ASIA-PACIFIC IN THE WORLD ECONOMY: TRENDS AND OPPORTUNITIES FOR PERU

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Introduction

In 2021, Peru celebrates the bicentennial of its independence. The occasion is ideal to think long-term and to reflect about what the agenda of its relations with Asia-Pacific for the next decades should be. It is common practice to compare Peru with the rest of Latin American economies. In turn, this research work offers a comparative analysis of Peru vis-à-vis economies from "the other side" of the Pacific basin, which includes several of its main economic partners, as well as benchmark economies regarding several pillars that sustain competitiveness and productivity. This approach has allowed to identify huge gaps that the Peruvian economy still needs to overcome on the road to its development. In doing so, it provides insights that aim to contribute to enrich the Peruvian cooperation agenda with the Asia-Pacific region in a way that supports structural changes in Peru.

The analysis has focused on a group that has been referred to here as Asia-16, which includes the 16 economies from Asia and Oceania that are members of the Asia-Pacific Economic Cooperation (APEC). Namely: Australia; Brunei Darussalam; Chinese Taipei; Hong Kong, China; Indonesia; Japan; Malaysia; New Zealand; Papua New Guinea; People's Republic of China; Philippines; Republic of Korea; Russia; Singapore; Thailand; and Vietnam (see map 1)[148].In the present work, this group has also been referred to interchangeably as Asia-Pacific.
This paper has been divided into three parts: (1) an exploration of the importance and dynamism of the Asian economies in the Pacific basin, (2) a panorama and the pending challenges of the trading relations between Peru and Asia-Pacific economies, and (3) the comparative analysis of Peru with respect to these

[148] The names used for these economies correspond to those employed in APEC.

economies based on a series of indicators on competitiveness, productivity, logistics costs, among others. This analysis shows that there are interesting references in Asia and Oceania with which Peru should explore lessons learned that could contribute to its own development process[149].

1. *The Asian economies of the Pacific basin: Relative importance and dynamism*

Relative importance in the world economy

First and foremost, the relative importance of Asia-16 in the world economy can be measured by observing its share of the global GDP (at current prices) vis-à-vis other regions. Ffigure 1 shows that, after the significant growth sustained since 1980, the share of Asia-16 in the world GDP reached the first place in 2010. It represented 28.1% of the total, surpassing North America (the United States and Canada), and the Euro Zone.

The trend has continued to gain force over the past years. By 2019, Asia-16 already accounted for 32.5% of the world GDP. The People's Republic of China alone was responsible for half of the total GDP in Asia-16, so the weight achieved by this group in the global economy has much to do with the trajectory of the Chinese economy. As for Latin America and the Caribbean (LAC), in the past 40 years, its share of the world GDP has decreased (7.6% in 1980, compared to 6% in 2019).

Figure 2 illustrates the economic growth rates of different regions with respect to the world average. It can be observed that Asia-Pacific is the most dynamic region, surpassing the growth rates recorded for the Euro Zone, North America and LAC. In effect, Asia-16 grows above the world average, which supports the notion that the region is an engine of dynamism that can reach the world economy at large.

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Importance in world exports

International trade is an engine that has contributed to the greater sustained economic growth in the Asia-Pacific region. According to Brooks (2018), within the framework of an export-oriented growth model, this region became the center of low-cost production and logistics for international trade in the past decades.

Figure 3 shows this development using data on the share of Asia-Pacific exports in relation to the world total. In 2001, this region accounted for 27.6% of all exports globally, ranking second in the world. Back then, the Euro Zone was the leading exporting region with 31% of the total. By 2005, this order had already been reversed. Additionally, the North American share of world exports had declined.

Over the years, Asia-16 has been consolidating the position of leader in world exports, reaching 35.8% of the total in 2018. The People's Republic of China alone accounted for 12.9% of all exports worldwide, which corresponds to 36.2% of the total exported by Asia-16 in the same year (see table 1). In contrast, LAC's share of world exports remained stagnant at around 5.6% over the whole period analyzed (2001-2018). Complementing this overview, table 1 also shows that Asia-16 exports to the world increased four-fold between 2001 and 2018, reaching US$ 6,981.5 million in the latter year. The economies with the highest dynamism in the period were Vietnam (value exported increased 16.2 times) and the People's Republic of China (value exported increased 9.4 times).

A significant part of the Asia-16 trade takes place within the region. In fact, in recent years, the proportion of intra-regional trade represented more than 50% of its total exports (see table 2). Intra-regional trade drives the productive integration in the context of global (and/or regional) value chains. Furthermore, the high weight of intra-regional trade contributes to strengthening the region in face of uncertainties of world trade and global economic growth (ADB, 2017).

According to the WTO, ESCAP & OECD (2011), Asia-Pacific economies have been taking increasingly more measures to support intra-regional trade. Their

purpose is to strengthen the regional productive capacity by improving human capital, increasing liquidity of companies and aligning regional standards.

The role of manufacturing and services exports

Its manufacturing exports put in evidence the capacity of the Asia-Pacific region to produce and export goods with high value-added. In 2001, Asia-16 accounted for 30.9% of total manufacturing exports worldwide, being surpassed by the Euro Zone. However, in 2018, the situation had more than reversed. Asia-16 reached 41.6% of world manufacturing exports, compared to 29.7% of the Euro Zone and 10.6% of North America. In the case of LAC, not only is its share marginal for this type of exports, but it is also decreasing. In 2018, it represented 1.3% of world manufacturing exports, which is slightly less than the percentage observed in 2001 (see figure 4).

The case is different for service exports, as the Asia-Pacific region does not fare well in the comparison. In 2005, Asia-16 accounted for 18.1% of service exports globally.

Meanwhile, the Euro Zone led the sector with almost double that, representing 34.2% of the world total. More than ten years later, the Euro Zone is still responsible for a third of the world service exports, whereas Asia-16 reached more than 20% of that total. For their part, North America fluctuated around 16% and LAC held a marginal share of around 3% throughout the period analyzed (see figure 5).

According to the Pacific Economic Cooperation Council – PECC (2011), the development of the services sector is crucial for economic growth and increased competitiveness. Moreover, it is important to note that the services sector is the main source of job creation in the Asia-Pacific region and it supports global/regional value chains in an interconnected world economy. According to ESCAP (2020), trade in services in Asia-Pacific is essentially dominated by a few

economies, such as the People's Republic of China, Japan, Singapore, Republic of Korea and Hong Kong, China.

Trends in direct investment

Finally, another important indicator of the Asia-16 dynamism is the rise of investments. Ffigure 6 presents the evolution of stocks of inward and outward foreign direct investments (IFDI and OFDI respectively) in this region between 2010 and 2018. It shows that the OFDI stock surpassed the IFDI stock in 2014, a trend which has been gaining force thereafter. By 2018, the OFDI stock reached US$ 8,450.3 billion, which represented almost twice as much as the figures recorded for this concept in 2010. The People's Republic of China accounted for 23% of the OFDI stock from Asia-16 in the world.

Additionally, according to UNCTAD (2019), the flows of intra-regional investments have increased. To illustrate, there has been a rise in investments in the People's Republic of China (mainland) which originated in Hong Kong, China[150], the Republic of Korea and Singapore. At the same time, Southeast Asia is also attracting more investments, mainly Singapore, Indonesia, Vietnam and Thailand, such inflows have been invested in the financial, retail and digital economy sectors (infrastructure and services, e.g. information and e-commerce business centers).

2. *Panorama of the Peruvian trade with Asia-Pacific: Concentration vs diversification*

Evolution of exports

Peruvian exports to Asia-16 have shown a rising trend over the past twenty years. In 2000, Peru exported US$ 1,263 million to that region. By 2019, such exports increased 15-fold, reaching US$ 19,199 million (see figure 7). As a result, the

[150] It should be noted that part of these flows is composed of the so-called “round-trip investments” originated in the People's Republic of China mainland (Xiao, 2004, p. 11; Damgaard, Elkjaer, & Johannesen, 2019, p. 18).

Asia-Pacific region has consolidated itself as the main destination for Peruvian exports. Its share has reached 41.6% of the total in 2019, compared to 18.4% at the beginning of the millennium (see table 3).

From the total exported to Asia-16, three major trading partners emerge as the main destinations. Namely, the People's Republic of China, Republic of Korea and Japan, which together accounted for 92.7% of the total exported to the region in 2019. Thisconcentration has become more accentuated over time, seeing as the three markets aforementioned accounted for 71.7% of the Peruvian exports to the region in 2000. This trend is a result of the evolution of the People's Republic of China as the main market for Peru in Asia-Pacific and in the world. For their part, Japan decreased its share and the Republic of Korea remained more or less constant in the same period, despite the growth in the value of Peruvian exports to these two economies (see table 4).

The exports to the People's Republic of China experienced sustained growth over the past twenty years. It went from US$ 443 million (35.1% of the total exports to

2019. In other words, the Chinese economy doubled their share as a destination for Peruvian exports in the Asia-Pacific region in this period. The annual average growth rate of Peruvian exports to the People's Republic of China was 20%, much greater than the growth of its exports to other economies in Asia-Pacific (except for Vietnam). Indeed, it was greater than the annual average growth rate of Peruvian exports to the world, which was 10.5% in that period (see Tables Table 3 and Table 4).

As for other main destinations for Peruvian products, in the case of the EU and LAC, each one grew annually by around 10% on average. Meanwhile, the exports to the United States increased by an annual average rate of 5.9% in the same period (see table 4).

Exports composition

Another important aspect of the Peruvian trade with Asia-Pacific is the concentration of exports in traditional sectors, a trend which has gained force over time. In 2000, such sectors accounted for 88.8% of the Peruvian exports to this region, but that share rose to 91% in 2019. These exports were mostly composed of mineral commodities, which represented 79.2% of the trade flows to Asia-Pacific in 2019, compared to 34.8% in 2000. The foregoing figures largely surpass the traditional fishing sector, which is the second most important (see table 5).

Certainly, this increased share of mining exports was a result of the rise in the Chinese demand. The People's Republic of China received 77% of the Peruvian mineral exports to Asia-Pacific, which represented 44% of such exports to the world in 2019. In the specific case of copper, its share is even greater, that economy is the main destination for Peruvian copper, responding for 67% of this export to the world or 80% of such shipments to the Asia-Pacific region in 2019. This commodity is exported in the form of concentrates, cathodes and sections of cathodes, and anodes (see table 6).

As for non-traditional exports to the region under analysis, notwithstanding the high growth experienced (12-fold in the period 2000-2019), their share in the total is still very low and declining. In 2019, non-traditional sectors responded for 9% of the Peruvian exports to Asia-Pacific, compared to 11.2% at the beginning of the millennium. Twenty years ago, the fishing, textile, metallurgical, and steelmaking sectors were the most important Peruvian non-traditional exports to these markets. In 2019, the fishing, livestock and agro-industrial sectors dominated widely in this category (see table 5).

It is very important to note that the traditional sector weight is greater in the case of Peruvian exports to the People's Republic of China. In effect, it accounted for 95.5% of the total in 2019, whereas non-traditional exports represented the remaining 4.5%. What is more, the share of the latter has declined in relation to the beginning of the period under analysis (see table 7).

However, the efforts to expand non-traditional exports are noteworthy, as it has grown from US$ 25 million in 2000 to US$ 611 million in 2019. This expansion was driven by the fishing, agriculture and agro-industrial sectors. The transformation of the People's Republic of China after four decades of reforms and internationalization resulted in poverty reduction, rise of the middle class, urban population growth, among other trends. Clearly, this scenario shows a market with great potential for exports of fresh and processed food products from the agricultural and fishing sectors in Peru.

Trade balance

The trade balance has fluctuated in period analyzed. After the economic crisis of 2008, it is possible to identify three phases of the Peruvian trade balance with the Asia-Pacific region. The first of them (2009-2011) was marked by a surplus for Peru. In the second one (2012-2016), the Peruvian economy experienced a trade deficit. During the third phase (2017-2019), the exports from Peru regained momentum and tilted the balanced in its favor once again (see figure 8).
This development has been influenced by the international prices for copper (BCRP, 2020), the main Peruvian export. Indeed, in 2009, copper presented an average price of US$ 234.3 cents per pound, which went up to US$ 397.5 cents in 2011. In the second phase, copper prices fell sharply from US$ 360.9 cents per pound in 2012 to US$ 220.8 in 2016. Between 2017 and 2019, the increase of Peruvian mineral exports coincided with a significant rise in international copper prices, which reached around US$ 300 cents per pound.

Trade agreements with Asia-Pacific economies

Out of the 20 trade agreements in force between Peru and other countries, six are with economies in the Asia-Pacific region. Since it joined APEC in 1998, Peru deepened its perspective on opportunities presented by closer relations with countries from Asia and Oceania in the Pacific basin. Not only on diplomatic matters, but also in trade and investment. Since then, the country has expanded its

strategy with the negotiation of free trade agreements (FTA) aiming to improve the conditions to access these markets.

In effect, one of the first FTA to enter into force in Peru was with an Asian economy, namely, Singapore in August 2009. The other five bilateral FTA with countries in the region came into force between 2010 and 2020: the People's Republic of China in 2010; Republic of Korea and Thailand[151] in 2011; Japan in 2012; and Australia in 2020 (see table 8).

The early treaties have been followed by the negotiation of more in-depth trade agreements that include relevant provisions on: intellectual property rights, competition policies, labor issues, environmental protection, public procurement, telecommunications, among others. These topics would contribute to further develop the Peruvian trade with its main trading partner in the Asia-Pacific region. In line with this, the upgrading of the trade agreement with the People's Republic of China is under negotiation, which includes: trade in services, investment, intellectual property, electronic commerce, competition policies, customs procedures, trade facilitation and rules of origin (MINCETUR, 2019).

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) is another important trade agreement, which is still awaiting approval in Congress to enter into force in Peru. It is considered an in-depth and up-to-date agreement. This treaty entered into force on December 30, 2018 for the first six members to complete the ratification process (Australia, Canada, Japan, Mexico, New Zealand and Singapore). Subsequently, on January 14, 2019, it entered into force for Vietnam. In the case of the remaining countries (Chile, Peru, Malaysia and Brunei Darussalam), once ratified, the agreement will enter into force automatically after 60 days. Notably, this agreement makes it possible to use the accumulation of origin among the eleven-member economies, which would facilitate the insertion of Peru into global value chains in Asia- Pacific.

[151] In the case of Thailand, it consists of the "Protocol between the Republic of Peru and the Kingdom of Thailand to Accelerate the Liberalization of Trade in Goods and Trade Facilitation." Building upon this document, amendments were negotiated and resulted in additional protocols. These agreements constitute prior steps that pave the way for the negotiation of a more in-depth FTA in the future.

In line with these more in-depth and plurilateral agreements, the Pacific Alliance, a scheme of integration between four Latin American countries in the Pacific basin (Chile, Colombia, Mexico and Peru), has opened a space for "associated countries." In this framework, trade agreements are under negotiation, simultaneously, between the four member-countries and Australia, Canada, New Zealand and Singapore.

Peruvian trade with the Asia-Pacific region: Pending challenges

As noted above, in the past twenty years, Peruvian exports to Asia-Pacific have increased more than to any other region or trading partners. The People's Republic of China, in particular, has been playing a protagonist role as a destination for such exports. However, the limited share of non-traditional sectors in the exports to Asia-16 is a distinctive aspect of this commercial exchanges, which contrasts with the importance that such products gained for Peruvian exports to other destinations.

Two very different patterns can be observed in the exports from Peru. In the first one, non-traditional exports to the EU, United States and LAC, which were already relatively important, gained more weight. In 2000, the beginning of the period under analysis, non- traditional exports accounted for more than 30% of shipments to those

destinations. By 2019, the shares rose to almost 50% for the EU, around 60% for Latin America, and 70% for the United States[152] (see figure 9).

As for the second pattern, the share of non-traditional products in total exports to the People's Republic of China and Asia-Pacific remained relatively low and

[152] In the case of the United States, it should be noted that, while non-traditional exports were on the rise, the higher share was a result mostly of the fall in traditional exports. Gold exports to the United States dropped from US$ 1,856 million (in 2018) to US$ 331 million (in 2019), while for oil products it went from US$ 1,526 million (in 2018) to US$ 475 million (in 2019). In contrast, agricultural exports grew significantly, from US$ 1,875 (in 2018) to US$ 2,262 (in 2019), which represented a historic record, with fruits at the forefront as the main product (Adex Data Trade, 2020). Be that as it may, as shown in figure 9, non-traditional exports to the United States have remained above 40% of the total since 2014.

declined slightly in the period analyzed. The respective shares reached 6% and 11% in 2000, compared to 5% and 9% in 2019. Nevertheless, if the People's Republic of China is taken out of the equation, the numbers for the rest of Asia-16 show a different picture. The share of non-traditional sectors rises to 20% of the total exported to those economies in 2019, indicating that the challenge is basically to diversify exports to the People's Republic of China, with especial attention to higher value-added products.

Decidedly, the challenge for Peru is in the adoption of policies aimed at diversifying exports. The country is already moving in this direction, seeing as non-traditional exports from agriculture and agro-industries as well as sea products have been notably gaining importance in recent years (see figure 10). It is necessary to make efforts in another complementary front for export diversification, namely, manufacturing. Special attention should be given to intermediate goods that can be inserted into global value chains led by Chinese firms or from other economies in the Asia-Pacific region.

To contribute to this process, the manufacturing delocalization and integration experience between Northeast and Southeast Asia should be studied. Such an analysis could offer insights on how to promote a process like this between Asian and Latin American countries in the Pacific basin, particularly Peru. This kind of research should:

- Examine trends in trade and direct investment between the countries in Northeast and Southeast Asia.
- Analyze driving forces for manufacturing delocalization involving these economies.
- Study industrial policy instruments implemented to attract companies in process of delocalization.
- Assess the role of FTA and treaties for the promotion and protection of investments, in this process of delocalization.

- Identify the benefits obtained by both the economies that are the origin (Northeast Asia) and the hosts (Southeast Asia) of the delocalized production.
- Explore the part played by other factors, such as the availability of resources, labor cost, logistic costs, connectivity efficiency, degree of informality in the economy, innovation, among others, either to attract or discourage the manufacturing delocalization.

The objective would be to identify lessons learned from this intra-Asian process, which could be useful for the design of public policies and business strategies in Peru with respect to Asia-Pacific. Additionally, a study like this should identify advantages and disadvantages Peru would have to participate in a process of manufacturing delocalization similar to that involving Northeast and Southeast Asia. Possibly, such process could focus firstly in Peru-China relations.

Furthermore, it would be important to understand if the driving forces of the production delocalization in East Asia could play a role in the case of Peru. For instance: how significant would the role of connectivity be? what aspects of industrial policy in Asian economies could be applied? among other questions. This reflection should be placed in the framework of a long-term projection of the Peruvian relations with Asia-Pacific.

3. *Comparative analysis between Peru and Asia-Pacific economies: The challenge of competitiveness and productivity*

While free trade is essential for economic growth, high priority should be given to factors affecting competitiveness and productivity. Against this backdrop, the present section focuses on examining the conditions in Peru vis-à-vis those in Asia-Pacific economies with regards to a group of indicators on both concepts aforementioned.

Among their recommendations for the future agenda of APEC, the reports from PECC (2019) and the Asia-Pacific Economic Cooperation Vision Group, AVG

(2019) proposed that high priority should be given to structural reforms in member economies in order to increase productivity through open, well-functioning, transparent and competitive markets. It considers that a competitive and open economy contributes to sustaining growth and increasing productivity and income. Likewise, digital and technological transformation would bear an enormous potential to support growth, promote innovation and facilitate connectivity, in addition to being an important instrument for social inclusion (AVG, 2019: 15-21).

In the case of Peru, these recommendations are of utmost importance, as suggested by the comparison of the Peruvian economy with respect to Asia-16.

Per capita income and competitiveness

The World Bank classify economies in high, medium and low-income based on their Gross national income (GNI) per capita, Atlas method (see table 9), which is an indicator of the standard of living. According to data from 2018, half of the Asian-16 economies have high-income. In other words, with the other side of the Pacific, Peru has the opportunity to interact with high-income economies.

Peru is located in the upper middle-income group, along with the People's Republic of China, Russia, Malaysia and Thailand, thus sharing with them the challenge of reaching the high-income stage. In this group, Peru is the economy with the lowest per capita income. Overall, it only surpasses the four Asia-16 economies at lower middle-income.

For its part, the World Economic Forum Global Competitiveness Index (GCI) assesses the set of institutions, policies and factors determining the level of productivity (Schwab, 2019). This index shows that the eight high-income Asia-16 economies also hold the best positions in the competitiveness ranking (see table 10), except for Brunei Darussalam, whose high-income is correlated to its oil exports, which accounted for 91% of its total exports in 2019 (Department of Economic Planning and Statistics of Brunei Darussalam, 2019). Comparatively,

Peru has a poor performance vis-à-vis Asia-16, seeing as it sits at the penultimate place, only surpassing Vietnam.

Pillars of competitiveness

The GCI is based on twelve pillars. Ffigure 11 presents a comparison between Peru and the most competitive Asia-16 economy in each pillar. As it can be observed, only in the Pillar IV "Macroeconomic Stability" does Peru have a high score. In effect, it shares the top position with Hong Kong, China; Chinese Taipei; Republic of Korea; Australia; New Zealand; and Malaysia. In the other eleven pillars, there is a considerable gap between Peru and the most competitive Asia-16 economy.

Notably, there is a great gap in the Pillar III "Information and Communication Technology (ICT) Adoption," where the score for the most competitive economy in the group (Republic of Korea) is twice as much as that of Peru. In the Pillar XII "Innovation Capability," the most competitive economy (Chinese Taipei) is even further ahead of Peru. Its score in this pillar is 2.4 times that of the Peruvian economy.

Singapore has the best competitiveness index in Asia-16 for pillars I "Institutions," II "Infrastructure" and VIII "Labor Market". The Peruvian competitiveness index reaches around 60% to 70% of the Singaporean in these areas. In other pillars, the gap to the most competitive Asia-16 economy is of the same order. The Peruvian score is around 70% that of New Zealand in the pillars VI "Skills" and XI "Business Dynamism." A similar gap is observed with Hong Kong, China in the pillars VII "Product Market" and IX "Financial System."

In order to see where Peru stands in relation to the People's Republic of China, its main partner in Asia-Pacific, figure 11 also includes the Chinese score for each GCI pillar. The greatest differences between these two economies can be observed in the pillars III "ICT Adoption" and XII "Innovation capacity." There is also a significant gap in the pillars II "Infrastructure", IX "Financial System" and XI "Business Dynamism." Naturally, due to the different scale of their economies, the

size of the market (Pillar X) offers a much more important support for competitiveness in the People's Republic of China than in Peru. Overall, in at least

half of the GCI pillars, there is a significant gap between the level of competitiveness that the Chinese economy has reached and that of Peru.

In sum, this panorama shows that there are economies in Asia-Pacific that can be interesting references for Peru. They represent a source of lessons learned that could contribute to the Peruvian development process, this notion gains even more importance when considered how Peru lags behind Asia-16 economies. With that in mind, next, this paper deepens in the analysis of some selected pillars.

Connectivity, ICT, innovation and skills

In these four pillars, Peru is quite far behind Asia-16 economies. In Infrastructure, it holds the penultimate position in the ranking of competitiveness in the comparison with Asia-16 economies, surpassing only the Philippines (see table 11). This pillar includes transport, electricity and water. Therefore, in order to focus on the concept of connectivity, the relevant ranking is relative to transport for the economies under consideration. This comparison shows that Peru remains also at the penultimate place, only ahead of the Philippines. However, its overall comparative situation in the world is worse, seeing as it holds the position 96 in transport, compared to the position 87 in infrastructure at global level.

In terms of transport by road, the comparative performance is even worse, as it is ranked at position 111 (out of 141 countries), once more, only ahead of the Philippines in Asia-16. In transport by air and sea, Peru does relatively better, as it is more or less in the middle of the world ranking (position 65 in transport by air and 52 by sea – out of 141 and 108 countries, respectively). However, relative to Asia-16, it also sits at penultimate place in transport by air and, in terms of transport by sea, it is surpassed by 13 out of the 16 economies from Asia and Oceania under analysis (see table 12).

The GCI Skills pillar is based on years of schooling, extent of staff training, quality of vocational training, skillset of secondary-school and university graduates, digital skills among the economically active population, ease of finding skilled employees, school life expectancy, critical thinking in teaching, pupil-to-teacher ratio in primary education. Compared with Asia-16, Peru reaches a competitiveness score that also places the country at the penultimate position, only ahead of Vietnam (see table 13).

Nonetheless, it is in the pillars of ICT Adoption and Innovation that Peru lags behind the most. ICT adoption supports the innovation capability of people and businesses, so both topics are interconnected. At the global level, the Peruvian economy holds position 90 in terms of Innovation Capability and position 98 in ICT Adoption (out of 141 countries in both cases). However, vis-à-vis Asia-16, Peru is at the very bottom of the competitiveness ranking (see table 13). The Asia-Pacific region is one of the most dynamic and innovative regions in the world, whereas the Peruvian current capacity seems extremely frail in those areas.

In this context, as a topic closely related to these pillars, it is worth looking into the issue of digital transformation in the framework of the Fourth Industrial Revolution (Pertuze, 2019). Related to that, the "Vision to 2040," prepared by the AVG, highlighted that it is necessary to foster an environment that enables individuals and companies to benefit from the digital transformation. It was also noted that universal and fast broadband Internet connection is indispensable to support the digital economy development. Furthermore, while the technological and digital transformation has the potential to raise productivity, generate new business models and highly qualified jobs, it also brings disruptive effects to the traditional production processes. In view of the foregoing, it is fundamental to prepare the workforce to absorb and adapt quickly to new technologies (AVG, 2019).

ICT, innovation, education and skills complement each other and represent areas with great potential for international cooperation with the Asia-Pacific region. Peru, which lags behind Asia-16 economies in these aspects, should make efforts to take

full advantage of this opportunity in the framework of its strategy to improve competitiveness and productivity. It is also necessary to rethink how education and ICT can be combined in a single strategy (Gonzales et al., 2016).

Macroeconomic stability, institutions and business dynamism

As already noted, Peru has much better performance in the pillar of Macroeconomic Stability. It even outperforms Singapore, the economy that holds the top position worldwide in the overall GCI (i.e. considering all pillars). In fact, in Macroeconomic Stability, Singapore is at position 38, whereas Peru ranks number 1 (see table 14).

This pillar measures how favorable the economic background is through indicators on inflation and public debt dynamics. Meanwhile, the Institutions pillar assesses the quality of the institutional framework in the country. The solid macroeconomic stability of Peru contrasts with the score attained in Institutions. In this case, like in other pillars, Peru sits at the bottom of the ranking with regards to Asia-16 economies (see table 14). It should be noted that this pillar measures various indicators on areas such as judicial independence, crime rates, future orientation of government, freedom of the press, burden of government regulation, among others. Peru is ranked 94 globally (out of 141 countries).

Business Dynamism represents another pillar in which there are pending tasks for the Peruvian economy. Once again, Peru holds the last position in the comparison with Asia- 16 economies and, globally, it is considerably below the average, at position 96 (out of 141 countries). The pillar assesses the cost and time necessary to start a business, insolvency regulatory framework, growth of innovative companies, among others. It is worth noting that 12 of the Asia-16 economies have earned positions in the upper third of the global ranking, while Peru is in the lower third.

Logistics competitiveness and trade openness

It is important to explore another set of relevant indicators that impact the Peruvian ability to compete with other economies in international trade. The World Bank (2018) provides an index on logistics performance that is based on six components: efficiency of customs and border clearance; quality of trade and transport infrastructure; ease of arranging competitively priced shipments; competence and quality of logistics services; ability to track and trace consignments; and frequency with which shipments reach consignees within scheduled or expected delivery times. This index reveals a scenario similar to that of the GCI. Peru is second to last in logistics performance in the ranking with Asia-16, only ahead of Papua New Guinea (see table 15).

Peru fares better regarding trade openness, although quite behind some Asian-16 economies. Using data from 2018, this indicator presents the ratio of trade (exports and imports of goods and services) to GDP (see figure 12). Notwithstanding the Peruvian progress in this area, its trade represents 49% of the GDP, which is comparable to the ratios of the largest Asia-16 economies, such as the People's Republic of China, Indonesia, Russia and Australia. Seeing as Peru is an economy with a relatively small market, its engagement in international trade should be greater. That being said, it is worth noting the progress that Peru has made in trade liberalization, which can be seen in the low average tariff of 1.25% recorded in 2018. In this regard, Peru does very well in the comparison with Asia-16 economies (see figure 13).

From competitiveness to productivity: Absolute value and growth rate

Labor productivity, measured as the average output per worker in constant 2011 PPP dollars, shows positive growth rates in the past almost thirty years (1990-2018) in all Asia-16 economies (except for Brunei Darussalam) and in the case of Peru as well (see table 16). The People's Republic of China presented the highest dynamism. It has sustained an annual average growth rate of 8.52% in labor

productivity, which resulted in a 10-fold increase in its level of productivity in less than three decades.

The Chinese productivity per worker went from US$ 3,055 in 1990 (the lowest in Asia-16) to US$ 32,718 in 2018 (see table 17). Even so, the gap with Singapore (the top economy in productivity in Asia-16) is still very large, around 5 to 1 in 2018. Vietnam enjoys the second place in growth of productivity per worker, with an annual average rate of 4.62% in the period 1990-2018. As a consequence, Vietnam has nearly quadrupled its productivity in the period, though the starting point was very low with respect to other Asian-16 economies (similar to the Chinese case).

It is possible to identify six different groups when observing the annual average growth rate of productivity in Asia-16 economies and Peru in the period analyzed. 1) high growth (the People's Republic of China and Vietnam); 2) annual average growth rate equal or greater than 3% (Thailand, Republic of Korea, Indonesia, among others); 3) annual growth between 2% and 3% (e.g. Malaysia, Singapore, Philippines, among others); 4) growth between 1% and 2% (including Peru and Australia); 5) growth between 0% and 1% (the case of Japan and others); and finally 6) decrease (Brunei Darussalam) (see table 16).

Against this backdrop, although the Peruvian productivity grew at an average rate of 1.91% a year, most Asia-16 economies progressed faster, which has increased the gap between Peru and these economies in terms of productivity per worker. Consequently, the productivity of Peru (in absolute terms and growth rate) is among the lowest vis-à- vis the Asia-16 economies. This means that the country has the important challenge of increasing productivity and such a priority issue should also be reflected in the Peruvian agenda of economic insertion in Asia-Pacific.

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Acronyms

ADB Asian Development Bank

LAC Latin America and the Caribbean

APEC Asia-Pacific Economic ooperation ASEAN Association of Southeast Asian Nations AVG APEC Vision Group

BCRP Banco Central de Reserva del Peru / Central Reserve Bank of Peru

CEPLAN Centro Nacional de Planeamiento Estratégico / National Center for Strategic Planning

CPTPP Comprehensive and Progressive Agreement for Trans-Pacific Partnership

ESCAP Economic and Social Commission for Asia and the Pacific EU European Union

FDI Foreign Direct Investment

FTA GCI Free Trade Agreement Global Competitiveness Index

GDP Gross Domestic Product

ITC International Trade Centre

MINCETUR Ministerio de Comercio Exterior y Turismo – Peru / Ministry of Foreign Trade and Tourism

MRE Ministerio de Relaciones Exteriores – Peru / Ministry of Foreign Affairs OECD Organization of Economic Cooperation and Development

PECC Pacific Economic Cooperation Council

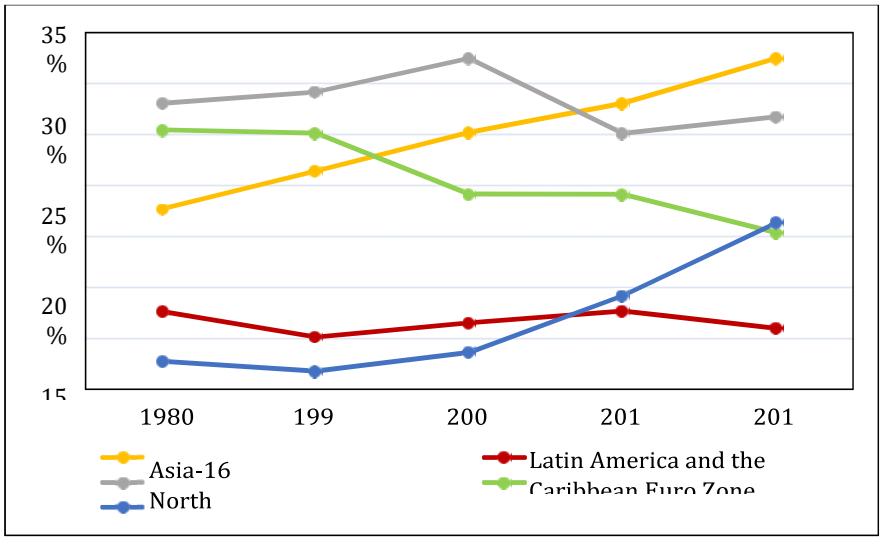
PPP Purchasing Power Parity

UNCTAD United Nations Conference on Trade and Development

WTO World Trade Organization

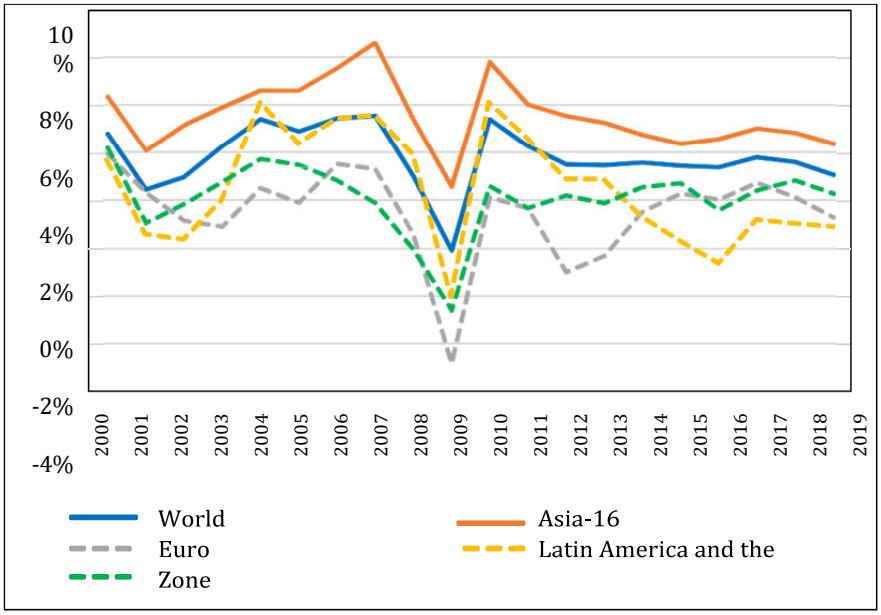
Appendix 1: Figures

Figure 1: Share of regions in the world GDP, 1980-2019 (in %)



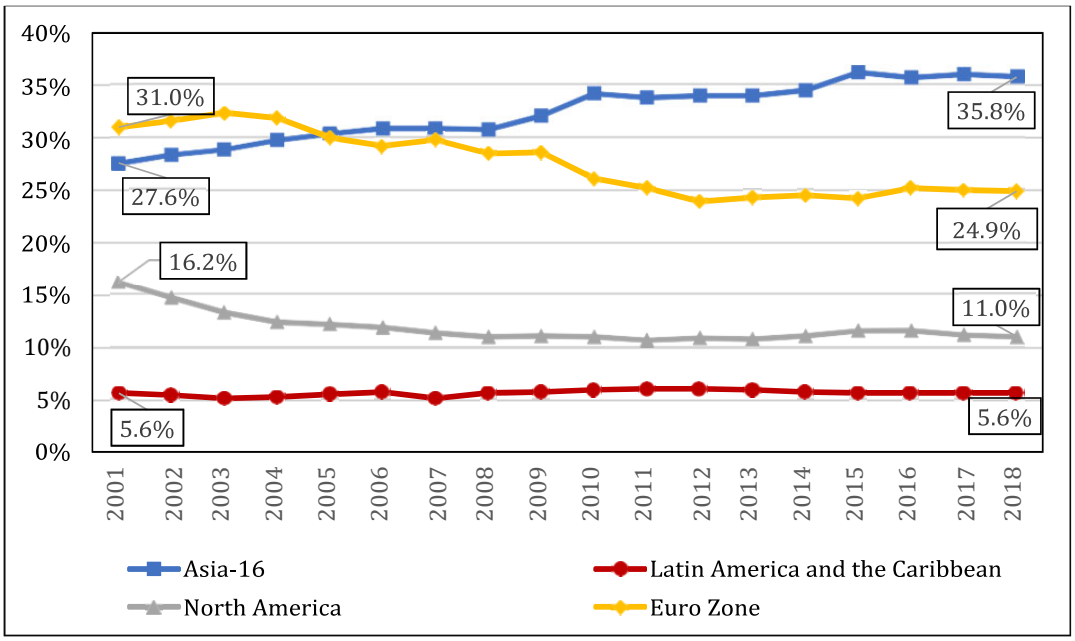
Source: International Monetary Fund (2019). Own elaboration.

Figure 2: Average growth rates by regions of the world, 2000-2019 (in %)



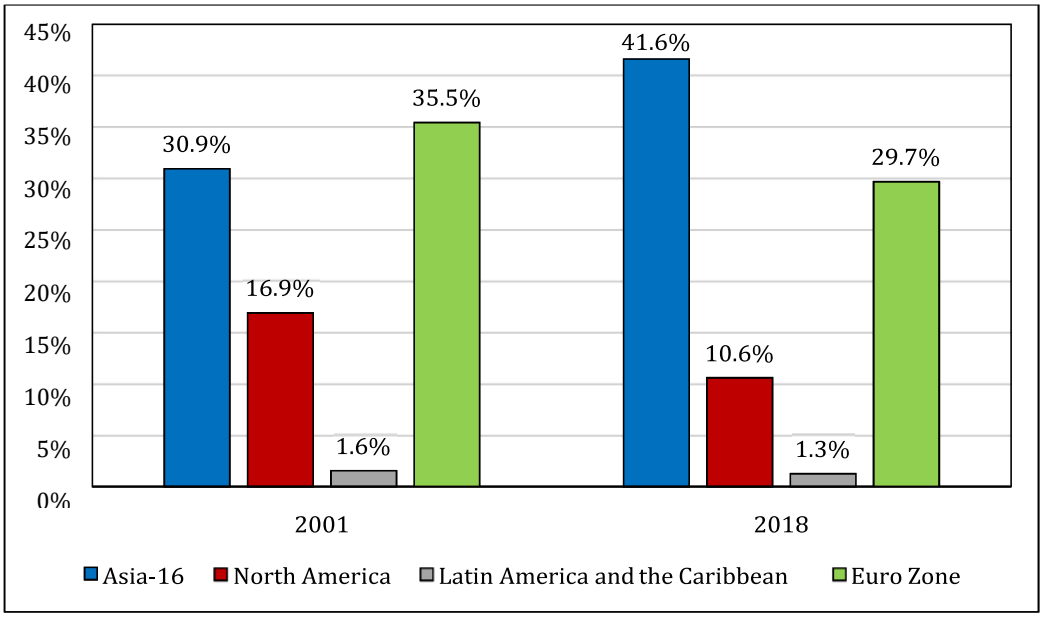
Note: Based on GDP at current prices in purchasing power parity (PPP)
Source: International Monetary Fund (2019). Own elaboration.

Figure 3: Share of regions in world exports, 2001-2018 (in %)



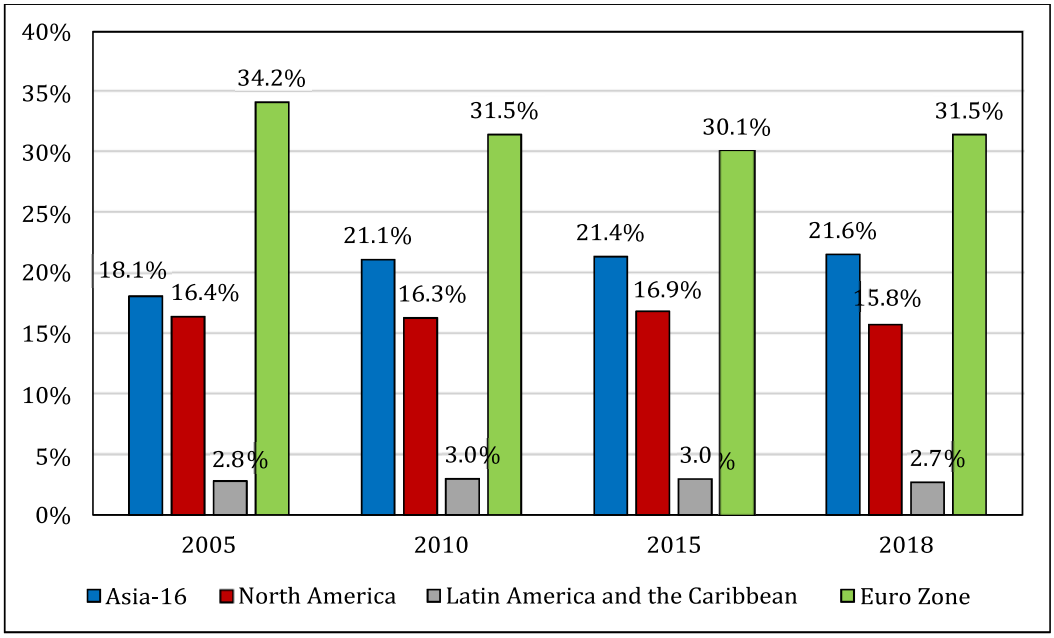
Note: North America is composed of the USA and Canada. Mexico is included in LAC.
Source: International Trade Centre – ITC (2020). Own elaboration.

Figure 4: Share of regions in world manufacturing exports, 2001 and 2018 (in %)



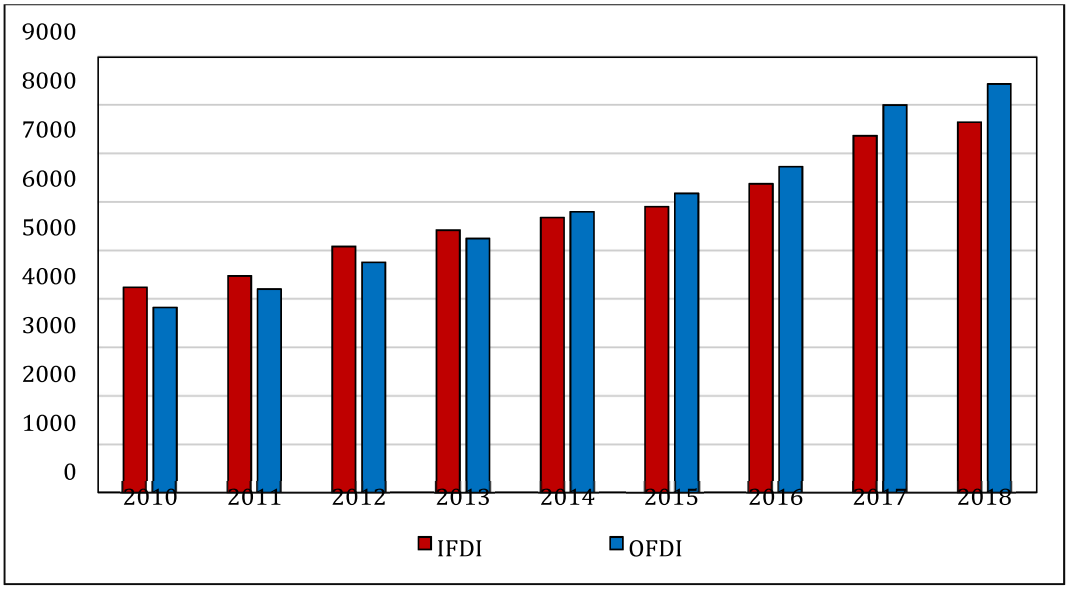
Note: North America is composed of the USA and Canada. Mexico is included in LAC. Source: World Trade Organization – WTO (2020). Own elaboration.

Figure 5: Share of regions in world trade in services, 2005, 2010, 2015 and 2018 (in %)



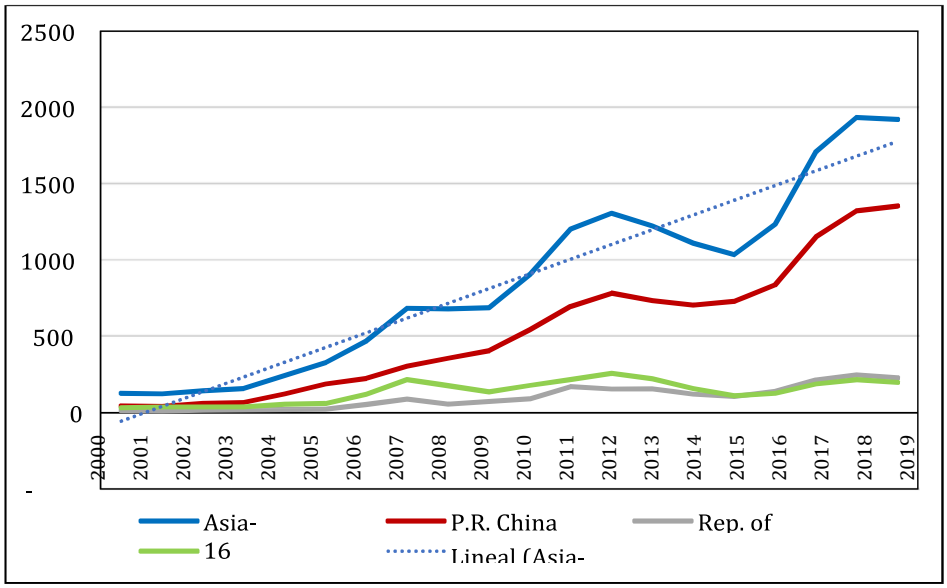
Note: North America is composed of the USA and Canada. Mexico is included in LAC.
Source: World Trade Organization – WTO (2020). Own elaboration.

Figure 6:bIFDI and OFDI stocks in and from Asia-16 economies (in billions of US$)



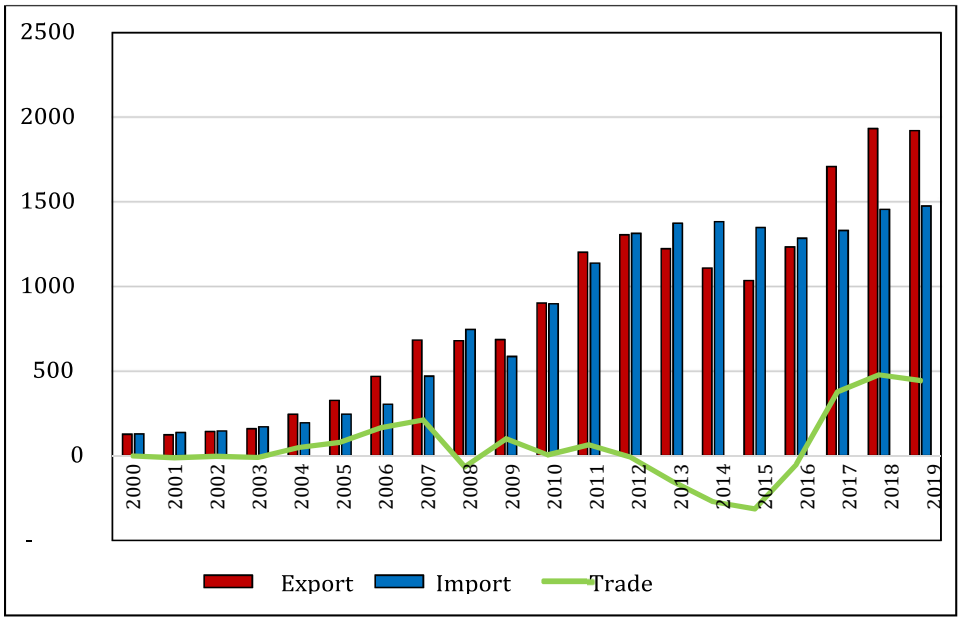
Source: UNCTAD (2020). Own elaboration.

Figure 7: vPeruvian exports to selected regions and countries, 2000-2019 (in millions of US$)



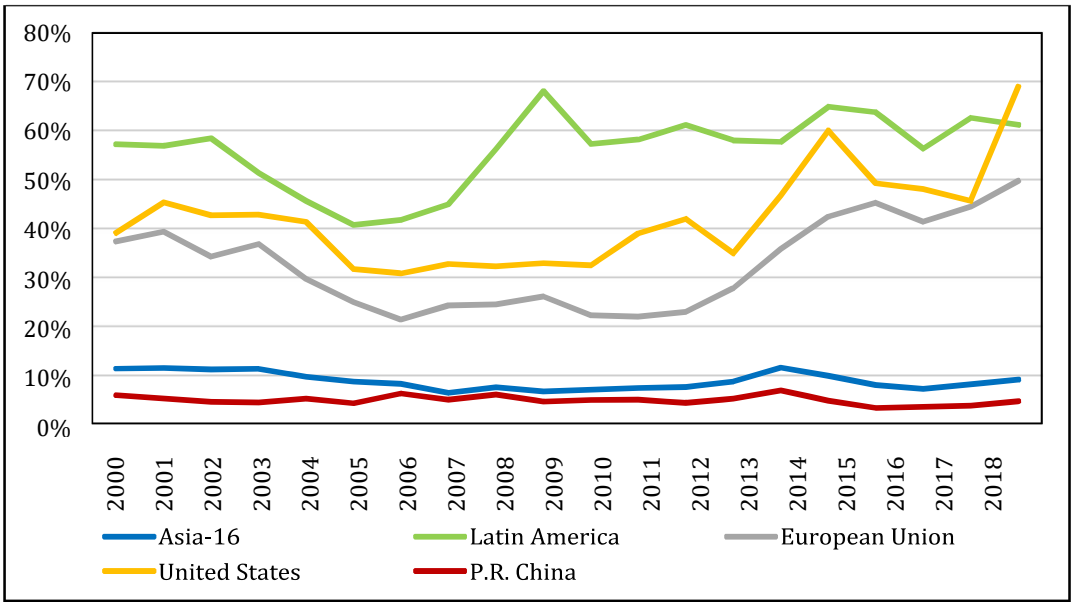
Source: Adex Data Trade (2020). Own elaboration.

Figure 8: Peruvian trade balance with Asia-Pacific, 2000-2019 (in millions of US$)



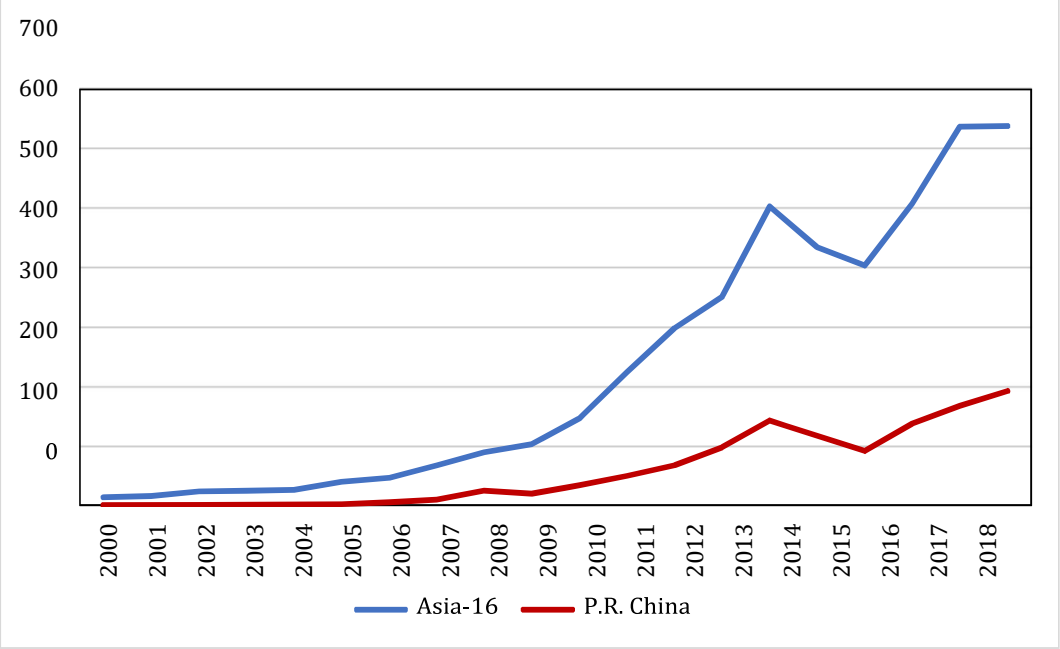
Source: Adex Data Trade (2020). Own elaboration.

Figure 9: Share of non-traditional Peruvian exports in trade with its main trading partners, 2000- 2019 (in %)



Source: Adex Data Trade (2020). Own elaboration.

Figure 10: Evolution of Peruvian agricultural and livestock industry exports to the Asia-Pacific region and the People's Republic of China, 2000-2019 (in millions of US$)



Source: Adex Data Trade (2020). Own elaboration.

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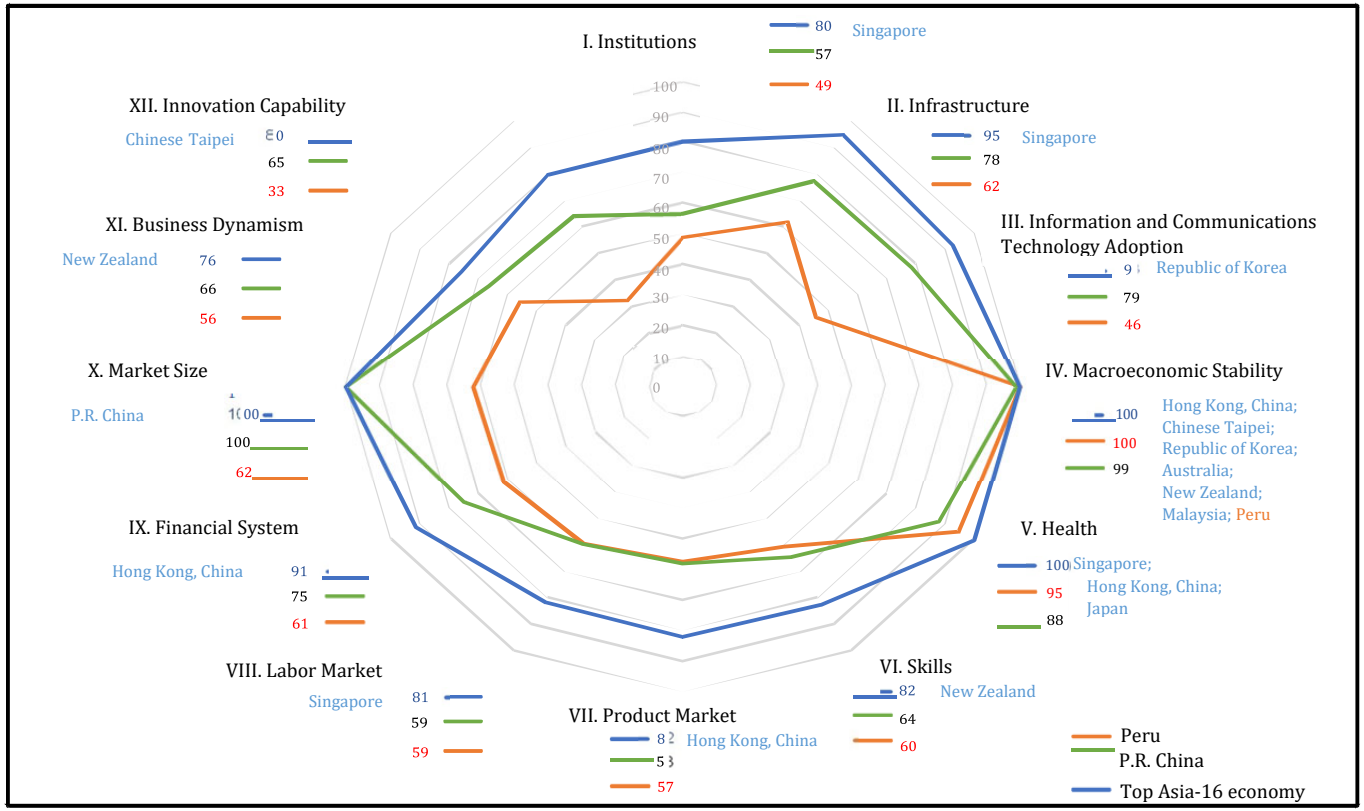
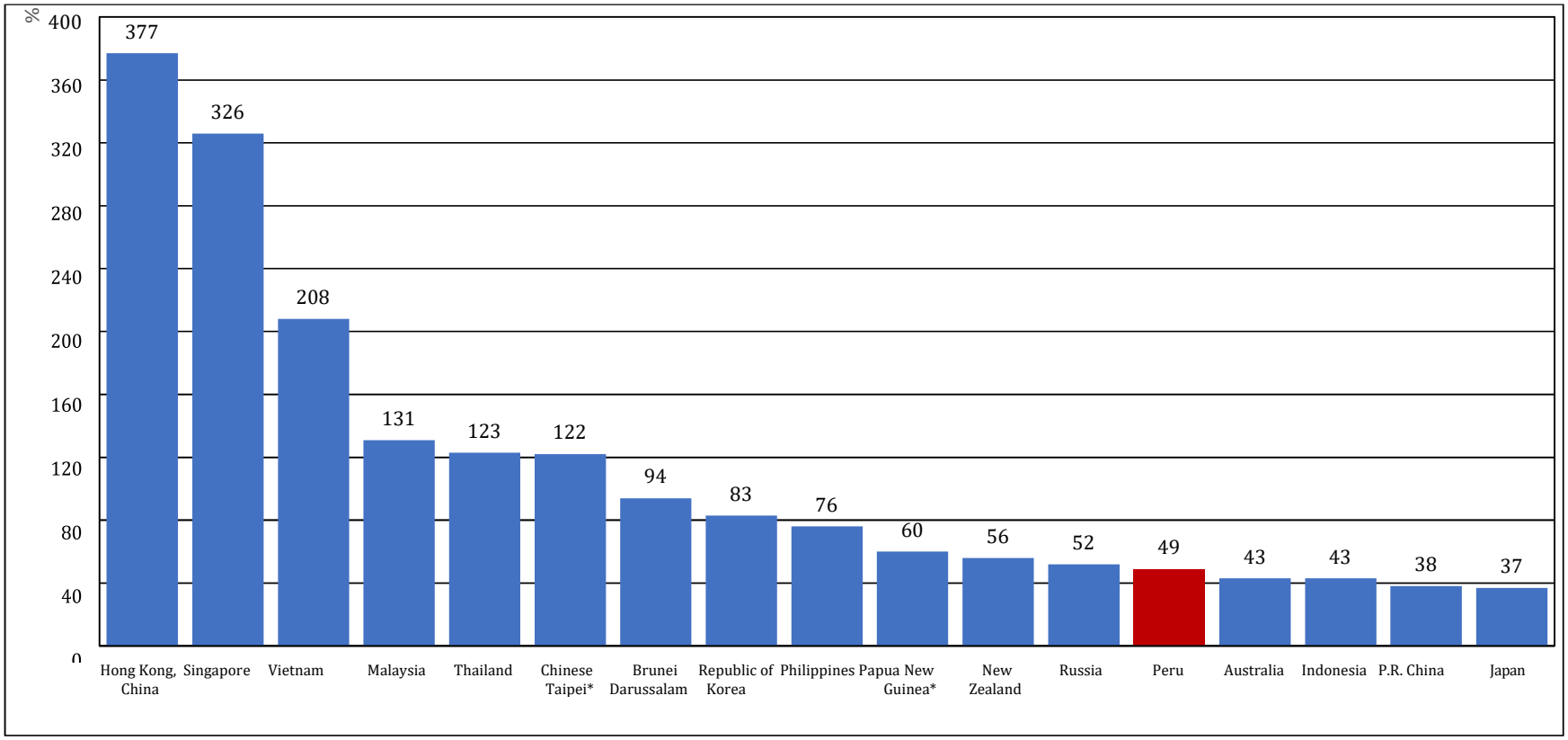
Figure 11: Comparison between Peru, People's Republic of China, and the most competitive economy in Asia-16 by pillars of the Global Competitiveness Index 2019



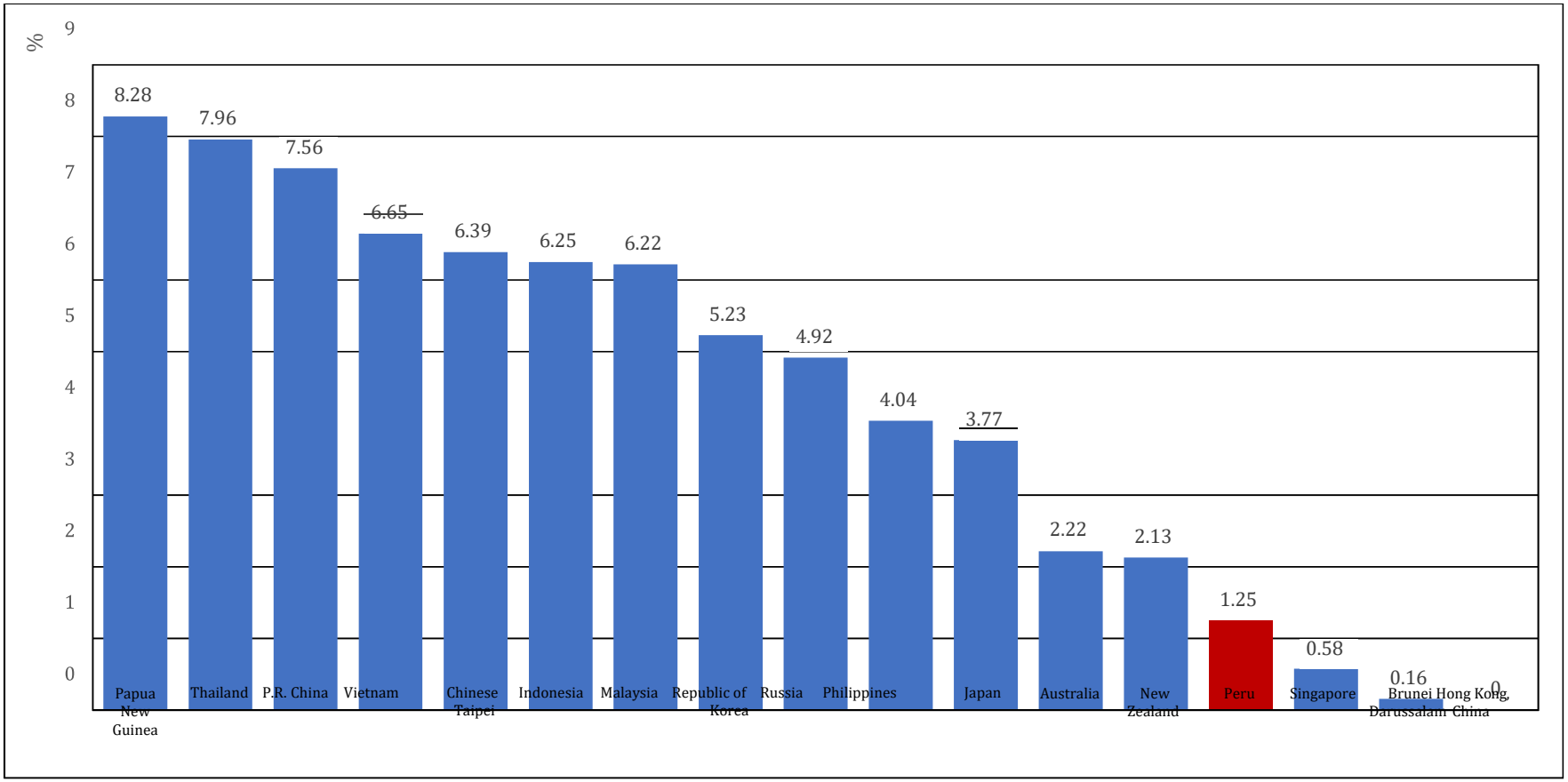
Note: Peru is compared with a benchmark in Asia-16, that is, the economy that reaches the highest competitiveness score in this region in the corresponding pillar and, therefore, is considered as a reference for Peru. The competitiveness index scores range from 1 to 100, the closer an economy is to 100, the more competitive it is in a given pillar. For the sake of the comparison, the graph features the scores and names of the Asian-16 benchmark, Peru and the People's Republic of China in each pillar of the index.
Source: Schwab (2019). Own elaboration.

Figure 12: Trade openness index in Asia-16 economies and Peru in 2018 (trade as a % of GDP)



Note: The sum of exports and imports in goods and services is calculated as a percentage of GDP.
Source: World Bank (2020). In the case of Chinese Taipei, a source from this economy was used, Directorate-General of Budget Accounting and Statistics (2020), and the data for Papua New Guinea was retrieved from APEC (2020). Own elaboration.

Figure 13 Average tariff in Asia-16 economies and Peru in 2018* (in %)



Note: The data displayed for New Zealand; Malaysia and Thailand are from 2017, 2016 and 2015, respectively.
Source: World Bank (2020) and International Trade Administration of the United States (2019). Own elaboration.

Appendix 2: Tables

Table 1: Asia-Pacific exports to the world in 2001nd 2018 (in billions of US$)

Economy	2001	Share (2001)	2018	Share (2018)	Multiplication
P.R. China	266.1	15.7%	2,494.2	36.2%	9.4
Japan	403.3	23.8%	738.2	10.7%	1.8
Rep. of Korea	150.4	8.9%	605.2	8.8%	4.0
Hong Kong, China	191.1	11.3%	569.1	8.3%	3.0
Russia	99.9	5.9%	449.3	6.5%	4.5
Singapore	121.8	7.2%	411.7	6.0%	3.4
Chinese Taipei	122.9	7.3%	335.8	4.9%	2.7
Australia	63.3	3.7%	253.8	3.7%	4.0
Thailand	64.9	3.8%	249.8	3.6%	3.8
Malaysia	88.0	5.2%	247.3	3.6%	2.8
Vietnam	15.0	0.9%	243.0	3.5%	16.2
Indonesia	56.3	3.3%	180.2	2.6%	3.2
Philippines	32.2	1.9%	67.5	1.0%	2.1
New Zealand	13.7	0.8%	39.8	0.6%	2.9
Brunei Darussalam	3.5	0.2%	6.5	0.1%	1.9
Papua New Guinea	1.8	0.1%	-	-	-
Asia-16 total	**1,694.2**	**100.0%**	**6.891.5**	**100.0%**	**4.1**

Note: No data available for Papua New Guinea in 2018.
Source: International Trade Centre – ITC (2020). Own elaboration.

Table 2: Asia-Pacific trade within the region and with the world 2001 and 2018 (in billions of US$ and in %)

	2001	2018
Trade within Asia-16	1,657.3	7,283.9
Asia-16 trade with the world	3,193.2	13,116.5
Share of intraregional trade	**51.9%**	**55.5%**

Source: International Trade Centre – ITC (2020). Own elaboration.

Table 3: Share and average growth rate of Peruvian exports to selected regions and countries in 2000-2019 (in millions of US$ and in %)

Economy / Region	2000	Share (2000)	2019	Share (2019)	Average growth rate
Asia-16	**1,263**	**18.4%**	**19,199**	**41.6%**	**15.4%**
P.R. China	443	6.4%	13,546	29.4%	19.7%
European Union	928	13.5%	5,709	12.4%	10.0%
Latin America and the Caribbean	1,142	16.6%	6,474	14.0%	9.6%
United States	1,902	27.7%	5,690	12.3%	5.9%
Rest	1,631	23.8%	9,037	19.6%	9.4%
World	**6,866**	**100.0%**	**46,109**	**100.0%**	**10.5%**

Source: Adex Data Trade (2020). Own elaboration.

Table 4: Peruvian exports to the Asia-Pacific region in 2000 and 2019 (in millions of US$ and share %)

No.	Economy	2000	Share (2000)	2019	Share (2019)	Growth rate
1	P.R. China	443	35.1%	13,546	70.6%	20%
2	Rep. of Korea	138	10.9%	2,277	11.9%	16%
3	Japan	325	25.8%	1,975	10.3%	10%
4	Russia	19	1.5%	211	1.1%	14%
5	Philippines	39	3.1%	211	1.1%	9%
6	Chinese Taipei	97	7.6%	202	1.0%	4%
7	Thailand	75	5.9%	192	1.0%	5%
8	Hong Kong, China	21	1.7%	149	0.8%	11%
9	Vietnam	4	0.3%	141	0.7%	20%
10	Malaysia	22	1.8%	102	0.5%	8%
11	Australia	40	3.1%	92	0.5%	5%
12	Indonesia	34	2.7%	60	0.3%	3%
13	New Zealand	2	0.2%	27	0.1%	15%
14	Singapore	4	0.3%	15	0.1%	8%
15	Brunei Darussalam	0	0.0%	0	0.0%	-11%
16	Papua New Guinea	0	0.0%	0	0.0%	-100%
	Asia-16 total	**1,263**	**100.0 %**	**19,199**	**100.0 %**	**15%**

Note: Ordered by the column "2019."
Source: Adex Data Trade (2020). Own elaboration.

Table 5: Sectoral composition of Peruvian exports to Asia-Pacific in 2000 and 2019

(in millions of US$ and share %)

Sector	2000	Share (2000)	2019	Share (2019)
TOTAL EXPORTS	**1,263**	**100.0%**	**19,199**	**100.0%**
Total traditional	**1,121**	**88.8%**	**17,478**	**91.0%**
Mining	440	34.8%	15,209	79.2%
Fishing	593	47.0%	1,461	7.6%
Oil and natural gas	71	5.6%	754	3.9%
Agriculture	17	1.3%	55	0.3%
Total non-traditional	**142**	**11.2%**	**1,720**	**9.0%**
Fishing	44	3.5%	790	4.1%
Livestock and agro industries	13	1.1%	638	3.3%
Timber	3	0.3%	60	0.3%
Steelmaking and metallurgy	27	2.2%	58	0.3%
Chemical	6	0.5%	52	0.3%
Textile	36	2.8%	35	0.2%
Garments	7	0.5%	32	0.2%
Non-metal mining	2	0.1%	25	0.1%
Metalworking	1	0.1%	14	0.1%
Others	2	0.1%	17	0.1%

Note: Ordered by column "2019"
Source: Adex Data Trade (2020). Own elaboration.

Table 6

Peruvian mining exports, copper and its main products in 2000 and 2019

(in millions of US$ and share %)

	2000	World share (2000)	Asia-16 share (2000)	2019	World share (2019)	Asia-16 share (2019)
World	**3,209**			**26,494**		
Copper	*930*			*13,948*		
Concentrated	141			12,192		
Cathodes	739			1,620		
Anodes	0			84		
Asia-16	**440**	**14%**		**15,211**	**57%**	
Copper	*110*	*12%*		*11,693*	*84%*	
Concentrated	68	49%		10,481	86%	
Cathodes	40	5%		1,092	67%	
Anodes	0	0%		81	96%	
P.R. China	**86**	**3%**	**19%**	**11,642**	**44%**	**77%**
Copper	*43*	*5%*	*39%*	*9,318*	*67%*	*80%*
Concentrated	32	23%	47%	8,318	68%	79%
Cathodes	10	1%	24%	952	59%	87%
Anodes	0	0%	0%	46	55%	57%

Note: The column "World Share" shows the share of Asia-16 and the People's Republic of China in the total exports to the world. The column "Asia-16 Share" presents the Chinese share in the total exported to that group. The table is ordered by column "2019."
Source: Adex Data Trade (2020). Own elaboration.

Table 7: Sectoral composition of Peruvian exports to the People's Republic of China in 2000 and 2019 (in millions of US$ and share%)

Sector	2000	Share (2000)	2019	Share (2019)
TOTAL EXPORTS	**443**	**100.0 %**	**13,546**	**100.0 %**
Total traditional	**417**	**94.2%**	**12,934**	**95.5%**
Mining	86	19.4%	11,642	85.9%
Fishing	330	74.6%	1,167	8.6%
Oil and natural gas	0	0.0%	121	0.9%
Agriculture	1	0.3%	4	0.0%
Total non-traditional	**25**	**5.8%**	**611**	**4.5%**
Fishing	0	0.1%	314	2.3%
Livestock and agro industries	0	0.0%	192	1.4%
Timber	1	0.2%	51	0.4%
Textile	22	4.9%	21	0.2%
Chemical	0	0.1%	20	0.2%
Garments	0	0.0%	5	0.0%
Steelmaking and metallurgy	2	0.4%	5	0.0%
Metalworking	0	0.1%	1	0.0%
Non-metal mining	0	0.0%	1	0.0%
Others	0	0.0%	1	0.0%

Note: Ordered by column “2019”.
Source: Adex Data Trade (2020). Own elaboration.

Table 8: Trade agreements of Peru with economies in the Asia-Pacific region

Status	Trading partner	Entry into force
In force	Singapore	Aug-09
	P.R. China	Mar-10
	Republic of Korea	Aug-11
	Thailand (Protocols)	Dec-11
	Japan	Mar-12
	Australia	Feb-20
Signed	CPTPP (Australia, Chile, Mexico, Canada, New Zealand, Brunei, Malaysia, Japan, Singapore and Vietnam)	
Under negotiation	Pacific Alliance with Associated States (New Zealand, Australia, Canada and Singapore)	
	Upgrading with P.R. China	

Note: Consulted on March 31, 2020.
Source: Ministry of Foreign Trade and Tourism - MINCETUR (2020). Own elaboration.

Table 9: Classification of Asia-16 economies and Peru according to income level in 2018 (GNI per capita, Atlas method)

Economy	US$	Classification
Singapore	58,770	High
Australia	53,190	
Hong Kong, China	50,310	
Japan	41,340	
New Zealand	40,820	
Brunei Darussalam	31,020	
Republic of Korea	30,600	
Chinese Taipei	25,501	
Malaysia	10,460	Upper middle
Russia	10,230	
P.R. China	9,470	
Thailand	6,610	
Peru	**6,530**	
Indonesia	3,840	Lower middle
Philippines	3,830	
Papua New Guinea	2,530	
Vietnam	2,400	

Note: In the case of Chinese Taipei, the source is APEC (2020), which is based on sources from that economy.
Source: World Bank (2020). Own elaboration.

Table 10: Global Competitiveness Index 2019:
Positions of Asia-16 economies and Peru in the global index

Economy	Position in the Global Index
Singapore	1
Hong Kong, China	3
Japan	5
Chinese Taipei	11
Republic of Korea	13
Australia	16
New Zealand	19
Malaysia	27
P.R. China	28
Thailand	40
Russia	43
Indonesia	50
Brunei Darussalam	56
Philippines	63
Peru	**65**
Vietnam	67

Note: The position in the ranking is determined based on 141 economies.
Source: Schwab (2019). Own elaboration.

Table 11: Global Competitiveness Index 2019: "Infrastructure" pillar. Positions of Asia-16 economies and Peru in the ranking

Economy	Infrastructure
Singapore	1
Hong Kong, China	3
Japan	4
Republic of Korea	6
Chinese Taipei	16
Australia	29
Malaysia	35
P.R. China	36
New Zealand	46
Russia	50
Brunei Darussalam	58
Thailand	71
Indonesia	72
Vietnam	77
Peru	**87**
Philippines	96

Economy	Transport
Singapore	1
Hong Kong, China	3
Japan	4
Republic of Korea	5
Chinese Taipei	13
P.R. China	24
Malaysia	28
Australia	38
Russia	49
Thailand	53v
Indonesia	55
New Zealand	57
Vietnam	66
Brunei Darussalam	77
Peru	**96**
Philippines	102

Note: The position in the ranking is determined based on 141 economies. Source: Schwab (2019). Own elaboration.

Table 12: Global Competitiveness Index 2019:

Transport by road, air and sea. Positions of Asia-16 economies and Peru in the ranking

Economy	Road transport
Singapore	1
Republic of Korea	9
Japan	20
Australia	22
P.R. China	24
Hong Kong, China	30
Chinese Taipei	33
New Zealand	45
Thailand	49
Brunei Darussalam	58
Russia	65
Malaysia	85
Indonesia	85
Vietnam	103
Peru	**111**
Philippines	120

Economy	Air transport
Japan	1
Hong Kong, China	2
Singapore	3
Republic of Korea	7
Australia	9
Thailand	15
Indonesia	16
Malaysia	18
P.R. China	21
Chinese Taipei	22
Russia	24
New Zealand	37
Vietnam	39
Philippines	40
Peru	**65**
Brunei Darussalam	83

Economy	Sea transport
Singapore	1
Hong Kong, China	3
Republic of Korea	4
Malaysia	6
P.R. China	11
Japan	13
Chinese Taipei	15
Vietnam	32
Indonesia	39
Russia	42
Thailand	44
Australia	48
Peru	**52**
New Zealand	56
Philippines	71
Brunei Darussalam	85

Note: The position in the ranking is determined based on 141 economies (road and air) and 108 (sea). Source: Schwab (2019). Own elaboration.

Table 13: Global Competitiveness Index 2019: "Skills," "ICT Adoption" and "Innovation Capability" pillars. Positions of Asia-16 economies and Peru in the ranking

Economy	Skills
New Zealand	10
Australia	13
Singapore	19
Hong Kong, China	20
Chinese Taipei	23
Republic of Korea	27
Japan	28
Malaysia	30
Russia	54
Brunei Darussalam	59
P.R. China	64
Indonesia	65
Philippines	67
Thailand	73
Peru	**81**
Vietnam	93

Economy	ICT Adoption
Republic of Korea	1
Hong Kong, China	3
Singapore	5
Japan	6
Chinese Taipei	11
P.R. China	18
New Zealand	21
Russia	22
Brunei Darussalam	26
Australia	29
Malaysia	33
Vietnam	41
Thailand	62
Indonesia	71
Philippines	88
Peru	**98**

Economy	Innovation Capability
Chinese Taipei	4
Republic of Korea	5
Japan	7
Singapore	13
Australia	18
P.R. China	24
Hong Kong, China	26
New Zealand	27
Malaysia	30
Russia	32
Thailand	50
Brunei Darussalam	51
Philippines	71
Indonesia	74
Vietnam	76
Peru	**90**

Note: The position in the ranking is determined based on 141 economies.
Source: Schwab (2019). Own elaboration

Table 14: Global Competitiveness Index 2019: "Macroeconomic Stability," "Institutions" and "Business Dynamism" Positions of Asia-16 economies and Peru in the ranking

Economy	Macroeconomic Stability
Hong Kong, China	1
Chinese Taipei	1
Republic of Korea	1
Australia	1
New Zealand	1
Malaysia	1
Peru	**1**
Singapore	38
P.R. China	39
Japan	42
Thailand	43
Russia	43
Indonesia	43
Philippines	43
Vietnam	64
Brunei Darussalam	85

Economy	Institutions
Singapore	2
New Zealand	3
Hong Kong, China	5
Australia	17
Japan	19
Chinese Taipei	24
Malaysia	24
Republic of Korea	26
Brunei Darussalam	50
Indonesia	51
P.R. China	56
Thailand	67
Russia	74
Philippines	87
Vietnam	89
Peru	**94**

Economy	Business Dynamism
New Zealand	13
Singapore	14
Hong Kong, China	15
Australia	16
Japan	17
Malaysia	18
Chinese Taipei	20
Thailand	21
Republic of Korea	25
Indonesia	29
P.R. China	36
Philippines	43
Russia	53
Brunei Darussalam	62
Vietnam	89
Peru	**96**

Note: The position in the ranking is determined based on 141 economies. Source: Schwab (2019). Own elaboration.

Table 15: Logistic Performance Index 2018:

Positions of Asia-16 economies and Peru in the ranking

Economy	Position in the ranking
Japan	5
Singapore	7
Hong Kong, China	12
New Zealand	15
Australia	18
Republic of Korea	25
P.R. China	26
Chinese Taipei	27
Thailand	32
Vietnam	39
Malaysia	41
Indonesia	46
Philippines	60
Russia	75
Brunei Darussalam	80
Peru	**83**
Papua New Guinea	148

Note: The position in the ranking is determined based on 160 economies.
Source: World Bank (2018). Own elaboration.

Table 16: Labor productivity:
average annual growth in Asia-16 economies of and Peru in the period 1990-2018 (in %)

Economy	Average annual growth rate (1990-2018)
P.R. China	8.52
Vietnam	4.62
Thailand	3.31
Republic of Korea	3.30
Chinese Taipei	3.27
Papua New Guinea	3.10
Indonesia	3.01
Malaysia	2.59
Hong Kong, China	2.32
Singapore	2.21
Philippines	2.12
Peru	**1.91**
Australia	1.31
New Zealand	0.92
Russia	0.84
Japan	0.73
Brunei Darussalam	-1.13

Source: The Conference Board (2019) and World Bank (2020). Own elaboration.

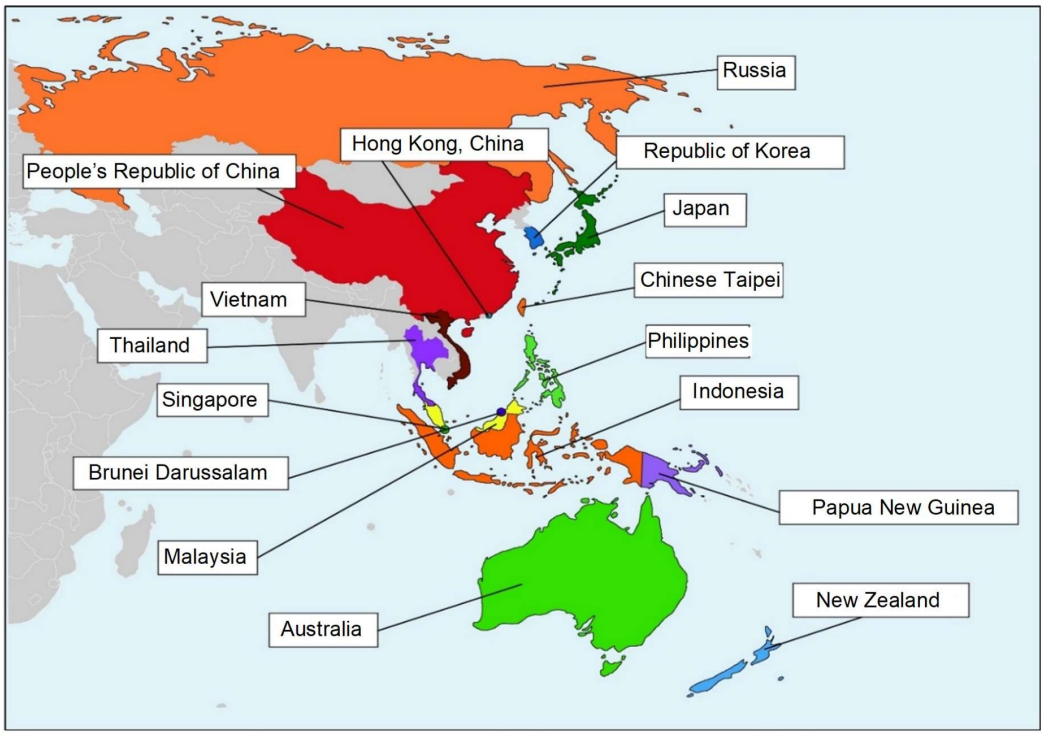
Table 17: Labor productivity: levels in 1990 and 2018 (in constant 2011 PPP dollars)

Economy	1990	2018
Singapore	81,337	153,412
Brunei Darussalam	199,059	143,071
Hong Kong, China	63,838	124,132
Chinese Taipei	43,078	109,451
Australia	71,701	104,677
Japan	65,725	81,219
Republic of Korea	31,021	79,647
New Zealand	58,138	75,817
Malaysia	32,077	67,295
Russia	45,577	58,166
Thailand	13,548	34,870
P.R. China	3,055	32,718
Indonesia	11,860	28,037
Peru	**15,645**	**27,094**
Philippines	12,582	23,145
Vietnam	3,550	13,152
Papua New Guinea	5,251	12,721

Note: Productivity per person employed, or GDP per person employed, represents the GDP per unit of work. The output is measured as "value-added," which refers to the total production minus the value of intermediate goods. The data for Brunei Darussalam and Papua New Guinea was calculated by dividing GDP in constant 2011 PPP dollars (according to the World Bank) by the employment estimated by the World Labor Organization (retrieved from APEC, 2020).
Source: Own elaboration based on The Conference Board (2019) and APEC (2020).

Appendix 3: Maps

Map 1: Asia-16: Economies from Asia and Oceania in the Pacific Basin members of APEC



Note: Asia-16 grouping developed for the present study. Source: Own elaboration

Priority Area 2
Inclusive Economy Participation through Digital Economy and Technology

1. SME Digitalization in a Post-COVID World: Implementing a Gender Inclusive Action Agenda
   Justin Kwan, Phebe M. Ferrer & Karina Kwok

2. Research on the Internet Financing of APEC and The Financing Problems of MSMEs
   Jingjia Zhang

3. MSMEs : Digitization and e-commerce, Base for the development and diversification of markets
   Esteban Zottele & Aníbal Carlos Zottele

4. Higher Education, Knowledge Economy and Tourism Competitiveness in The APEC Area
   Carlos Mario Amaya Molinar, Juan Carlos Yáñez Velazco & Irma Magaña Carrillo