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Measuring Integration Potential of Free Trade Area of the Asia-Pacific

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Abstract: At the 2014 APEC summit, the participating countries agreed to move towards a region-wide economic integration, and approved the China-backed roadmap to promote the Free Trade Area of the Asia-Pacific (FTAAP). The paper examines prospects for economic integration in the Asia-Pacific in the framework of the 21 APEC participating members. It aims to measure the 'integration potential' of the FTAAP on the basis of quantitative and qualitative analysis of the actual data available and to explore key obstacles hampering economic integration in the region. The research originates from the theory of convergence and concept of proximity, that supposes that the higher the degree of homogeneity in economic development and regulatory regimes of the integrating countries, the higher their 'integration potential'. Initial estimates of the FTAAP prospects were based on merchandise trade complementarity indices and coefficients of variation analysis. The study uses hierarchical cluster analysis which helps to classify countries in different groups according to similarity of their economic typologies. This approach also reveals the favourable algorithm of regional economic integration in the framework of the 'hybrid approach', which allows the countries to enter into free trade agreements on a bilateral basis or make offers to the APEC membership as a whole.

Keywords: APEC, Free Trade Area of the Asia-Pacific, hierarchical cluster analysis, regional economic integration, trade liberalisation
JEL classification: F150, C550

1. Introduction

In November 2014, at the annual Asia-Pacific Economic Cooperation (APEC) summit, the leaders of the member countries agreed to move towards a region-wide free trade area, and approved the China-backed roadmap to promote the Free Trade Area of the Asia-Pacific (FTAAP).

Since the execution of the Bogor Declaration in 1994 that adopted "the long-term goal of free and open trade and investment in the Asia-Pacific", the APEC countries have expanded a number of regional trade and investment facilitation programs, designed to "promote further the flow of goods, services, and capital among APEC economies by eliminating administrative and other impediments to trade and investment" (1994 Leaders' Declaration. Bogor Declaration).

Wider regional economic integration can bring to member countries strong economic effects. The most prominent argument for development of regional integration is that it lowers trade costs and boosts intra-regional trade promoting economic growth and development. The OECD estimates that actions to reduce global trade costs by 1 per cent

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could result in a worldwide income increase of USD40 billion, with 65 per cent of the benefits accruing to developing countries (G20 2014 Agenda).

Secondly, regional integration means integration of markets. Expansion of markets may enhance the effects of economies of scale in production, bringing output and productivity effects, enhancing product coverage available on the market, and when the markets are complementary, promote competition and better allocation of resources.

Thirdly, regional integration and cooperation initiatives may lower risks associated with investments and enhance transparency of initiating business in partner countries. It promotes harmonisation of domestic rules and partner countries may benefit from domestic reforms, stimulated by integration, establishment of common infrastructure and institutional strengthening. In the long-run, regional economic integration may promote technological breakthroughs.

Since 1994 the Bogor Goals have remained the key priority of APEC development. The APEC countries adopted a number of initiatives on the way to deeper economic cooperation and integration. These are shown in Box 1.

Box 1. The main events toward regional integration within APEC

In 1995, the Osaka Action Agenda was developed for "liberalisation and facilitation process, economic and technical cooperation" towards achieving the Bogor Goals.

In 1996, the Manila Action Plan for APEC (MAPA) was adopted. The first 'Collective and Individual Action Plans' were compiled, providing guidelines in 15 areas of cooperation including tariffs, non-tariff measures, services, investment, customs procedures, intellectual property rights, competition policy, government procurement etc.

In 2001 APEC adopted the Shanghai Accord, with the focus on Broadening the APEC Vision, clarifying the roadmap to Bogor and strengthening the implementation mechanism. The leaders agreed to broaden and update the Osaka Action Agenda and adopt a pathfinder approach in advancing some APEC initiatives.

In 2002 the first APEC Trade Facilitation Action Plan was adopted to promote trade liberalisation and reduce trade transaction costs.

In 2006 the APEC Economic Leaders developed the Ha Noi Action Plan with the focus on specific actions towards the implementation of the Bogor Goals, and the multilateral meeting in 2007 became the first where the Declaration on Climate Change, Energy Security and Clean Development was signed as a confirmation of the advanced character of cooperation. The report on closer 'Regional Economic Integration' was also adopted, and included structural reform initiatives. Further, the second APEC Trade Facilitation Action Plan was welcomed that set a goal to reduce trade transaction costs by a further five per cent by 2010 and to "simplify and rationalise customs and other administrative procedures that hinder, delay or increase the cost of moving goods across international borders" (APEC's Second Trade Facilitation Action Plan 2007).

In 2010, the APEC Leaders issued the Yokohama Declaration that emphasised significant progress achieved by the member countries toward the Bogor Goals, and presented a new vision of further building and integrating the Asia-Pacific region in the 21st century.

Despite the significant progress achieved in regional trade and investment liberalisation for 20 years, some negative factors impeding the full-fledged economic integration within the 21 countries still remain. In this regard, the approval of the China-backed roadmap towards the Free Trade Area of the Asia-Pacific during the 2014 APEC summit deserves to be considered a 'historic step' on the way to regional-wide integration.

The China-backed Free Trade Area of the Asia-Pacific is one of the three alternatives of the regional integration architecture in the Asia-Pacific along with the Japan-led Regional Comprehensive Economic Partnership, which includes 16 ASEAN+6 countries and pro-US Trans-Pacific Partnership of 12 regional members that excludes China from the regional integration process.

It must be noted that on the one hand, the Trans-Pacific Partnership (TPP) and FTAAP can become two steps of one process on the way to the integration area within 21 countries, as the later includes all the members of the former. On the other hand, the US is interested in asserting economic power in the region through integration without China, so the initiative may be considered as one more side of the Sino-US trade rivalry.

Anyway, the new area can become the only integration project, consolidating two poles of "global imbalances" (the US and China) and including Russia at the same time.

Thus, the main goal of the current research is to assess the 'integration potential' of the FTAAP and determine its probable format, based on the actual statistic data.

The integration potential means the degree of the countries' readiness and potential mutual interests in implementing the *de jure* and *de facto* region-wide integration scenario. Assessment of integration potential helps to reveal the extent to which regional economic integration may contribute to strong economic effects within the integrated countries, how it may encourage wider product coverage and competition, and whether the countries of the region are ready for such competition in the various fields of trade, investments, financial sector or the labour markets.

The objectives of the research are to (1) consider regional trade dependence within APEC countries and the degree of their trade complementarity that predetermine potential income and competition effects; (2) assess the degree of homogeneity of 21 APEC members, by calculating coefficients of variation (CVs) of a set of indicators in various fields; (3) find the potential type of integration within APEC and assess feasibility of trade and financial integration; (4) explore key obstacles hampering trade or financial integration; and (5) draw conclusions about the favourable sequence of bilateral FTAs on the way to FTAAP according to the 'open regionalism' concept.

The hypotheses proposed in the research is that APEC countries have a high degree of heterogeneity of economic indicators in various fields – from trade regulations and conditions for starting business to financial system parameters and economic development indicators. At the same time, there is substantial potential for high output and productivity

effects and enhancing product coverage in case of implementation of a regional economic integration scenario.

The research is organised as follows: it starts with assessment of the countries' 'integration motivation' on the basis of merchandise trade complementarity index. Then the coefficients of variation will be calculated and analysed, in order to reveal the similarity of the countries' preconditions in various fields for successful integration. Finally, the data on member countries' economic development will be organised into clusters through hierarchical cluster analysis, to determine the favorable sequence of integration.

According to the results obtained, there is a high level of heterogeneity among the APEC members and the only feasible type of integration is free trade area of relatively 'low quality' – covering just trade in goods with relatively longer transition periods for tariff elimination and acute discussions around reduction of non-tariff barriers. Nevertheless, an investment facilitation process may precede the formation of FTAAP, as it may bring substantial gains for the integrating countries.

2. Literature Review

In his pioneering work, Viner (1950), who can be considered as a founder of the regional economic integration fundamental theory, concentrates mainly on exploring potential integration effects for the national economic development in his Customs Union theory. The Hungarian economist Balassa (1964), whose theoretical contribution to this sphere of scientific research is significant, was the first to examine regional economic integration as a dynamic, four-step process, where the member countries are to come through free trade area, customs union, common market to economic (and monetary) union, as the advanced stage of integration. Many of their contemporaries and followers explored not just economic effects of regional economic integration but the reasons and preconditions for successful economic integration at each stage. According to Meade (1955), there will be greater trade creation if post-FTA economic structures are complementary. Standard neoclassical theory of economic growth (Solow, 1956; Mankiv *et al.* 1992) comes from the statement that open economies must converge.

Much of contemporary research proceeds from the hypothesis that the closer the economic relations (trade and investments) among the integrating countries, the higher their 'integration motivation' and chances for successful integration. ADB experts (Estrada *et al.* 2011; 2012; Cheong, 2010) who explore the 'integration potential' of the non-existing FTAs, analyse trade complementarity indices to reveal the member countries' integration motivation and prospects for entering into bilateral and multilateral free trade agreements. Besides, Estrada *et al.(*2011) emphasise the importance of static factors – such as the size of the free trade area, geographical proximity, levels of economic development, complementarity of economic structures, tariff structures, and the substitutability between products of members – in assessing change in national welfare as a result of regional economic integration.

In the second half of the 20th century, the European countries remained the only example of a full-fledged economic integration. The economic integration development within the European Union influenced the fundamental theory of economic regionalism. The 'New Regionalism' term, introduced for scientific use in late 1990s to early 2000s, and the new theory (Burfisher *et al.* 2004; Väyrynen, 2003) have changed to some extent the

approach to regional economic integration analysis. Not just European countries but also Asian and Latin American ones have become the objects for research.

Nevertheless, the contemporary theory of economic integration is affected to a large extent by exploring economic integration within the European Union. It is mainly based on the theory of convergence and concept of proximity.

The theory of convergence underlies much contemporary research on economic integration. Some studies deal with nominal convergence in narrow fields of economic development (Marques and Soukiazis, 1998), while the others deal with real convergence (Martin *et al.* 2001).

The European Commission experts reveal that the maximum gains in trade within the integrated countries can be achieved when the following two criteria are met:

1. Optimal proximity between partners (that means not only geographical proximity but also economic, regulatory, political and cultural),
2. Willingness to tackle areas beyond the elimination of trade barriers (including tariffs, non-tariff measures, rules of origin etc.).

The 'concept of proximity' states that the higher the similarity in economic development and regulatory regimes of integrating countries, the higher their 'integration potential'. Gravity models, used by the European Central Bank experts (McKay *et al.* 2004) for measuring economic integration, emphasise the importance of proximity in the economic integration process.

The convergence/proximity approach determines the methodology, used by experts for assessing regional economic integration. The Asian studies, conducted mainly by the researchers of the Asian Development Bank (Qin *et al.* 2007) use regression models and correlation analysis to reveal the economic effects of integration. Using hierarchical cluster analysis indifferent periods of time, it becomes possible to track how different countries and groups of countries evolve over time (Aldenderfer and Blashfield, 1984).

The European central bank researchers use mathematic instruments to assess and analyse, for instance, Euro area banking sector integration (Sørensen and Gutierrez 2006) and fiscal convergence (Onorante, 2006). These techniques allow for classification of countries with similar economic typologies. Using hierarchical cluster analysis in different periods of time, it becomes possible to track how different countries and groups of countries evolve over time Aldenderfer and Blashfield (1984). Asian research aims to assess economic preconditions for integration of Asian countries in narrow fields, for instance, monetary integration potential (Yuen, 2000). The analysis is based on a wide dataset that includes CPI inflation, nominal interest rates, exchange rate index, government debt-to-GDP and budget deficit-to-GDP. The preliminary results suggested several similar clusters, but discovered that the level of heterogeneity among the Asia-Pacific countries was too high and convergence characteristics might have been not sufficient for developing monetary integration in the region. But the researcher stressed that the extension of the study could be made in several directions and other key variables may be included into the clustering analysis.

There are many studies devoted to regional economic integration effects and externalities in integration blocs worldwide. Here are some of them:

Mistry (1996) concentrates on the role of regional economic integration arrangements of different types (bilateral and multilateral preferential or free trade agreements, and

customs unions) in economic develoment of the integrating countries. He examines complexity of the issues – from trade, finance and monetary effects of integration to institutional, social and political aspects. The study deals with the costs and benefits of regional economic integration and factors that predetermine successful implementation of integration scenarios. He concludes that developing countries may gain from substantial cost savings in trade and investments. At the same time, the effects of the integration depend on the countries' potential to achieve convergence in various fields of the market integration agenda: fiscal and monetary policies and their performance, inflation targets and exchange rate and currency convertibility regimes.

Naveh *et al.* (2012) explore regional economic integration effects on economic growth and economic welfare. Their findings show that economic liberalisation and increased trade exchanges, provided by economic integration, have a positive effect on gross domestic production of the integrated countries. It increases both domestic investments and economic growth. The study by Najarzadeh and Shaghaghi (2006) deals with the integration effect of attracting foreign capital, and was considered positive for member countries. Willem (2011) concludes that trade and FDI promote economic growth and as regional integration encourages increased trade and investments within the countries, it has a positive impact on their economic growth.

The research by Ascani *et al.* (2012) has a particular focus on the effects of economic integration on the EU enlargement to Central Eastern European countries. They found that economic integration promotes better allocation of the resources and industry tends to concentrate in a few places. Factor and product market competition rises, driving geographical distribution of products.

Smolyansky (2014) concentrates on how banking integration affects local lending and, in turn, local employment and income. The effects were revealed to be stronger in poorer counties, in counties with a greater share of small businesses, and in industries dependent on bank finance.

The study by Caliendo and Parro (2014) aims to assess trade effects of integration and identify the impact of tariff reduction on welfare change within NAFTA. The results showed that welfare increases for Mexico was about 1.31 per cent, for the US, 0.08 per cent and for Canada's welfare, it decreased by 0.06 per cent. The researchers conclude that the common welfare effect for the integration bloc on the whole is positive, while it can become negative for separate members. At the same time welfare effects of tariff reduction are reduced when the structure of production excludes intermediate goods and input-output linkages. Some researchers assess integration effects and externalities for the integration bloc on the whole (Brown *et al.* 1995), while others concentrate on assessing welfare effects from regional integration for separate countries, for example, Mexico (Sobarzo 1995) and Canada (Cox 1995).

Effects of NAFTA on employment and policy responses in USA were explored by O'Leary *et al.* (2012), who provide an overview and assessment of US employment policy responses towards trade-displaced workers.

Guisan *et al.* (2003) assess the effects of Mexico's integration into NAFTA on trade and industrial development. Though it stressed that in many fields the impact of integration ispositive, nevertheless, it is not sufficient to stimulate industrial development, and complementary policies at national level are needed. Sanchez-Reaza (2010) made an

attempt to assess the impact on regional disparities, concluding that regional policy is desirable to achieve equality and efficiency.

The impact of international financial integration on Mexican financial markets was explored by Sidaoui (2008), who concludes that financial integration has benefited the Mexican economy by allowing individuals and businesses to gain greater access to financial resources and better conditions. Besides, it promotes better monetary policy decisions and deepening credit markets.

There are also studies dealing with regional economic integration issues within Asia and Asia-Pacific:

Kawai (2007) is the author of a set of papers devoted to prospects of region-wide economic integration within East Asia and potential effects of regional economic integration. He concludes, that the region in becoming highly integrated, and the harmful 'noodle bowl' effect (a result of 'open regionalism' proliferation) is being mitigated. According to his estimations of income effects for five alternative scenarios of economic integration in ASEAN+ format, ASEAN could gain up to 3.72 per cent of GDP increase in ASEAN+1, and up to 5.23 per cent and 5.66 per cent of integration within ASEAN+3 and ASEAN+6, respectively. The more countries that are included into the potential integration bloc, the higher the potential gains of the member countries.

Tang and Wang (2014) consider the feasibility of FTAAP and two alternative pathways of regional integration development. They stress that the success of integration within APEC is determined, to a large extent, by Sino-US political relations. If China joints the US-led TPP, this may contribute to implementing FTAAP by 2020. Kim *et al.* (2013) in their research come to the conclusion that FTAAP has great potential for improving welfare of the member countries and will boost economic growth in the region.

Most of the papers, dealing with examination of prospects for regional economic integration within APEC (Tang and Wang 2014; Bergsten 2007), base their findings mainly on the qualitative analysis of the 'open regionalism' concept, liberalisation process within the region, theoretical aspects of pros and cons, negotiation process on bilateral and multilateral levels etc. The research devoted to prospects of FTAAP are done mainly by ADB and ADB Institute experts and contribute to the literature by combining sound qualitative analysis with quantitative assessments. Nevertheless, most of the researchers use Gravity model for FTAAP estimations (Bergsten *et al.* 2011) and standard CGE model (Kim *et al.* 2013; Kawai 2007) and no one relies on hierarchical cluster analysis that is used widely for exploration of regional economic integration within East Asia. This gap in methodology used relating to Asia Pacific integration can be explained by the relatively low level of scientific development in comparison with the number of studies in East Asian integration based on the framework of ASEAN+ scenarios.

This paper contributes to the qualitative analysis of the Asia-Pacific regional integration trends and prospects for China-backed initiative to create FTAAP by 2020 with qualitative assessments. Econometric methods and advanced quantitative analysis, with hierarchical cluster analysis at the core, are applied to 21 countries of the region. Thus, this research complements the studies conducted by the experts of ADB, ADBI, CIIS etc. and helps fill the gap in methodology used to assess prospects for implementation of regional economic integration scenario within APEC members.

3. Research Framework and Methodology

The study focuses on the degree of homogeneity as a precondition for successful regional economic integration within the APEC countries. The research is derived to a large extent from the methods, used by the ADB experts. The methodology and frameworks underlying the current research is based on three main pillars:

1. Qualitative and qualitative analysis of trade complementarity indices
2. Assessment of coefficients of variation as the main parameters that indicate the integrating countries' similarity in various fields
3. Adoption of hierarchical cluster analysis to categorise countries as members of relatively homogenous clusters.

The merchandise trade complementarity index is calculated as a sum of the absolute value of the difference between the import shares and the export shares of the countries, divided by two (See UNCTAD 2013).

$$Se_jm_k = 1 - \frac{\sum_i |E_{ij} - M_{ik}|}{2}$$

where

Se_jm_k = the index of trade complementarity of exporter j with importer k
i = goods (in three digit SITC Rev.3)
j = exporter (country or country group)
k = importer (country or country group)
E_{ij} = the share of goods i in country j's total exports to the world
M_{ik} = the share of goods i in country k's total imports from the world

The merchandise trade complementarity index assesses the suitability of free trade agreement between two countries or a country and a group of countries within the region. It has potential values between 0 and 1 with zero indicating no correspondence between country j's export structure and country k's import structure and 1 indicating a perfect match in the export/import pattern.

The index is calculated for all potential combinations of exporters and importers (including country groups). Hence, it includes the combination of the same exporter and importer. This implies intra-trade, if both exporter and importer are groups of countries.

High complementarity indices may be misleading if the size difference in the economies is large (i.e., a match in percentage terms does not imply a match in levels).

The dynamics of the indicator over time indicates the countries' 'integration motivation' as it helps to reveal their intensity of trade ties with the regional partners. The indicator varies from 0 to 1, the higher the index, the higher the correspondence between the countries or between the country and the group of countries.

The coefficient of variation is a ratio of the standard deviation to the simple average. Coefficients of variation may become one of the most important parameters that help to reveal the degree of the countries' heterogeneity in various fields and to predict the success of regional economic integration. The coefficients of variation are commonly used in research of European integration and ADB studies for the area's 'integration potential'

assessment. This framework of research may help to determine the possible field of integration (just trade in goods or in goods and services, with or with the exclusion of 'sensitive' products etc.), to reveal the potential controversies in the parties' positions and weak point in negotiations.

The hierarchical cluster analysis seems to be the main method that allows for classification of countries in different groups according to similarity of their economic typologies. Moreover, it allows for grouping of countries on the basis of several indicators, assessing the countries' 'integration potential' on the whole. The observations can be united into groups according to the calculated distance between sets of observations. The distance is calculated as a function of the pairwise distances between values. The proximity matrix is based on calculations of Squared Euclidean Distance These principles underlie agglomerating clustering. Thus, the hierarchical cluster analysis may promote determination of the favorable algorithm of the regional-wide economic integration from bilateral agreements to a single FTAAP, according to the 'hybrid approach', that was adopted for the Trans-Pacific Partnership in 2009 and may become actual for the APEC members on their way to FTAAP.

However, the hierarchical cluster analysis may have some limitations when a significant number of parameters are included into the research. It may become difficult to interpret correctly the results of the assessment, as different countries may have different 'integration potential' in various fields. So, including all the parameters into one cluster analysis may smooth the results. That is why it makes sense to conduct the hierarchical cluster analysis separately for the group of indicators, relating to foreign trade, for those characterising monetary integration potential and banking services liberalisation, and those determining free division of labour. Besides, it is important to combine quantitative and qualitative analysis of the counties' macroeconomic conditions.

In the study, the research of the monetary integration potential, done by Yuen (2000) was extended to trade integration, free division of investments and the labour force, as the key issues for negotiations on the way to the free trade area of the Asia-Pacific. The dataset was taken from the IMF sources (World Economic Outlook Database, October 2014), the World Bank (2013b), UNCTAD (2013), the WTO reports (World Tariff Profiles, 2013 and Trade Profiles, 2013 – WTO Statistics Database) and Doing Business 2014 Country Tables of World Bank (2013a).

4. Results and Discussion

4.1 Assessing Regional Trade Dependence

The 21 APEC members, aiming to form a regional-wide free trade area by 2020, are Australia, Brunei Darussalam, Canada, Chile, People's Republic of China, Hong Kong (China), Indonesia, Japan, Republic of Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, the Philippines, Russia, Singapore, Chinese Taipei, Thailand, the United States and Vietnam.

The dynamics of the merchandise trade complementarity index reveals higher integration of the APEC members to the global market and gradual lowering of their dependence on foreign trade with regional partners. The index has fallen from 0.9 to

0.86 for the 10-year period (Table 1). However, it must be noted that on the whole, the more developed the country, the higher the index. The USA, Japan, Republic of Korea and Canada hold leading positions whereas Brunei Darussalam, Papua New Guinea, Peru and Chile stay at the bottom of the list.

Nevertheless, for the less developed countries an upward tendency was observed, and the rate of increase for Vietnam, Peru or Papua New Guinea was higher than the decline rate of the USA, Singapore or Japan.

It is logical that the higher the trade complementary index with the regional partners, the higher the country's motivation to enter the region-wide free trade area. Economic integration promotes lower trade costs as the higher the share of the regional partners in the country's total trade, the lower the total trade costs. In this regard, the USA, Republic of Korea, Thailand, Singapore, Malaysia, Japan and China are the most motivated APEC members. Mexico and Canada are relatively less motivated as their high merchandise trade complementary indices can be explained mainly by close trade links within NAFTA.

At the same time, significance of the APEC trade partners is increasing for Vietnam and the Philippines, and that strengthens their aspiration to create a region-wide FTA.

Table 1. Merchandise Trade Complementarity Index within APEC

	For APEC members as exporting countries			For APEC members as importing countries			10-year trend
	2003	2007	2012	2003	2007	2012	
APEC	0,9	0,88	0,86	0,9	0,88	0,86	↓
Brunei Darussalam	0,14	0,16	0,15	0,5	0,5	0,48	↔
Vietnam	0,35	0,41	0,45	0,52	0,55	0,6	↑
Malaysia	0,55	0,59	0,56	0,64	0,67	0,71	↔
Singapore	0,54	0,54	0,51	0,66	0,65	0,6	↓
Japan	0,61	0,58	0,54	0,68	0,66	0,63	↓
Australia	0,42	0,38	0,33	0,72	0,7	0,7	↓
New Zealand	0,33	0,34	0,3	0,66	0,66	0,64	↓
Canada	0,59	0,63	0,64	0,71	0,72	0,7	↔
Mexico	0,62	0,62	0,61	0,73	0,71	0,72	↔
Peru	0,21	0,21	0,27	0,57	0,59	0,62	↑
USA	0,73	0,69	0,69	0,75	0,75	0,74	↓
Chile	0,23	0,19	0,2	0,64	0,64	0,65	↔
Indonesia	0,51	0,48	0,43	0,63	0,62	0,64	↔
Philippines	0,41	0,4	0,44	0,53	0,51	0,59	↑
Thailand	0,65	0,62	0,57	0,68	0,66	0,66	↓
China	0,55	0,55	0,54	0,65	0,62	0,6	↓
Republic of Korea				0,64	0,65	0,64	↔
Taiwan	0,55	0,53	0,52	0,62	0,61	0,62	↔
Hong Kong	0,54	0,49	0,43	0,64	0,58	0,53	↓
Papua New Guinea	0,14	0,18	0,21	0,46	0,46	0,46	↑
Russia	0,32	0,35	0,35	0,63	0,61	0,62	↔

Source: UNCTAD (2013)

Table 2. Cluster membership on Merchandise Trade Complementarity Index

Case	Cluster Membership			
	7 Clusters	6 Clusters	5 Clusters	4 Clusters
1. Brunei Darussalam	1	1	1	1
2. Vietnam	2	2	2	2
3. Malaysia	3	3	3	2
4. Singapore	3	3	3	2
5. Indonesia	2	2	2	2
6. Philippines	2	2	2	2
7. Thailand	3	3	3	2
8. Japan	3	3	3	2
9. China	3	3	3	2
11. Australia	4	4	4	3
12. New Zealand	5	4	4	3
13. Canada	6	5	5	4
14. Mexico	6	5	5	4
15. Peru	5	4	4	3
16. USA	7	6	5	4
17. Chile	1	1	1	1
18. Taiwan	3	3	3	2
19. Hong Kong	3	3	3	2
20. Papua New Guinea	1	1	1	1
21. Russia	4	4	4	3

Source: Author's calculations

The cluster membership on the basis of merchandise trade complementarity index vividly illustrates the correlation between the similarity of the countries' indices and their participation in integration agreements (Table 2). In a 4-cluster solution the cluster 2 consists mainly of core ASEAN members plus China and Japan that have also joined the regional integration processes within the ASEAN+1 framework. Cluster 2 contains 3 NAFTA members – the USA, Canada and Mexico.

4.2 Measuring the APEC Countries' Degree of Homogeneity

In order to determine the degree of homogeneity among the 21 APEC members, the coefficients of variation for economic indicators from various fields were calculated.

The results presented in Table 3 show a high degree of heterogeneity on almost all indicators underlying the research. However, the coefficients of variation on trade tariff indicators, excluding agricultural products, both simple average MFN applied and trade weighted average are relatively lower in comparison with those on some indicators of monetary integration. Nevertheless, simple average MFN tariff applied on agricultural products is much higher. This means that agriculture remains one of the most protected branches in several countries, mainly Republic of Korea, and Thailand, where simple average MFN applied tariff runs up to 52.7 per cent and 29.9 per cent respectively. They are followed by Japan and Mexico, with the simple average tariffs of up to 20 per cent. The

coefficient of variation on trade weighted average tariff on agricultural productsis even higher. The Republic of Korea, Mexico and Thailand remain leaders on this indicator, and this proves that the share of the most important and protected goods within the group of agricultural products is even higher, and these countries may be reluctant to open their agricultural markets to the regional partners and lowering the respective customs duties.

At the same time, there is one more group of trade regulations aiming to protect national producers of 'sensitive' goods – non-tariff barriers. Some countries, particularly the USA, actively use these instruments to protect national farmers. Although the level of customs duties in the US is relatively lower in comparison with some of the other APEC members, the USA are reluctant to eliminate non-tariff barriers in trade of agricultural products. According to the findings of the American Enterprise Institute studies on economic integration within Trans-Pacific Partnership (Barfield 2012) "major U.S. agricultural groups, particularly in sensitive areas such as sugar and dairy products, are pushing the Obama administration to keep in place existing FTA market access provisions. They see little export gain from liberalising tariff rates and quotas among TPP nations; and they have urged USTR to concentrate SPS, technical barriers to trade, and non-tariff barriers (NTPs) as agriculture trade priorities".

Table 3. Coefficients of variation in various fields of potential integration

	Indicator	Coefficient of variation
Trade integration	Trade tariffs	
	Simple average MFN applied, total	0.62
	Simple average MFN applied, agricultural products	1
	Simple average MFN applied, non-agricultural	0.59
	Trade weighted average, total	0.61
	Trade weighted average, agricultural products	1.38
	Trade weighted average, non-agricultural	0.64
	Exports of goods and services, % of GDP	1.05
	Merchandise trade, % of GDP	0.98
Monetary integration	Real interest rate, %	0.7
	Deposit interest rate, %	0.9
	Interest rate spread, %	0.82
	Central bank discount rate, %	0.61
	Inflation, consumer prices, %	0.69
	General government gross debt, % to GDP	1.02
	Total tax rate (% of profit)	0.32
Free division of labour	GDP per capita, USD	0.87
	Unemployment total, %	0.44

Source: Author's calculations

A high degree of heterogeneity on such indicators as exports of goods and services to GDP or merchandise trade of GDP can hardly become an obstacle on the way to region-wide economic integration; it witnesses just how different the levels of 'integration motivation' is in the countries' economic priorities and stages of economic development.

Diversity of the the countries in the monetary field is even higher than in foreign trade regulations. Low level of homogeneity may prevent some countries (mainly emerging ones) from opening their financial sectors to foreign ownership, as this may increase foreign competition and oust financial institutions from domestic financial service markets. On the other hand, the coefficient of variation on central bank discount rates is lower than on interest rate spread. This means that theoretically, financial service liberalisation may lead to higher competitiveness of national financial institutions in developing countries of Asia and Latin America, lowering interest rate spreads and facilitating access to financial sources for enterprises.

The results of the quantitative analysis reveal relatively high 'integration potential' for free division of investments. The coefficient of variation of total tax rate (% of profit), as one of the main indicators reflecting economic efficiency of starting business abroad, is much lower than the rest of the coefficients. This means that economic integration within the region may encourage cross-border investments, increasing both outward and inward investments.

The high level of heterogeneity of the countries on GDP per capita and unemployment may exacerbate contradictions with national labour unions in some developed countries encouraging them to take measures protecting national workers from the influx of cheap labour force from the developing countries. This may become one more impediment on the way to FTAAP.

4.3 Measuring International Trade Regulation Convergence

The objective of the current analysis is to determine the 'integration potential' of APEC countries in four directions: trade liberalisation, free movement of investments, monetary and banking integration and free division of labour.

For the research, six key criteria (economic indicators) were chosen to assess the foreign trade regulation convergence of APEC countries. They reflect the level of average tariff duties: simple average MFN applied (total, for agricultural products and for non-agricultural ones) and trade weighted average (total, for agricultural products and for non-agricultural ones).

According to the results presented in agglomeration schedule (Table 4), Malaysia and the Philippines appear to be the most similar pair, being the two countries and the core members of the ASEAN Community. They are followed by Australia and New Zealand that have very close trade relations with each other and a similar trade policy towards a third country due to the bilateral free trade agreement. The USA and Peru are the third closest pair.

It must be noted that all the most similar pairs have already signed bilateral or multilateral free trade agreements. Although bilateral and multilateral FTAs suggest gradual liberalisation within the member countries but in the case of independent trade policy towards a third country, research reveals that the long economic integration history leads gradually to the countries' similarity in their international trade regulation characters.

Table 4. Agglomeration schedule on APEC members' trade regulation convergence

Agglomeration schedule						
Stage	Cluster combined		Coefficients	Stage cluster first appears		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	3	6	2,140	0	0	10
2	11	12	6,660	0	0	7
3	15	16	8,690	0	0	7
4	5	17	9,820	0	0	10
5	8	13	15,240	0	0	8
6	18	20	18,370	0	0	8
7	11	15	19,615	2	3	9
8	8	18	49,785	5	6	12
9	11	19	51,038	7	0	14
10	3	5	51,610	1	4	13
11	9	21	73,690	0	0	16
12	2	8	91,123	0	8	13
13	2	3	113,947	12	10	16
14	4	11	123,014	0	9	17
15	7	14	138,180	0	0	18
16	2	9	174,489	13	11	17
17	2	4	282,987	16	14	18
18	2	7	867,009	17	15	19
19	2	10	8627,277	18	0	0

Source: Author's calculations

This proves that bilateral integration contributes to a regional-wide economic integration within the 21 APEC member-countries.

The cluster membership table (Table 5) that unites similar groups of countries into clusters may help to determine the possible controversies between different groups of countries and the favourable scenario of the countries' route to FTAAP through bilateral trade agreements. Under the 7-cluster solution, Vietnam, Malaysia, Indonesia, Philippines, Chile, Papua New Guinea, Taiwan, Canada and Japan were united in cluster 1. Singapore and Thailand form clusters 3 and 4 respectively. Being one of the core ASEAN members Singapore has a more liberal international trade policy towards the third country. Thailand, in adverse, tends to a more protectionist policy. Cluster 4 includes China and Russia, but it must be taken into account that cluster 4 is close to cluster 1, as under the 4-cluster approach, these two countries belong to the latter. Cluster 6 constitutes mainly developed countries, such as Australia, New Zealand, the USA, Hong Kong plus developing Peru, that has close trade relations with the USA. Mexico also stands apart, forming cluster 7, although it is close to Thailand in the 4-cluster approach. The Republic of Korea is the only country, included in cluster 5, as it is the country with the most protectionist foreign trade regime on all the six indicators, underlying the research. Moreover, the dendrogram vividly demonstrates the lag in tariff regulations of foreign trade, as the rescaled distance between the Republic of Korea and the rest of the clusters remains significant. The results of the calculations are vividly presented in Dendrogram 1 in the Annex.

Table 5. Cluster membership on APEC members' trade regulation convergence

Case	Cluster membership			
	7 Clusters	6 Clusters	5 Clusters	4 Clusters
2. Vietnam	1	1	1	1
3. Malaysia	1	1	1	1
4. Singapore	2	2	2	2
5. Indonesia	1	1	1	1
6. Philippines	1	1	1	1
7. Thailand	3	3	3	3
8. Japan	1	1	1	1
9. China	4	4	4	1
10. Republic of Korea	5	5	5	4
11. Australia	6	2	2	2
12. New Zealand	6	2	2	2
13. Canada	1	1	1	1
14. Mexico	7	6	3	3
15. Peru	6	2	2	2
16. USA	6	2	2	2
17. Chile	1	1	1	1
18. Taiwan	1	1	1	1
19. Hong Kong	6	2	2	2
20. Papua New Guinea	1	1	1	1
21. Russia	4	4	4	1

Source: Author's calculations

4.4 Measuring Free Division of Investments

The potential of free division of investments can be measured on the basis of total tax rate as a per cent of total income (Table 6).

The 7-cluster scenario unites Vietnam, Malaysia, Indonesia, New Zealand, Peru and Taiwan into cluster 2 with the medium level of total tax, varying from 32.2 per cent in Indonesia to 36.4 per cent in Peru. Cluster 3 consists of Singapore, Thailand, Republic of Korea and Chile (from 27.1% to 29.8%) (Table 7). They are followed by the Philippines, Australia, the USA and Papua New Guinea in cluster 4 with the total tax rate from 42.1 per cent in Papua New Guinea to 47 per cent in Australia. Cluster 5 constitutes Japan, Mexico and Russia with the average tax being around 50 per cent. China has the most severe conditions for starting a business with the total tax being 63.7 per cent while Brunei Darussalam (cluster 1), Hong Kong and Canada (cluster 7) having the most favourable conditions.

The results of the calculations are vividly presented on Dendrogram 2 in the Annex.

4.5 Measuring Monetary Integration Potential and Banking Service Liberalisation

In order to assess the monetary integration potential of the 21 APEC members, six criteria of convergence were chosen: real interest rates, deposit interest rates, interest rate spread, inflation, general government structural balance (% to GDP), and general government gross debt (% to GDP).

Table 6. Total tax rate (% of profit) in APEC countries, 2013

	Total tax rate (% of profit)
Brunei Darussalam	16,1
Vietnam	35,2
Malaysia	36,3
Singapore	27,1
Indonesia	32,2
Philippines	44,5
Thailand	29,8
Japan	49,7
China	63,7
Republic of Korea	27,9
Australia	47
New Zealand	34,6
Canada	24,3
Mexico	53,7
Peru	36,4
USA	46,3
Chile	27,7
Taiwan	35
Hong Kong	22,9
Papua New Guinea	42,1
Russia	50,7

Source: Compiled from World Bank (2013a), Country Tables

According to the agglomeration schedule (Table 8), China and the Philippines have the most similar conditions for monetary integration; they are followed by the Republic of Korea and New Zealand. The pair. Thailand and Mexico, comes third.

The results presented in proximity matrix (Table 10) and cluster membership table (Table 9), reveal eight countries that have the most similar conditions to develop monetary integration. They are three ASEAN members (the Philippines, Thailand and Indonesia), China, Republic of Korea, Australia, New Zealand and Mexico, which are included in cluster 1. Whereas, on squared Euclidean distance data, Indonesia has relatively similar preconditions only with Australia. Moreover, this country has tended towards a more protectionist policy in recent times, trying to protect national markets, especially financial ones. Its reluctance to open up the economy prevents the formation of a single market and production base within ASEAN countries, drawing concerns on the success of regional integration.

Under the 7-cluster solution, cluster 7 consists of Hong Kong, Russia and Chile. However, on the dendrogram this group is connected with the main cluster '1' (Table 9). This means that the distance between these two clusters is relatively less in comparison with those consisting of the developed APEC members such as Singapore, Canada, the USA and Japan. Moreover, it must be noted that the former three countries can be united into one cluster; this is confirmed by the results in cluster membership table for 4-, 5- and

Table 7. Cluster membership on total tax rate

Case	Cluster membership			
	7 Clusters	6 Clusters	5 Clusters	4 Clusters
1.Brunei Darussalam	1	1	1	1
2.Vietnam	2	2	2	2
3.Malaysia	2	2	2	2
4.Singapore	3	3	3	2
5.Indonesia	2	2	2	2
6.Philippines	4	4	4	3
7.Thailand	3	3	3	2
8.Japan	5	5	4	3
9.China	6	6	5	4
10.Republic of Korea	3	3	3	2
11.Australia	4	4	4	3
12.New Zealand	2	2	2	2
13.Canada	7	3	3	2
14.Mexico	5	5	4	3
15.Peru	2	2	2	2
16.USA	4	4	4	3
17.Chile	3	3	3	2
18.Taiwan	2	2	2	2
19.Hong Kong	7	3	3	2
20.Papua New Guinea	4	4	4	3
21.Russia	5	5	4	3

Source: Author's calculations

Table 8. Agglomeration schedule on APEC members' trade regulation convergence

Stage	Cluster combined		Coefficients	Stage cluster first appears		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	6	9	,817	0	0	4
2	10	12	15,004	0	0	4
3	7	14	26,899	0	0	8
4	6	10	28,457	1	2	8
5	5	11	35,202	0	0	10
6	17	21	43,093	0	0	7
7	17	19	91,936	6	0	12
8	6	7	106,187	4	3	10
9	4	16	134,706	0	0	11
10	5	6	226,341	5	8	13
11	4	13	270,052	9	0	15
12	15	17	395,456	0	7	14
13	3	5	527,228	0	10	14
14	3	15	890,513	13	12	15
15	3	4	4903,799	14	11	16
16	3	8	40694,782	15	0	0

Source: Author's calculations

Table 9. Cluster membership on monetary integration indicators

Case	7 Clusters	6 Clusters	5 Clusters	4 Clusters
3. Malaysia	1	1	1	1
4. Singapore	2	2	2	2
5. Indonesia	3	3	3	1
6. Philippines	3	3	3	1
7. Thailand	3	3	3	1
8. Japan	4	4	4	3
9. China	3	3	3	1
10. Republic of Korea	3	3	3	1
11. Australia	3	3	3	1
12. New Zealand	3	3	3	1
13. Canada	5	2	2	2
14. Mexico	3	3	3	1
15. Peru	6	5	5	4
17. Chile	7	6	5	4
19. Hong Kong	7	6	5	4
21. Russia	7	6	5	4

Source: Author's calculations

6-cluster solutions. Japan stands apart in all scenarios; besides, the Rescaled Distance Cluster Combine in dendrogram 3 of the Annex shows an enormous gap in monetary conditions between Japan and the rest of the countries.

Banking services liberalisation usually becomes one of the key issues of controversy among the integrating countries because of high differences in banking indicators. That is why it makes sense to carry out the hierarchical cluster analysis on the basis of three indicators in interest rates.

The dendrogram shows that it makes sense to increase the number of clusters up to 9. Under the 9-cluster solution the main cluster 3 includes 7 countries – Malaysia, the Philippines, Thailand, China, Republic of Korea, Australia and Russia. Singapore and Hong Kong form cluster 4', having minimal deposit interest rates, but relatively high interest rate spreads of 5.2 per cent and 5 per cnt, respectively (Table 11).

Cluster 6 contains Japan, the USA, Canada and Mexico, which have lower real interest rates and interest rates spreads and which makes these countries relatively more competitive on the regional markets (Table 12). Nevertheless, it must be taken into account, that cluster 6 is relatively closer to cluster 3, as under the 4-7-cluster approaches, they are joined to only cluster 3. Indonesia and Chile compose cluster 5, and Brunei, Vietnam, Peru and Papua New Guinea form independent clusters.

4.6 Measuring Free Division of Labour Prospects

Directions of labour force migration may depend on two main categories of indicators: the first being GDP per capita and the second, unemployment level. These two parameters underlie the research. The hierarchical cluster analysis together with qualitative analysis of statistic data helps to determine the potential directions of division of labour force.

Table 10. Proximity matrix on monetary integration indicators

Case	Squared Euclidean Distance																
	3.Malaysia	4.Singapore	5.Indonesia	6.Philippines	7.Thailand	8.Japan	9.China	10.Republic of Korea	11.Australia	12.New Zealand	13.Canada	14.Mexico	15.Peru	16.USA	17.Chile	19.Hong Kong	21.Russia
3.Malaysia	,000	2114,219	1092,448	373,153	168,480	34573,414	364,877	582,092	912,093	504,337	1031,603	220,345	1801,194	2265,968	2069,181	2662,756	1988,676
4.Singapore	2114,219	,000	6095,245	4196,996	3358,733	19733,205	4159,582	4887,680	5694,165	4612,375	295,277	3364,627	7257,522	134,706	8299,597	9418,840	8122,523
5.Indonesia	1092,448	6095,245	,000	212,533	432,243	47272,951	216,782	127,564	35,202	186,309	4032,189	472,839	272,158	6209,481	202,200	430,753	167,422
6.Philippines	373,153	4196,996	212,533	,000	49,994	41734,032	,817	32,319	126,746	20,336	2493,265	76,392	725,794	4275,541	716,704	1070,587	656,431
7.Thailand	168,480	3358,733	432,243	49,994	,000	39029,865	44,291	152,106	314,918	113,217	1868,013	26,899	971,333	3449,340	1113,255	1550,198	1051,784
8.Japan	34573,414	19733,205	47272,951	41734,032	39029,865	,000	41621,804	43895,283	46092,185	42943,233	23862,432	38765,587	50343,212	19330,615	53200,376	56031,344	52686,981
9.China	364,877	4159,582	216,782	,817	44,291	41621,804	,000	35,903	128,362	25,271	2465,677	71,863	709,810	4240,204	726,029	1086,084	673,514
10.Republic of Korea	582,092	4887,680	127,564	32,319	152,106	43895,283	35,903	,000	55,173	15,004	3042,919	201,215	577,084	4991,451	472,452	779,908	442,807
11.Australia	912,093	5694,165	35,202	126,746	314,918	46092,185	128,362	55,173	,000	98,620	3660,009	344,005	369,350	5750,618	262,779	520,080	252,216
12.New Zealand	504,337	4612,375	186,309	20,336	113,217	42943,233	25,271	15,004	98,620	,000	2794,211	140,417	724,422	4667,969	596,106	913,645	537,266
13.Canada	1031,603	295,277	4032,189	2493,265	1868,013	23862,432	2465,677	3042,919	3660,009	2794,211	,000	1815,186	5164,671	244,827	5846,704	6775,757	5677,406
14.Mexico	220,345	3364,627	472,839	76,392	26,899	38765,587	71,863	201,215	344,005	140,417	1815,186	,000	1086,689	3354,166	1192,021	1594,012	1091,773
15.Peru	1801,194	7257,522	272,158	725,794	971,333	50343,212	709,810	577,084	369,350	724,422	5164,671	1086,689	,000	7571,008	298,323	485,687	402,359
16.USA	2265,968	134,706	6209,481	4275,541	3449,340	19330,615	4240,204	4991,451	5750,618	4667,969	244,827	3354,166	7571,008	,000	8441,085	9554,561	8227,042
17.Chile	2069,181	8299,597	202,200	716,704	1113,255	53200,376	726,029	472,452	262,779	596,106	5846,704	1192,021	298,323	8441,085	,000	93,030	43,093
19.Hong Kong	2662,756	9418,840	430,753	1070,587	1550,198	56031,344	1086,084	779,908	520,080	913,645	6775,757	1594,012	485,687	9554,561	93,030	,000	90,843
21.Russia	1988,676	8122,523	167,422	656,431	1051,784	52686,981	673,514	442,807	252,216	537,266	5677,406	1091,773	402,359	8227,042	43,093	90,843	,000

This is a dissimilarity matrix.
Source: Author's calculations

Table 11. Banking sector indicators in APEC members

	Real interest rate, %	Deposit interest rate, %	Interest rate spread, %
	2013	2012	2012
Brunei Darussalam	8,9	0,2	5,3
Vietnam	5,4	10,5	3
Malaysia	4,7	3	1,8
Singapore	5,2	0,1	5,2
Indonesia	7	5,9	5,8
Philippines	3,7	3,2	2,5
Thailand	4,1	2,8	4,3
Japan	1,9	0,5	0,9
China	4,2	3	3
Republic of Korea	3,9	3,7	1,7
Australia	6,5	3,9	3,1
New Zealand	1	4,1	1,7
Canada	1,7	0,5	2,5
Mexico	2,2	1,1	3,6
Peru	16,2	2,5	16,8
USA	1,7		
Chile	7,4	5,8	4,3
Hong Kong	3,6	0	5
Papua New Guinea	10,3	0,5	10,3
Russia	3,4	5,5	3,6

Source: World Bank (2013b)

Under the 7-cluster solution, cluster 1 consists of New Zealand, Hong Kong, Japan and Brunei Darussalam (Table 13). Cluster 2 constitutes developing countries of East Asia and Latin America - Vietnam, Indonesia, the Philippines, Thailand, China, Peru and Papua New Guinea. This group of countries, that have the lowest GDP per capita and average unemployment levels, can become the main supplier of low-skilled labour force to the countries with higher average salaries. Malaysia and Mexico are included in cluster 3 that is close to cluster 7, composed of Russia and Chile, as under the 6-cluster alternative scenario, all these four countries compose cluster 3. Cluster 4 is composed of Singapore, Canada and the USA, as the most developed APEC members with the highest GDP per capita levels. Australia and Republic of Korea compose the independent clusters of 6 and 5, respectively.

The countries of clusters 4 and 6 may become the key destinations for labour force from cluster 3. For Singapore, the creation of the free trade area of the Asia-Pacific can hardly lead to a sharp influx of lower-skilled labour force from developing countries (mainly Asian ones), as that is a typical process within ASEAN. But for the rest of the developed countries (Canada, Australia and the USA), free division of labour can become a highly charged and sensitive matter, being able to heighten tensions between the countries' administrations and national labour unions. It stands to mention that as unemployment levels are relatively higher in these countries, these member countries will work towards protecting their workers.

Table 12. Cluster membership on banking integration indicators

Case	Cluster membership					
	9 Clusters	8 Clusters	7 Clusters	6 Clusters	5 Clusters	4 Clusters
1. Brunei Darussalam	1	1	1	1	1	1
2. Vietnam	2	2	2	2	2	2
3. Malaysia	3	3	3	3	3	1
4. Singapore	4	4	4	1	1	1
5. Indonesia	5	5	5	4	2	2
6. Philippines	3	3	3	3	3	1
7. Thailand	3	3	3	3	3	1
8. Japan	6	6	3	3	3	1
9. China	3	3	3	3	3	1
10. Republic of Korea	3	3	3	3	3	1
11. Australia	3	3	3	3	3	1
12. New Zealand	7	6	3	3	3	1
13. Canada	6	6	3	3	3	1
14. Mexico	6	6	3	3	3	1
15. Peru	8	7	6	5	4	3
16. USA	6	6	3	3	3	1
17. Chile	5	5	5	4	2	2
19. Hong Kong	4	4	4	1	1	1
20. Papua New Guinea	9	8	7	6	5	4
21. Russia	3	3	3	3	3	1

Source: Author's calculations
The results of the calculations are vividly presented on Dendrogram 4 in the Annex.

5. Conclusion

This study has examined several aspects related to regional economic integration in the framework of the 21 APEC members. The aim of the research has been to assess the 'integration potential' of the member countries on the basis of qualitative and quantitative analysis with the use of merchandise trade complementarity indices, coefficients of variation and hierarchical cluster analysis for a wide range of indicators in various fields of economic development.

The study has revealed a high level of heterogeneity among the APEC members both in foreign trade regulations and in the monetary field that makes the scenario of region-wide integration realistic only in the long-run (more than 5 years). Currently, it is too preliminary to talk about developing monetary integration within the APEC members even in the long-term perspective.

It makes sense to adopt the 'hybrid approach' within the FTAAP talks, when all the countries will be allowed to make offers, and enter into free trade agreements on a bilateral basis (and multilateral with a limited number of APEC members) or to the APEC membership as a whole. A significant number of bilateral FTAs will contribute to the region-wide economic integration. In this regard, on the basis of the hierarchical cluster analysis, it has become possible to reveal the optimal scenario of the Asia-Pacific regionalism, and determine the favourable sequence of bilateral FTAs within the APEC

Table 13. Cluster membership on economic welfare and unemployment

Case	Cluster membership			
	7 Clusters	6 Clusters	5 Clusters	4 Clusters
1. Brunei Darussalam	1	1	1	1
2. Vietnam	2	2	2	2
3. Malaysia	3	3	2	2
4. Singapore	4	4	3	3
5. Indonesia	2	2	2	2
6. Philippines	2	2	2	2
7. Thailand	2	2	2	2
8. Japan	1	1	1	1
9. China	2	2	2	2
10. Republic of Korea	5	5	4	1
11. Australia	6	6	5	4
12. New Zealand	1	1	1	1
13. Canada	4	4	3	3
14. Mexico	3	3	2	2
15. Peru	2	2	2	2
16. USA	4	4	3	3
17. Chile	7	3	2	2
19. Hong Kong	1	1	1	1
20. Papua New Guinea	2	2	2	2
21. Russia	7	3	2	2

Source: Author's calculations

membership. First of all, the free trade area within the Trans-Pacific partnership must be created. The efficiency of regional integration will be higher if the Republic of Korea joins the TPP talks. Besides, the north-east Asian FTA consisting of China, Japan and Republic of Korea must be set up. Moreover, Russia must become more integrated into the Asia-Pacific region through the system of bilateral free trade agreements. Currently, Russia is the only country with no integration agreements with any one of the APEC members. The best scenario is to create one more ASEAN+1 free trade area between Russia and ASEAN that will contribute to the FTAAP formation.

The free trade area of the Asia-Pacific will likely cover just trade in goods. In trade of services, the additional flexibility to the least-developed countries may be applicable or the formula 'FTAAP Minus X' may be used, taking into consideration the different levels of economic development, national economic strategies and sources of economic growth of the participating countries. In the trade integration process, all the APEC members may be divided into two groups, where for the second group, the transition period of about five years may be provided. This second group of countries may include Vietnam, Thailand, Russia and Papua New Guinea. Besides, the more protectionist policy and longer tariff elimination period may be preserved for some 'sensitive' products, such as textiles and apparel and some kinds of agricultural products.

The free trade area of the Asia-Pacific may include provisions to facilitate investments, as the 'integration motivation' in free division of investments is relatively higher and the member countries are interested in facilitating their engagement in regional supply chains. Singapore, Thailand, Republic of Korea, Chile, and Hong Kong may become the key destinations of foreign direct investments, while the USA, Japan, China (that will invest mainly in Asian partners) and Russia may become the main suppliers.

Labour issues may become the thorniest and the most difficult to resolve within the regional-wide FTA. Developing nations such as Vietnam, Brunei Darussalam, Indonesia, Thailand, the Philippines, China, Peru, Chile and Papua New Guinea may become the key suppliers of cheap labour force to the USA, Canada and Australia, that will try to protect national workers in light of relatively higher levels of unemployment.

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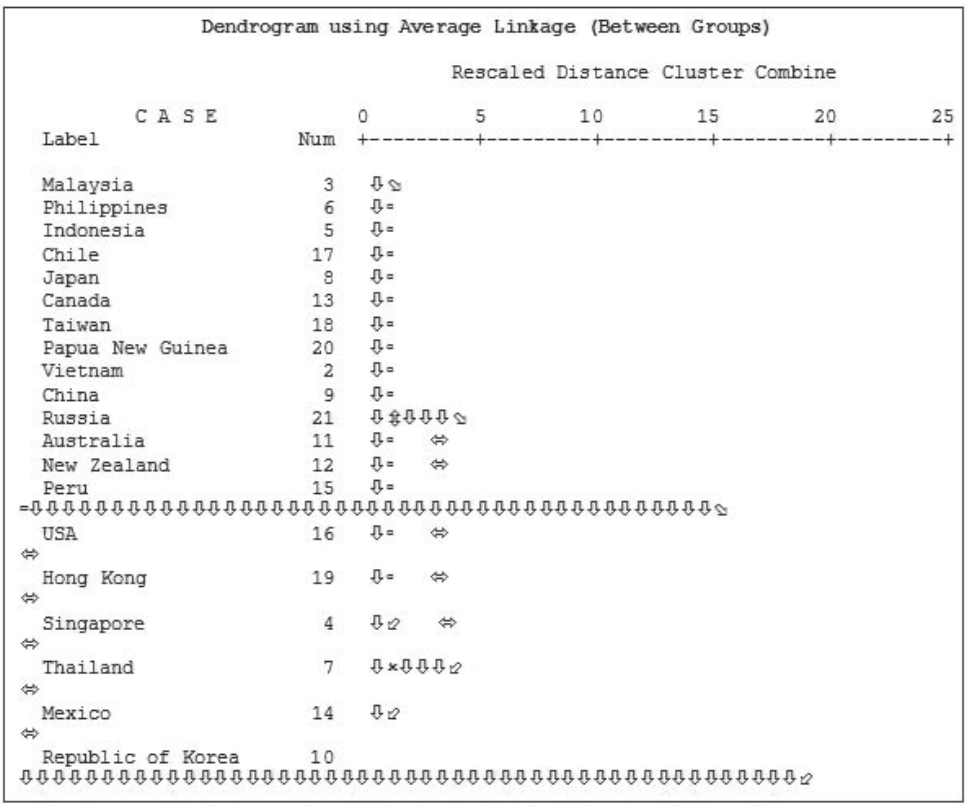
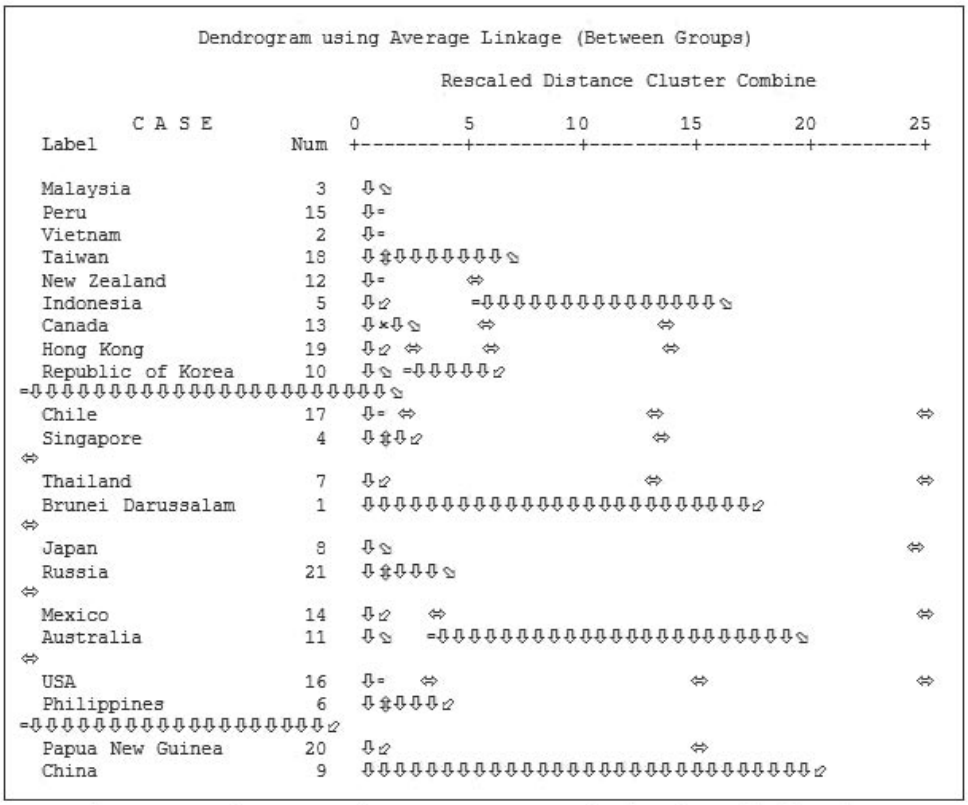
Annex

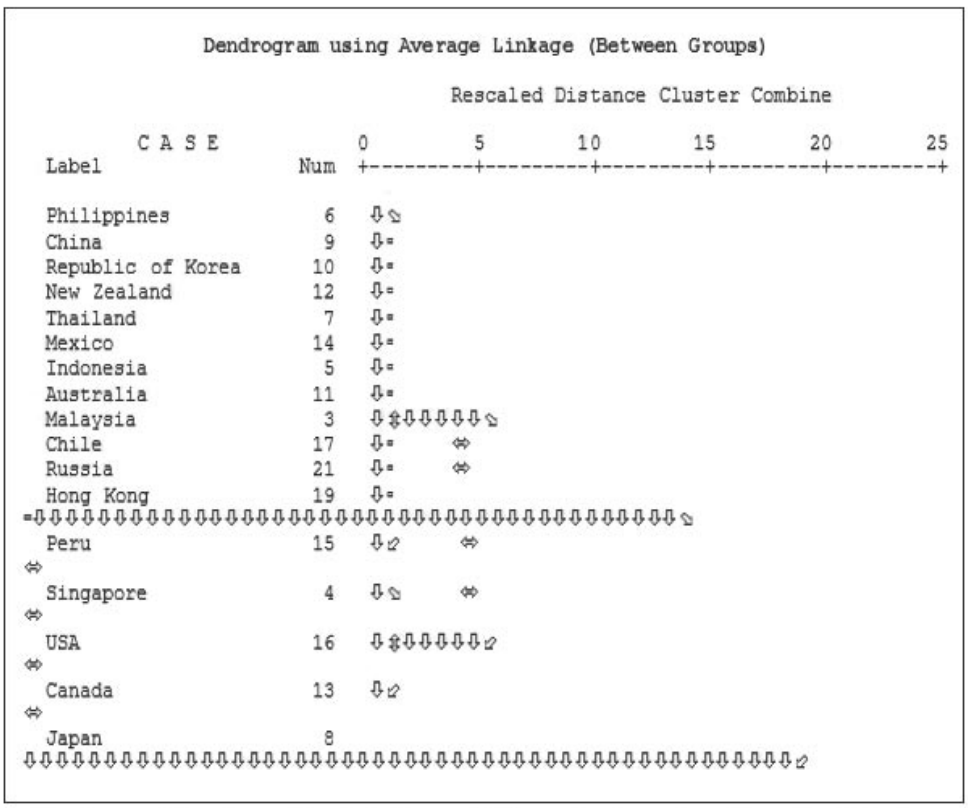


Dendrogram 1. Agglomeration clustering on APEC members' trade regulation convergence
Source: Author's calculations



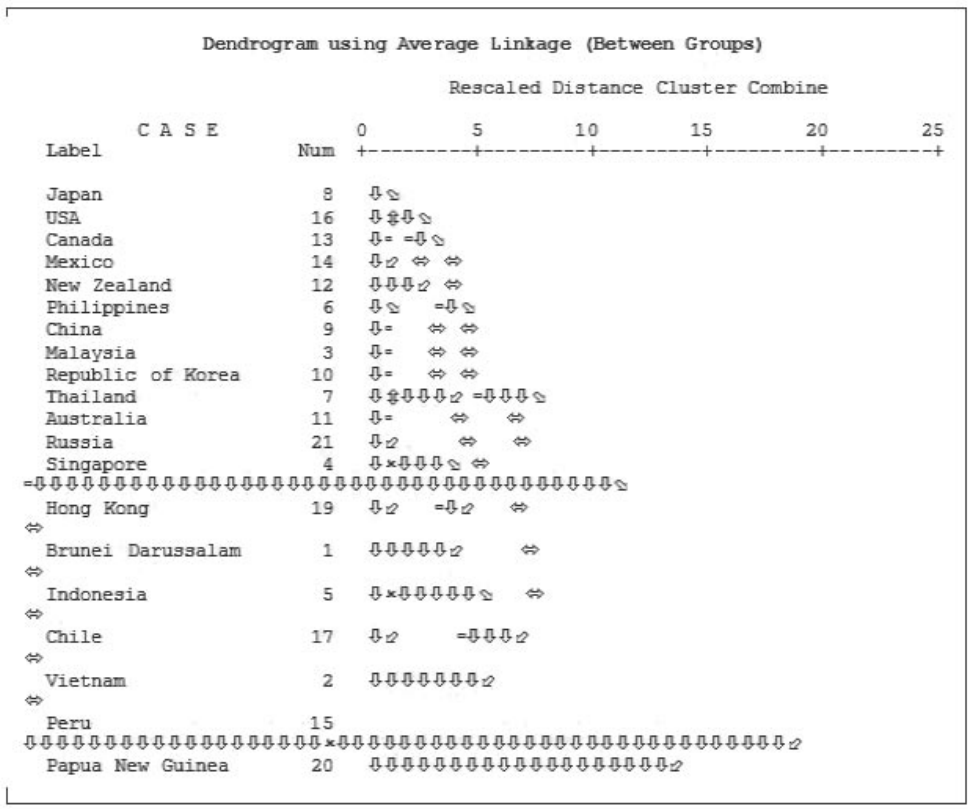
Dendrogram 2. Agglomeration clustering on APEC members' conditions for doing business convergence

Source: Author's calculations



Dendrogram 3. Agglomeration clustering on APEC members' monetary integration indicators convergence

Source: Author's calculations



Dendrogram 4. Agglomeration clustering on APEC members' banking integration indicators convergence

Source: Author's calculations