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When global economic cooperation under WTO regime stalled, many countries looked at regional economic integration, i.e. cooperation between countries within a geographical area to decrease and/or abolish tariff and nontariff barriers for free trade of goods, services, and factors of production (Hill et al., 2012). In general, regional economic integration aims at strengthening a country's economic position in international trade.

~~One of~~ regional economic cooperation in which Indonesia takes part is Asia-Pacific Economic Cooperation (APEC), i.e. international cooperation in Asia-Pacific region whose aim is to support economic growth and to bring prosperity in the region. Until 2016, APEC members ~~are~~ were 21 economies (not countries). A unique feature of APEC is that its declaration is non-binding, ~~meaning that as~~ its decision is built on consensus and ~~is based on~~ voluntary principle. However, APEC's decisions usually ~~get draw much~~ draw much attentions ~~since due to the~~ economic potentials of the region. As documented by APEC Policy Support Unit (APEC-PSU, 2016), the economic growth in APEC region in 2015 was 2.7% and was expected to be 2.8% in 2017-2018. Therefore, Indonesia should monitor ~~closely~~ monitor APEC decisions closely, including agreements in international trade, and use it to formulate Indonesia's international trade policy ~~especially in international trade~~.

APEC forums have ~~discussed~~ developed several initiatives to decrease trade barriers, either tariffs or nontariff barriers relating to environmental goods EGs and services. Elimination of trade barriers will reduce costs along the supply chain and boost international trade in environmental goods and services (Vossenaar, 2016). The aim of this elimination is to support sustainable economic development, achieve green growth, and tackle climate change. The initiative was firstly realized by negotiating APEC List of Environmental Goods (APEC EGs) in 2011. Amid current APEC crisis of identity (Dang, 2017), tariff reduction in environmental goods EGs ahead of WTO negotiation is one of APEC successes (Dang, 2017; Vossenaar, 2016).

APEC EGs consist of 54 goods as declared ~~in~~ by 21 APEC leaders in Vladivostok, Russia. The 54 product categories represent 54 different ~~HS~~ (Harmonized System) (HS) subheadings. A complete list of APEC EGs could be accessed at Annex C APEC Economic Leaders' Declaration 2012 (APEC Secretariat, 2012). Table 1 offers a summary of environmental categories in the APEC EGs. Included in the environmental protection category is are solid and hazardous waste, ~~waste water~~ wastewater management and air pollution control.

[...]

Negotiations on APEC EGs ~~were done with~~ resulted in a commitment that products included in APEC EGs list would have import tariff of maximum 5% in 2015. Agreement in APEC Forum does not influence the rights, position, and negotiation in World Trade Organization (WTO) since it is applied under APEC non-binding, voluntary, consensus-based principles ~~of non-binding, voluntary, consensus~~ and ~~taking it takes into account~~ considers the economic condition of each member. Under these APEC's principles, agreement regarding APEC EGs will be legally non-binding. However, the agreement will be applied based on Most Favored Nation (MFN) principle (United Nations, 1978) and this ~~Using import tariff based on~~ MFN based import tariff principle ~~caused necessitates that~~ bilateral or regional trade agreements ~~could to be~~ effectively implemented ~~adhered to~~ globally. ~~Therefore, it means that~~ In other words, reduced import tariffs for APEC EGs does not only affect APEC members but also the relations between APEC members and other countries. Therefore, the agreement can be used for international trade ~~not only between APEC members but also between APEC members with other countries~~.

APEC leaders agreed to reduce import tariff for the APEC EGs to maximum 5% ~~at by~~ the end of 2015. However, until February 2016 several APEC members including Indonesia, Vietnam, China-Taipei, Russia, Papua New Guinea and Thailand had not fully reduced their import tariffs according to the APEC agreement (APEC PSU, 2016). As for Indonesia, until November 2015, ~~there were 1313~~ out of ~~its~~ 54 APEC EGs ~~with were still at the~~ import tariff ~~more than above~~ 15%, ~~with its which represented~~ 7 products ~~being~~ under HS 6 digits. In the meantime, Indonesia ~~decided is committed~~ to reduc~~ing~~e tariff gradually up to 2021, as stipulated in Minister of Finance Regulation Number 134/PMK.010/2016 (~~servin~~g as the Fifth Amendment of Minister of Finance Regulation Number 213/PMK.011/2011) on Good Classification and Import Tariff.

In addition to APEC EGs, there are other classifications of EGs, including WTO Environmental Goods Core List which ~~were was~~ submitted by WTO members' in accordance to the Doha round negotiations (Sugathan, 2013). There are 26 HS 6 digit in WTO EGs, which can be grouped into: (1) solid and hazardous waste management, (2) air pollution control, (3) wastewater management and water treatment, noise and vibration abatement, (4) environmental remediation and ~~clean up~~cleanups, (5) cleaner and renewable energy, (6) energy efficiency, (7) environmental monitoring analysis and assessment, (8) resource efficiency, and (9) environmentally preferable products.

Import tariff reduction and/or tariff assignation are government interventions that may alter trade performance. ~~Furthermore, C~~change in trade performance will affect macro economy as well as the micro economy, especially ~~sectoral~~sectorial economy where ~~the~~international trade ~~takes place~~occurred. Indonesia's export and import of ~~environmental goods~~EGs ~~for with~~ 18 trading partners are small as shown in Figure 1, i.e. 2.3% of total import value and 1.06% of total export value ~~in between~~ 2000 ~~to and~~ 2015. However, small value of import and export in the period of observation may change in the future since APEC list of ~~environmental goods~~EGs could be used by non-APEC member countries/economies. Moreover, WTO EGs Core List would cater ~~for~~ larger number of countries. Therefore, this research aims to inquire about ~~the~~ impact of import tariff and nontariff barriers on Indonesia's trade performances.

Previous studies investigat~~ing~~ed about EGs in ~~the~~ case of Indonesia include PKKPI (2014) and Salam and Nugroho (2016). The current study differs from previous ~~study studies in two ways. First, as~~ it includes WTO EGs Core List in addition to APEC EGs. ~~Second, it includes and~~ nontariff barriers (in addition to import tariff) as ~~an~~ independent variable.

[...]

Studies on international trade generally use computable general equilibrium (CGE) or gravity model (Piermartini ~~and &~~ Teh, 2005). CGE is widely used to simulate liberalization or regional integration scenarios by altering some exogenous economic indicators. CGE is capable to capture ~~the~~ effects of trade policy on macro economy and social welfare. However, ~~simulating effects of altering import tariff for merely 54 products is a challenge for~~ CGE ~~since as it~~ is ~~more~~ suitable for simulating macro-economic shock ~~and will struggle to capture the impact of 54 products~~. As for ~~the~~ gravity model, it was first developed by Tinbergen (1962) to inquire bilateral trade flows affected by gross national product and distance between countries.

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