Working Group (TELWG) is to implement a mutual recognition arrangement on conformity assessment of telecommunications equipment (MRA-CA) and to draft a mutual recognition arrangement for equivalence of technical requirements in telecommunications equipment (MRA-ETR).

The APEC TEL MRA-CA, came into effect on 1 July 1999, is to facilitate the recognition of each other's conformity assessment results. In addition, the MRA-ETR, was endorsed by the APEC Telecommunications Ministers on 31 October 2010, is to further facilitate the recognition of equivalent standards or technical requirements and provide for reduction in the costs of conformity assessment.

국문요약

GATT 및 WTO의 다자무역체제를 기반으로, 최근에는 자유무역협정 또는 지역무역협정의 확산을 통해 전통적인 무역정책의 수단으로 활용되던 관세가 철폐되거나 크게 인하됨과 동시에 국가간 무역이 빠르게 확대되어왔다. 이에 따라 관세를 대체하여 무역을 통제할 수 있는 정책수단으로 무역에 영향을 미치는 기술 측면의 규제조치, 즉 무역기술장벽(TBT)이 빠르게 확산되고 있다. TBT의 확산으로 사람의 안전과 생명 보호, 환경보호, 소비자 기만 방지 등 관련 규제조치를 도입할 수 있는 정당한 방법이 다자무역 규범에서 광범위하고 포괄적으로 인정되고 있는데, 이는 삶의 질에 대한 관심이 고조되고 있는 상황과도 밀접하게 관련된 것으로 판단된다.

이 연구는 TBT, 좀 더 정확하게는 국가간의 무역에 영향을 미치는 기술 측면 규제조치의 특성을 분석하고 이해를 높이기 위해 수행되었다. 1995년 WTO 출범 이후 WTO TBT 통보문과 WTO TBT 위원회의 관련 논의, 특히 특정 무역현안(STCs) 및 TBT 관련 분쟁해결 사례 등에 대한 동향을 APEC 회원경제들을 중심으로 분석하여 무역기술장벽의 해소 및 무역원활화, 궁극적으로 아태지역 전반의 경제협력 강화에 기여할 수 있는 방안을 모색하고자 하였다. 일반적으로 무역기술장벽의 측정에 TBT 통보문의 빈도 또는 품목포괄범위 지수 등이 사용되고 있다.

한편 이 연구는 TBT 통보문이 잠재적인 TBT이나 그 자체를 TBT라고는 할 수 없다는 점을 인식하고, 특정 무역현안이나 TBT 관련 분쟁사례 자료들에 대한 보완적인 분석을 시행하였다. 또한 APEC 회원경제들의 TBT 특성에 대한 분석은 주로 선진국과 개발도상국 간의 비교에 중점을 두었다. 잠재적 무역기술장벽으로서 WTO 전체 및 APEC의 TBT 통보문의 수는 1995년 WTO 출범 이후 빠르게 증가하고 있으며, 특히 개발도상국이 차지하는 비중이 비약적으로 증가하였다. 이는 잠재적인 무역기술장벽이 증가하고 있으며, 선진국에서 개발도상국으로 빠르게 확산되고 있음을 의미한다.

APEC은 기술규제 도입 국가의 관점에서 WTO 전체 TBT 통보문이나 특정 무역현안에서 차지하는 비중이 상대적으로 감소하고 있고, 동일한 특정 무역현안이 WTO TBT 위원회에서 논의되는 횟수가 상대적으로 더 적어 무역기술장벽의 해소를 위한

투명성 제고에 기여하고 있으며, WTO TBT 위원회의 논의과정을 더욱 적절히 활용하고 있는 것으로 판단된다. 또한 APEC 회원경제 가운데 개발도상국의 60일 이상 의견제시기간(comment period)을 제공하고 있는 통보문의 비중이 선진국에 비해 상대적으로 더 크고, 규제목적이나 대상 품목의 비중 등이 선진국과 개발도상국 간에 차별적인 경향이 있음이 확인되었다.

그 외에도 전체 통보문이나 특정 무역현안의 규제 국가로서 적합성평가절차 관련 규제의 비중이 점차 증가하여 TBT 측면에서 기술규정에 비해 적합성평가절차의 중요성이 상대적으로 증가하고 있으며, 이러한 경향은 개발도상국에서 더욱 두드러지게 나타나고 있다.

APEC은 다양한 경제발전 단계와 특성을 가진 회원경제들간의 표준적합성소위원회(SCSC), 정보통신기기에 대한 상호인정협정 태스크포스(MRA-TF) 등 구체적인 협력 포럼을 운영하고 있으며, 회원경제간 40여 개의 기 체결 자유무역협정에서 대부분 TBT 관련 장(chapter)이나 협력조항을 가지고 있다. 이러한 특성을 바탕으로 물질·제도적 및 인적 기반구조를 포괄하여 시스템적인 접근이 요구되는 TBT 해소를 위한 협력에서 APEC이 주도적인 역할을 할 수 있으며, 이러한 노력이 향후 APEC 전체를 포괄하는 협력체계(예를 들면, FTAAP)로 확산될 수 있도록 해야 할 것이다.

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