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Advancing Free Trade
for Asia-Pacific **Prosperity**

Proposed Indicators for Monitoring APEC Collective Progress on EAASR

APEC Policy Support Unit

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EXECUTIVE SUMMARY

The Enhanced APEC Agenda for Structural Reform (EAASR) is the latest iteration of APEC's structural reform agenda for the period of 2021-2025. The endorsement of EAASR by Structural Reform Ministers in June 2021 reflects APEC's longstanding commitment to structural reforms in the region. The four pillars of work under EAASR are: (1) creating an enabling environment for open, transparent, and competitive markets; (2) boosting business recovery and resilience against future shocks; (3) ensuring that all groups in society have equal access to opportunities for more inclusive, sustainable growth, and greater well-being; and (4) harnessing innovation, new technology, and skills development to boost productivity and digitalization.

EAASR's pillars demonstrate both the importance of continuing to address the gaps identified in the RAASR Final Review and the urgency of responding to the new challenges amidst the evolving economic landscape. EAASR also recognized the important role of structural reforms in promoting inclusive and sustainable growth and urged economies to consider the approaches identified in the 2018 Economic Committee (EC) paper titled "Structural Reforms for Inclusive Growth: Three Approaches."

In line with the spirit and intent of EAASR, the Policy Support Unit (PSU) has employed a two-pronged approach to identifying and improving the quantitative indicators for monitoring and reviewing EAASR's progress. The first would be to review the existing indicators used for monitoring RAASR and to keep them for monitoring EAASR if these are still relevant. The second would be to review a broader list of indicators, in particular those that have not been included for monitoring RAASR and to add them if relevant.

The PSU has also adhered to several criteria when proposing these indicators, namely: (1) balancing the total number of proposed indicators and the objective of providing as much information as possible; (2) balancing the relevance of proposed indicators and their coverage in terms of the number of economies as well as the years where data is available; (3) including different types of indicators (i.e., policy-based, perception-based, and outcome) as these serve different purposes and can complement one another; and (4) placing priority on identifying indicators for evaluating inclusiveness of structural reform policies.

The PSU is proposing a total of 28 indicators to monitor and report on APEC collective progress under EAASR. Sixteen (16) indicators have previously been used to monitor RAASR and are still relevant for monitoring EAASR, while the remaining 12 indicators are newly-added and cover broad areas, such as digitalization, income inequality, and social protection.

All but five of the indicators can be associated with more than one pillar, which is to be expected as the pillars are arguably linked to one another. A total of 18 indicators can be associated with Pillar #1. Meanwhile, 21 indicators can be associated with Pillar #2, whereas 23 indicators can be associated with Pillar #3. Finally, 20 indicators can be associated with Pillar #4.

Considering that each EAASR pillar can be operationalized through various themes, the 28 indicators can also be grouped into potential themes under respective pillar, which can be helpful to understand how each of the indicators are related within a given pillar, and to monitor APEC collective progress with respect to a specific theme.

While it should be acknowledged that these EAASR indicators are not exhaustive and, hence, will not be able to cover every aspect of structural reform efforts, the PSU hopes that the updated list will be more relevant and fit for the purpose of monitoring APEC's collective progress under EAASR.

1. INTRODUCTION

In 2020, the Renewed APEC Agenda for Structural Reform (RAASR) Final Review Report noted that it would be worthwhile for the Economic Committee (EC) to identify additional indicators (on top of the existing ones) or a new set of indicators that could be more relevant and fit for the purpose of monitoring progress with regards to the new agenda. In June 2021, the Enhanced APEC Agenda for Structural Reform (EAASR), endorsed by the Structural Reform Ministers, tasked the PSU to identify and to improve the quantitative indicators for monitoring and reviewing the progress of EAASR.¹ This paper presents the approach taken by the PSU to fulfill this task and proposes the list of indicators that EC members may wish to consider for the above-mentioned purpose.

OVERVIEW OF EAASR

EAASR is the latest iteration of APEC's structural reform agenda for the period of 2021-2025. It was proposed amidst a region negatively impacted by the COVID-19 pandemic. It aims to strengthen economies' structural reform efforts so as to support recovery and to provide opportunities to rebuild back better. It aspires to promote growth-focused reforms that are designed to be inclusive, sustainable, and innovation-friendly.

The four pillars of work under EAASR are:²

1. Creating an enabling environment for open, transparent, and competitive markets;
2. Boosting business recovery and resilience against future shocks;
3. Ensuring that all groups in society have equal access to opportunities for more inclusive, sustainable growth, and greater well-being; and
4. Harnessing innovation, new technology, and skills development to boost productivity and digitalization.

These pillars are generally reflective of the need to build on those under RAASR. Indeed, EAASR noted that economies should act on the gaps and areas of need identified in the RAASR Final Review. For example, in terms of business regulation and conducts, the Final Review indicated that there is room to further simplify regulations and to address barriers that affect trade and investment. On labour and financial market competitiveness, the Final Review noted the importance of ensuring that the region does not backtrack on the progress made. On access to basic services and infrastructure, noting the variation in performance across indicators and economies, the Final Review called for further strengthening of efforts in these areas. It also called for economies to undertake more efforts to increase the participation of wider segments of society within its market.

At the same time, EAASR recognized the evolving economic landscape and, therefore, of the need to ensure that economies can respond to the new challenges, such as those pertaining to the digital economy, new technologies, and innovation. It also noted the need to recast pillars such that they can better facilitate economic recovery post-COVID. To this end, while some of the EAASR pillars are fairly similar to those of RAASR, it has been expanded to cover issues related to the digital economy as well as those likely to become more relevant in a post-COVID world, such as public consultation in online settings.

¹ https://www.apec.org/Meeting-Papers/Sectoral-Ministerial-Meetings/Structural-Reform/2021_structural/Annex-1

² For a detailed description of the pillars, please refer to the Concept Paper on Enhanced APEC Agenda for Structural Reform (http://mddb.apec.org/Documents/2021/EC/EC1/21_ec1_006a.pdf)

Specifically on how structural reforms can be used to promote inclusive and sustainable growth, EAASR recalled the approaches identified in the 2018 EC paper titled “Structural Reforms for Inclusive Growth: Three Approaches” and proposed that economies consider them.³ They are as follows:

1. Delivering the six core structural reforms to improve market function and transparency;⁴
2. Implementing specific market reforms to improve innovation and competitiveness of business and achieve pro-inclusion benefits; and
3. Adopting a holistic approach to structural reform, which combines core reforms, specific market reforms, and broader policies to boost productivity and economic resilience.

³ <https://www.apec.org/-/media/Files/Groups/EC/Structural-Reforms-for-Inclusive-Growth---Three-Approaches.docx?la=en&hash=BD201A724890FAADE32D3A9A0E5999A8A6F51C10>

⁴ EC’s six core structural reforms are: competition policy and law; strengthening economic and legal infrastructure; ease of doing business; regulatory reform; public sector governance; and, corporate law and governance.

2. APPROACH TO UPDATING INDICATORS

In line with the spirit and intent of EAASR, the PSU has employed a two-pronged approach to identifying and improving the quantitative indicators for monitoring and reviewing EAASR's progress. The first would be to review the existing indicators used for monitoring RAASR and to keep them for monitoring EAASR if these are still relevant. The second would be to review a broader list of indicators, in particular those that have not been included for monitoring RAASR and to add them if relevant.

In identifying these indicators, the PSU has assumed that, similar to RAASR, the mid-term and the final review of EAASR would comprise of two parts: (1) a review of APEC collective progress (using agreed external quantitative indicators); and (2) a review of progress made by individual economies (through the analysis of IAPs and subsequent template submissions). This two-part review process balances two perspectives, namely: (A) the importance of monitoring the progress made by individual economies since the range of concrete actions identified will likely traverse a very wide spectrum; and (B) the value of monitoring and analysing APEC-wide progress on structural reform to consider aspects that are over and beyond concrete individual actions identified by economies. The quantitative indicators proposed in this paper are only for the purpose of the first part (i.e., the review of APEC collective progress) although economies are welcome to also use these for monitoring concrete actions identified in their IAPs, if relevant.

The PSU has also adhered to several criteria when proposing these indicators. First is balancing the total number of proposed indicators and the objective of providing as much information as possible. The PSU recognizes that including more indicators generally leads to the availability of more data points/information from which progress can be assessed and rectifying actions identified. At the same time, the collection of too many indicators may become burdensome and unwieldy.

Second is balancing the relevance of proposed indicators and their coverage in terms of the number of economies as well as the years where data is available. Although an indicator may be very relevant for monitoring APEC collective progress under a certain pillar, it would not be reflective of the region as a whole if it is only available for several economies. In such cases, it may be better for economies to use the indicator to monitor concrete actions identified in their IAPs. Conversely, there are indicators with wider coverage in terms of progress but may have no or minimal linkages to areas relevant to EAASR.

Third is the need to include different types of indicators (i.e., policy-based, perception-based, and outcome) as these serve different purposes and can complement one another. Policy-based indicators are derived partly or mostly on the assessment of economies' policy framework and, arguably, are within the control of policymakers. Perception-based indicators are derived from respondents' perception (e.g., via survey of firms) and can provide insights on how policies are perceived by relevant stakeholders. It may also point to implementation issues on the ground, in particular if it provides a contrasting analysis to the corresponding policy-based indicator. Meanwhile, outcome indicators provide critical insights on economies' progress in achieving certain objectives when putting in place specific policies.

Fourth is placing priority on identifying indicators for evaluating inclusiveness of structural reform policies. This is considering that EAASR should continue efforts to target strong and sustainable economic growth, including by deepening the focus on enabling equal access to opportunities for all segments of society, such as MSMEs, women, young people, and the elderly.

There is no prescriptive hierarchy through which proposed indicators have been selected, and none of the above criteria are mutually exclusive. In proposing indicators listed in Section 3, all of the above criteria have been considered. It is also worthwhile to note that the proposed indicators are not exhaustive and, hence, will not be able to cover all possible impacts that may arise from structural

reform efforts. Moreover, each indicator may only reflect partially (rather than fully) the implementation of policies and/or impact of policy actions in a particular area. However, these could hopefully provide a good snapshot of progress in certain areas with linkages to the EAASR pillars and encourage deeper policy discussions among economies.

3. PROPOSED INDICATORS

The list of 28 proposed indicators and their associated EAASR pillars are listed in Table 3.1. A total of 18 indicators can be associated with Pillar #1 on “creating an enabling environment for open, transparent, and competitive markets”. Meanwhile, 21 indicators can be associated with Pillar #2 on “boosting business recovery and resilience against future shocks”, whereas 23 indicators can be associated with Pillar #3 on “ensuring that all groups in society have equal access to opportunities for more inclusive, sustainable growth, and greater well-being”. Finally, 20 indicators can be associated with Pillar #4 on “harnessing innovation, new technology, and skills development to boost productivity and digitalization”.

All but five of these indicators can be associated with more than one pillar, which is to be expected considering that the pillars are arguably linked to one another. For example, the ability to harness innovation and new technology (Pillar #4) would play an important role in boosting business recovery and resilience against future shocks (Pillar #2). Likewise, ensuring that the broad population have the necessary productivity-enhancing skills (Pillar #4) would enable them to have better access to opportunities and, hence, a more inclusive growth (Pillar #3).

A total of 16 indicators have previously been used to monitor RAASR and are still relevant for monitoring EAASR. However, nine of these indicators were unchanged while seven have been revised for various reasons, such as a change in methodology by the source (e.g., World Bank Indicators on Women, Business and the Law) and addition of new sub-indicators (e.g., World Economic Forum Global Competitiveness Indicators for Labour Market Efficiency).

The remaining 12 indicators are newly added for EAASR, namely: WHO/UNICEF Joint Monitoring Program Indicators for Water Supply and Sanitation; Energy & Climate Intelligence Unit Net Zero Tracker; OECD Production-based and Demand-based CO₂ Productivity (GDP per unit of energy-related CO₂ emissions); Our World in Data, Share of Primary Energy from Renewable Sources; World Bank Indicator on Carbon Dioxide Damage (% of GNI); ILO Indicators on Social Protection; OECD Digital Services Trade Restrictiveness Index; UNESCO Gross R&D Expenditure (% of GDP); UNESCO Percentage of Graduates from STEM Programs in Tertiary Education; WEF Global Competitiveness Indicator for Product Market Efficiency; WEF Global Competitiveness Indicators for Infrastructure; and WEF Global Competitiveness Indicators for Skills. These newly added indicators cover broad areas, such as digitalization, income inequality, and social protection, and can complement the 16 indicators adopted from RAASR.

Five indicators can be considered as policy-based indicators (i.e., based partly or mostly on the assessment of economies’ policy framework), namely: World Bank Indicators on Women, Business, and the Law; Energy & Climate Intelligence Unit Net Zero Tracker; OECD Digital Services Trade Restrictiveness Index; OECD FDI Regulatory Restrictiveness Index; and OECD Services Trade Restrictiveness Index.

Meanwhile, six indicators are mainly based on perceptions and, hence, can provide insights on how policies are perceived by relevant stakeholders. All from the WEF Global Competitiveness Indicators, these six are specifically for: product market efficiency; business dynamism, innovation, and intellectual property; financial system; infrastructure; labour market efficiency; and skills.

The remaining 17 are outcome indicators, such as the ILO Labour Income Distribution by Decile; UNESCO Percentage of Graduates from STEM Programs in Tertiary Education; and the ITU Indicators on Access to ICT Infrastructure. These are critical to provide insights on how far APEC and its member economies have realized their goals when implementing various policies, such as those aimed at encouraging more youths to enroll in STEM-related programs or those aimed at expanding social

protection coverage. From the perspective of data coverage, all proposed indicators are available for at least half of APEC member economies since 2016.

Table 3.1: Proposed indicators for monitoring the EAASR pillars

No.	Indicator	Type	Code	Associated EAASR Pillars			
3.1	ILO Employment to Population Ratio	Outcome	A			3	
3.2	ILO Labour Force Participation Rate for Age Group 65+	Outcome	A			3	
3.3	ILO Labour Income Distribution by Decile	Outcome	A			3	
3.4	ILO Share of Youth Unemployment	Outcome	A			3	
3.5	WHO/UNICEF Joint Monitoring Program Indicators for Water Supply and Sanitation	Outcome	C	1		3	
3.6	World Bank Indicators on Women, Business and the Law	Policy-based	B	1		3	
3.7	Energy & Climate Intelligence Unit Net Zero Tracker	Policy-based	C		2		4
3.8	OECD Production-based and Demand-based CO ₂ Productivity (GDP per unit of energy-related CO ₂ emissions)	Outcome	C		2		4
3.9	OECD Programme for International Student Assessment (PISA) Indicators on Reading, Mathematics and Science	Outcome	B			3	4
3.10	Our World in Data, Share of Primary Energy from Renewable Sources	Outcome	C		2		4
3.11	World Bank Indicator on Carbon Dioxide Damage (% of GNI)	Outcome	C		2		4
3.12	ILO Indicators on Social Protection	Outcome	C	1	2	3	
3.13	UNESCO Gross R&D Expenditure (% of GDP)	Outcome	C	1	2		4
3.14	UNESCO Tertiary Gross Enrolment Ratio	Outcome	A		2	3	4
3.15	World Bank and OECD Indicators on Healthcare Resources	Outcome	B	1	2	3	
3.16	ITU Indicators on Access to ICT Infrastructure	Outcome	B	1	2	3	4
3.17	OECD Digital Services Trade Restrictiveness Index	Policy-based	C	1	2	3	4
3.18	OECD FDI Regulatory Restrictiveness Index	Policy-based	A	1	2	3	4
3.19	OECD Services Trade Restrictiveness Index	Policy-based	A	1	2	3	4
3.20	The Conference Board Labour Productivity Per Person Employed	Outcome	A	1	2	3	4
3.21	UNESCO Percentage of Graduates from STEM Programs in Tertiary Education	Outcome	C	1	2	3	4
3.22	WEF Global Competitiveness Indicator for Product Market Efficiency	Perception-based	C	1	2	3	4
3.23	WEF Global Competitiveness Indicators for Business Dynamism, Innovation, and Intellectual Property	Perception-based	B	1	2	3	4
3.24	WEF Global Competitiveness Indicators for Financial System	Perception-based	B	1	2	3	4
3.25	WEF Global Competitiveness Indicators for Infrastructure	Perception-based	C	1	2	3	4
3.26	WEF Global Competitiveness Indicators for Labour Market Efficiency	Perception-based	B	1	2	3	4
3.27	WEF Global Competitiveness Indicators for Skills	Perception-based	C	1	2	3	4
3.28	World Bank Global Findex Indicators on Share of Population Making and Receiving Digital Payments in the last year (15+)	Outcome	A	1	2	3	4

Source: APEC Policy Support Unit (PSU) compilations.

Note: A – previous RAASR indicator; B – previous RAASR indicator but with some revisions (e.g., new methodology or inclusion of new sub-indicators); C – new indicator. This Table should be used in conjunction with Sections 3.1 to 3.28, which provides details of each indicator (e.g., linkages to specific EAASR pillars and limitations).

It is important to take note of several general caveats on these proposed indicators. First is causation. It should be recognized that observable changes in these indicators may have been affected by factors other than the concrete key initiatives and actions identified by economies. Even in instances where key initiatives and actions have a direct impact on an indicator, it may take time for the outcome of these actions to be reflected by the indicators. This is particularly true for perception-based and outcome indicators.

Second is inference. Improvements in indicators may not be directly linked to observable outcomes for various reasons. For example, improvement in services trade regulatory environment would technically facilitate increased participation by businesses but is not a given if they decide otherwise due to the economic uncertainty caused by the COVID-19 pandemic.

It is also worthwhile to note that the positive impact/implications of improvements in indicators may be contextual in some cases. This is particularly so in cases where the linkages/associations between key initiatives/actions, proposed indicators, and subsequent implications are indirect, and/or where impact/implications of key initiatives/actions are wide-ranging and multi-directional. For example, while higher labour productivity per person employed arguably makes the population in an economy more sought after relative to another economy with lower labor productivity per person employed and, therefore, have a higher chance of gaining employment, there have also been arguments that the improved productivity has come to a stage whereby fewer people are needed (i.e., complementary and substitution effect of technology advancements). Inferences should, therefore, be treated with caution and impact/implications be looked at holistically.

Third is perspective and coverage. Analysis of these indicators generally provide a regional perspective, which may be different from those of an individual economy. There have indeed been instances when an indicator shows improvements in its regional score but showed the opposite for some economies individually. The issue of perspective becomes even more prominent in the context of Pillar #3 where micro-level/disaggregated data could provide more useful and actionable insights than macro-level/aggregated data because inclusion-related issues tend to be distributional in nature (i.e., sharing the pie more equally vis-à-vis growing the pie).

With regards to inclusion, it is crucial that individual economies complement the proposed indicators by monitoring more micro level indicators (e.g., household, firm, and labour force surveys). Economies may also wish to explore capacity building activities in enhancing the collection of such indicators. Related to the issue of coverage, it is important to note that changes in the score may not be reflective of APEC as a whole as some indicators have data only for certain member economies.

Fourth is frequency and methodology. Frequency and other potential issues, such as delay in the release of the next update of the indicators, may affect the assessment of progress at the mid-term and the final review of EAASR. Additionally, the potential change in the methodology for the development or derivation of some indicators may make it challenging to compare values across years, especially if the changes are not applied retroactively (i.e., to earlier years).

POTENTIAL THEMES

Considering that each EAASR pillar can be operationalized through various themes, these 28 indicators can also be grouped into potential themes under respective pillar, which can be helpful to understand how each of the indicators are related within a given pillar, and to monitor APEC collective progress with respect to a specific theme. Table 3.2 shows that Pillar #1 could have four potential themes, namely: (1) enhancing competitiveness of labour and financial markets; (2) improving business regulations and facilitating their conduct; (3) enhancing innovation and productivity; and (4) strengthening access to basic services & infrastructure and having well-targeted social policies.

Table 3.2: Proposed indicators for Pillar #1, by potential theme

Potential Theme	No.	Indicator	Type
Enhancing competitiveness of labour and financial markets	3.6	World Bank Indicators on Women, Business and the Law	Policy-based
	3.21	UNESCO Percentage of Graduates from STEM Programs in Tertiary Education	Outcome
	3.24	WEF Global Competitiveness Indicators for Financial System	Perception-based
	3.26	WEF Global Competitiveness Indicators for Labour Market Efficiency	Perception-based
	3.27	WEF Global Competitiveness Indicators for Skills	Perception-based
Improving business regulations and facilitating their conduct	3.17	OECD Digital Services Trade Restrictiveness Index	Policy-based
	3.18	OECD FDI Regulatory Restrictiveness Index	Policy-based
	3.19	OECD Services Trade Restrictiveness Index	Policy-based
Enhancing innovation and productivity	3.20	The Conference Board Labour Productivity Per Person Employed	Outcome
	3.13	UNESCO Gross R&D Expenditure (% of GDP)	Outcome
	3.22	WEF Global Competitiveness Indicator for Product Market Efficiency	Perception-based
	3.23	WEF Global Competitiveness Indicators for Business Dynamism, Innovation, and Intellectual Property	Perception-based
Strengthening access to basic services & infrastructure and having well-targeted social policies	3.5	WHO/UNICEF Joint Monitoring Program Indicators for Water Supply and Sanitation	Outcome
	3.12	ILO Indicators on Social Protection	Outcome
	3.15	World Bank and OECD Indicators on Healthcare Resources	Outcome
	3.16	ITU Indicators on Access to ICT Infrastructure	Outcome
	3.25	WEF Global Competitiveness Indicators for Infrastructure	Perception-based
	3.28	World Bank Global Findex Indicators on Share of Population Making and Receiving Digital Payments in the last year (15+)	Outcome

Source: APEC PSU compilations.

Pillar #2, meanwhile, could have five potential themes, namely: (1) enhancing economic readiness (and efficiency); (2) improving the business environment; (3) reallocating resources to growth sectors; (4) promoting digitalization; and (5) focusing on sustainable and resilient recovery (Table 3.3).

Table 3.3: Proposed indicators for Pillar #2, by potential theme

Potential Theme	No.	Indicator	Type
Enhancing economic readiness	3.20	The Conference Board Labour Productivity Per Person Employed	Outcome
	3.22	WEF Global Competitiveness Indicators for Product Market Efficiency	Perception-based
	3.23	WEF Global Competitiveness Indicators for Business Dynamism, Innovation, and Intellectual Property	Perception-based
	3.24	WEF Global Competitiveness Indicators for Financial System	Perception-based
	3.25	WEF Global Competitiveness Indicators for Infrastructure	Perception-based
	3.26	WEF Global Competitiveness Indicators for Labor Market Efficiency	Perception-based
Improving business environment	3.18	OECD FDI Regulatory Restrictiveness Index	Policy-based
	3.19	OECD Services Trade Restrictiveness Index	Policy-based

Reallocating resources to growth sectors	3.13	UNESCO Gross R&D Expenditure (% of GDP)	Outcome
	3.14	UNESCO Tertiary Gross Enrollment Ratio	Outcome
	3.21	UNESCO Percentage of Graduates from STEM Programs in Tertiary Education	Outcome
	3.27	WEF Global Competitiveness Indicators for Skills	Perception-based
Promoting digitalization	3.16	ITU Indicators on Access to ICT Infrastructure	Outcome
	3.17	OECD Digital Services Trade Restrictiveness Index	Policy-based
	3.28	World Bank Global Findex Indicators on Share of Population Making and Receiving Digital Payments in the last year (15+)	Outcome
Focusing on sustainable and resilient recovery	3.7	Energy & Climate Intelligence Unit Net Zero Tracker	Policy-based
	3.8	OECD Production-based and Demand-based CO ₂ Productivity (GDP per unit of energy-related CO ₂ emissions)	Outcome
	3.10	Our World in Data Share of Primary Energy from Renewable Sources	Outcome
	3.11	World Bank Indicators on Carbon Dioxide Damage (% of GNI)	Outcome
	3.12	ILO Indicators on Social Protection	Outcome
	3.15	World Bank and OECD Indicators on Healthcare Resources	Outcome

Source: APEC PSU compilations.

Among the EAASR pillars, Pillar #3 has the greatest number of indicators, which could be grouped into five potential themes, namely: (1) promoting inclusion of wider segments of society, including vulnerable populations; (2) improving access to the global economy; (3) supporting upgrading efforts; (4) enhancing access to quality education; and (5) improving access to basic services, infrastructure & social protection (Table 3.4).

Table 3.4: Proposed indicators for Pillar #3, by potential theme

Potential Theme	No.	Indicator	Type
Promoting inclusion of wider segments of society, including vulnerable populations	3.1	ILO Employment to Population Ratio	Outcome
	3.2	ILO Labour Force Participation Rate for Age Group 65+	Outcome
	3.3	ILO Labour Income Distribution by Decile	Outcome
	3.4	ILO Share of Youth Unemployment	Outcome
	3.6	World Bank Indicators on Women, Business, and the Law	Policy-based
Improving access to the global economy	3.17	OECD Digital Services Trade Restrictiveness Index	Policy-based
	3.18	OECD FDI Regulatory Restrictiveness Index	Policy-based
	3.19	OECD Services Trade Restrictiveness Index	Policy-based
	3.22	WEF Global Competitiveness Indicator for Product Market Efficiency	Perception-based
	3.24	WEF Global Competitiveness Indicator for Financial System	Perception-based
Supporting upgrading efforts	3.26	WEF Global Competitiveness Indicator for Labour Market Efficiency	Perception-based
	3.20	The Conference Board Labour Productivity Per Persons Employed	Outcome
Enhancing access to quality education	3.23	WEF Global Competitiveness Indicator for Business Dynamism, Innovation, and Intellectual Property	Perception-based
	3.9	OECD Programme for International Student Assessment (PISA) Indicators on Reading, Mathematics, and Science	Outcome
	3.14	UNESCO Tertiary Gross Enrollment Ratio	Outcome
	3.21	UNESCO Percentage of Graduates from STEM Programs in Tertiary Education	Outcome
	3.27	WEF Global Competitiveness Indicators for Skills	Perception-based

Improving access to basic services, infrastructure & social protection	3.5	WHO/UNICEF Joint Monitoring Program Indicators for Water Supply and Sanitation	Outcome
	3.12	ILO Indicators on Social Protection	Outcome
	3.15	World Bank and OECD Indicators on Healthcare Resources	Outcome
	3.16	ITU Indicators on Access to ICT Infrastructure	Outcome
	3.25	WEF Global Competitiveness Indicator for Infrastructure	Perception-based
	3.28	World Bank Global Findex Indicators on Share of Population Making and Receiving Digital Payments in the last year (15+)	Outcome

Source: APEC PSU compilations.

Table 3.5 shows that Pillar #4 could have four potential themes, namely: (1) boosting innovation and digitalization; (2) harnessing environment-friendly and sustainable activities; (3) creating a predictable regulatory environment; and (4) enhancing human capital development.

Table 3.5: Proposed indicators for Pillar #4, by potential theme

Potential Theme	No.	Indicator	Type
Boosting innovation and digitalization	3.13	UNESCO Gross R&D Expenditure (% of GDP)	Outcome
	3.16	ITU Indicators on Access to ICT Infrastructure	Outcome
	3.17	OECD Digital Services Trade Restrictiveness Index	Policy-based
	3.20	The Conference Board Labour Productivity Per Person Employed	Outcome
	3.23	WEF Global Competitiveness Indicator for Business Dynamism, Innovation, and Intellectual Property	Perception-based
	3.25	WEF Global Competitiveness Indicator for Infrastructure	Perception-based
	3.28	World Bank Global Findex Indicators on Share of Population Making and Receiving Digital Payments in the last year (15+)	Outcome
Harnessing environment-friendly and sustainable activities	3.7	Energy & Climate Intelligence Unit Net Zero Tracker	Policy-based
	3.8	OECD Production-based and Demand-based CO ₂ Productivity (GDP per unit of energy-related CO ₂ emissions)	Outcome
	3.10	Our World in Data Share of Primary Energy from Renewable Sources	Outcome
	3.11	World Bank Indicator on Carbon Dioxide Damage (% of GNI)	Outcome
Creating a predictable regulatory environment	3.18	OECD FDI Regulatory Restrictiveness Index	Policy-based
	3.19	OECD Services Trade Restrictiveness Index	Policy-based
	3.22	WEF Global Competitiveness Indicator for Product Market Efficiency	Perception-based
	3.24	WEF Global Competitiveness Indicator for Financial System	Perception-based
	3.26	WEF Global Competitiveness Indicator for Labour Market Efficiency	Perception-based
Enhancing human capital development	3.9	OECD Programme for International Student Assessment (PISA) Indicators on Reading, Mathematics, and Science	Outcome
	3.14	UNESCO Tertiary Gross Enrollment Ratio	Outcome
	3.21	UNESCO Percentage of Graduates from STEM Programs in Tertiary Education	Outcome
	3.27	WEF Global Competitiveness Indicator for Skills	Perception-based

Source: APEC PSU compilations.

To provide more details on the proposed indicators, the following structure has been adhered to when presenting information for each: (1) source; (2) what does it tell us?; (3) linkage to specific EAASR pillars; (4) possible actions at the economy level that may impact the indicator; (5) strengths of the indicator; (6) limitations of the indicator; (7) coverage and additional information; and, (8) analysis.

3.1. ILO EMPLOYMENT TO POPULATION RATIO (OUTCOME)

3.1.1. Source

<https://ilostat.ilo.org/topics/employment/>

3.1.2. What does it tell us?

- Employment to population ratio provides the share of population that is employed in the economy.
- Only people whose ages are 15 and above are counted as they are generally considered as working-age population.
- A high ratio indicates that a large share of an economy's population is employed, while a low ratio indicates that a large share of the population is not involved directly in market-related activities due to either unemployment or being out of the labour force.
- Theoretically, the ratio can range from anywhere between 0% and 100% but it is unlikely that an economy will have a value close to both extremes because 0% would mean that there is no employment while 100% means that every working-age individual is employed.

3.1.3. Linkages to specific EAASR pillars

Pillars	Reasons
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • Employment to population ratio could inform policymakers if existing policies need to be tweaked and/or new ones need to be implemented to improve the employment situation, such as saving existing jobs, creating new openings, or providing additional help and training to vulnerable workers.

3.1.4. Possible actions at the economy level that may impact the indicator

- Assisting the unemployed in finding formal employment.
- Providing tax credits to employers that hire specific groups of workers.
- Instituting flexible working hours to encourage specific groups of workers to join or re-join the workforce.
- Introducing or enhancing vocational education and training.
- Introducing or enhancing programs that are responsive to the fourth industrial revolution.
- Reducing skills mismatch between what employers need and what employees have to offer.

3.1.5. Strengths of the indicator

- ILO estimates have been harmonized to take into consideration differences in data collection and tabulation methodologies in different economies, thus allowing for comparability across economies and years.
- The indicator provides data which can be disaggregated by gender.

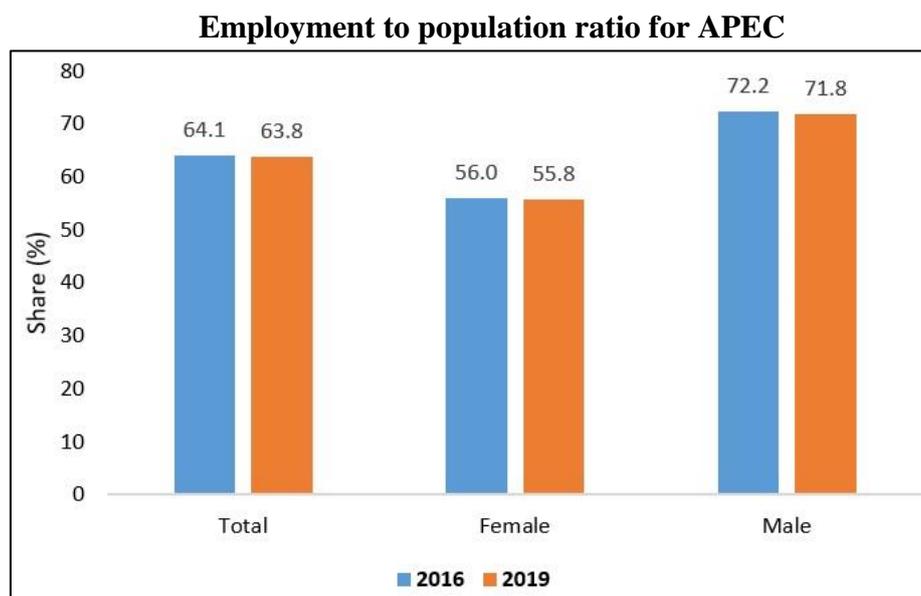
3.1.6. Limitations of the indicator

- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy (e.g., impact of the COVID-19 pandemic) and demographics.
- It does not identify policies that policymakers should focus on in order to raise the share of employment.
- Assuming that specific policies can affect the indicator, it takes time for the impact of policies to be captured by the indicator and, therefore, only marginal change may be observed over time. For example, changes in education policies to better match industry's requirements may not be seen until several years later when these students have entered the workforce.

3.1.7. Coverage and additional information

Economies covered (since 2016)	21 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	2019
Frequency	Annual

3.1.8. Analysis



Note: The employment to population ratio is based on modeled ILO estimate. APEC employment to population ratio is a weighted calculation based on the employment to population ratio of each economy weighted by the working-age population of all 21 APEC economies.

Source: APEC PSU calculations based on data from ILO (accessed 11 July 2021).

Employment to population ratio for APEC has decreased from 64.1% in 2015 to 63.8% in 2019. This decrease is observed in both male and female populations: there has been a decreasing share of female and male working-age individuals entering employment over the period. Male employment to population ratio is generally higher than that of female.

3.2. ILO LABOUR FORCE PARTICIPATION RATE FOR AGE GROUP 65+ (OUTCOME)

3.2.1. Source

<https://ilostat.ilo.org/topics/employment/>

3.2.2. What does it tell us?

- Labour force participation rate for age group 65+ provides the proportion of the population aged 65 and older that is economically active. It includes working individuals as well as unemployed individuals who are actively looking for a job.
- Therefore, it indicates the relative size of the labour supply that is available to engage in the production of goods and services.
- Data on the economically active population generally does not include students, persons occupied solely in domestic duties in their own households, members of collective households, inmates of institutions, retired persons, persons living entirely on their own means, and persons wholly dependent upon others.
- Theoretically, the share can range from anywhere between 0% and 100% but it is unlikely that an economy will have a value close to both extremes because 0% would mean that there is no economically active individual while 100% means that every individual aged 65 and older is economically active.

3.2.3. Linkages to specific EAASR pillars

Pillars	Reasons
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • Labour force participation rate for age group 65+ is one indicator of outcome that enables policymakers to monitor the level of participation of population aged 65 and older in the labour market.

3.2.4. Possible actions at the economy level that may impact the indicator

- Organizing job placement clinics for older workers.
- Introducing upgrading and re-tooling opportunities for older workers.
- Introducing elderly-friendly policies, such as flexible working hours.
- Incentivizing employers that hire older workers and/or people with disabilities for less demanding tasks.
- Sharing successful cases of firms employing older workers.

3.2.5. Strengths of the indicator

- ILO estimates have been harmonized to take into consideration differences in data collection and tabulation methodologies in different economies, thus allowing for comparability across economies and years.
- When used in combination with other indicators such as employment to population ratio for the same group (if available), it can potentially point to underlying issues that need to be tackled by policymakers.

3.2.6. Limitations of the indicator

- The implications of a high labour force participation rate is not clear cut. On the one hand, it may indicate structural issues within the economy, particularly when employment to population ratio is

low because it points to the high share of economically active population being unable to gain employment despite wanting to do so. On the other hand, it may also indicate the changing mindset of individuals in response to government policies implemented to get the older population to be more economically active.

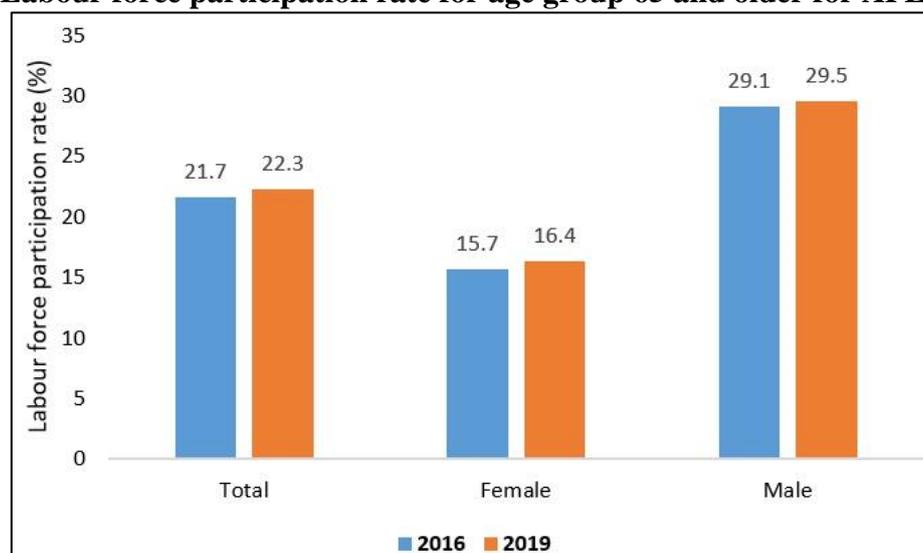
- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy and demographics.
- It does not identify policies that policymakers should focus on in order to raise the share of employment.
- Assuming that specific policies can affect the indicator, it takes time for the impact of policies to be captured by the indicator.
- In some economies, individuals above the age of 65 are already subject to mandatory retirement. Thus, caution needs to be exercised when using the indicator.

3.2.7. Coverage and additional information

Economies covered (since 2016)	21 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	2019
Frequency	Annual

3.2.8. Analysis

Labour force participation rate for age group 65 and older for APEC



Note: The labour force participation rate is based on modeled ILO estimate. APEC labour force participation rate is a weighted calculation based on the total number of labour force and population (aged 65+) of the 21 economies indicated in section 7.
Source: APEC PSU calculations based on data from ILO (accessed 11 July 2021).

Total labour force participation rate for the age group 65 and older for APEC increased slightly from 21.7% in 2016 to 22.3% in 2019. This trend is observed in both female and male groups. However, the labour force participation of males above the age of 65 is generally higher than the labour force participation of females in the same age group.

3.3. ILO LABOUR INCOME DISTRIBUTION BY DECILE (OUTCOME)

3.3.1. Source

<https://ilostat.ilo.org/topics/labour-income/>

3.3.2. What does it tell us?

- The income distribution of the labour force by decile gives a portrait of inequality in the economy and region.
- The wider the gap in income distribution between the top and the bottom deciles would be indicative of an increasing inequality in the economy and region.

3.3.3. Linkages to specific EAASR pillars

Pillars	Reasons
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and social well-being	<ul style="list-style-type: none"> • Income inequality has been a key issue for many economies. One way that policymakers can assess whether or not the opportunities brought about by economic growth reach all groups in society is to explore the income growth of various segments of the population.

3.3.4. Possible actions at the economy level that may impact the indicator

- Introducing a minimum wage that lifts the income of the poorest segments of the population.
- Encouraging upskilling to raise the productivity and value of lower paid workers.
- Promoting pay equality by working towards equal pay for work of equal value.
- Developing a progressive tax regime with the tax rates increasing depending on income.

3.3.5. Strengths of the indicator

- While several measures of inequality, like the Gini index, are useful in portraying income inequality, these measures do not yield much information on income differential between various segments of the population. The indicator allows for income to be compared across different deciles of the labour force.
- Consistent and wider coverage across economies and years.

3.3.6. Limitations of the indicator

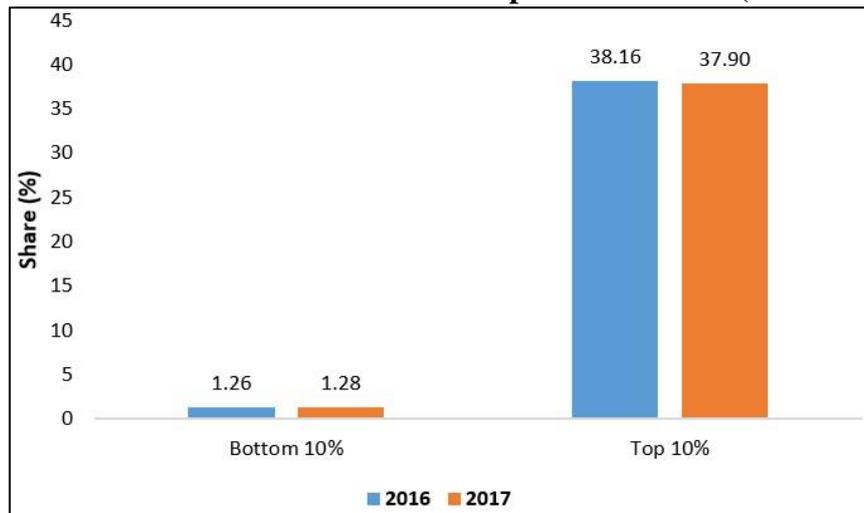
- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy and the element of choice.
- Unlike policy indicators, it does not identify specific policies to promote income equality.

3.3.7. Coverage and additional information

Economies covered (since 2016)	21 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; CT; THA; USA; VN)
Latest Available Year	2017
Frequency	Annual

3.3.8. Analysis

Labour income share of the bottom and top 10% in APEC (2016 and 2017)



Note: APEC average is an average of share in 21 economies weighted by labour force aged 15+.
Source: APEC PSU computations based on data from ILO (accessed 14 July 2021).

The labour income share of the bottom 10% in APEC has increased slightly from 1.26 percent in 2016 to 1.28 percent 2017. Meanwhile, the labour income share of the top 10% has decreased slightly from 38.16% in 2016 to 37.90% in 2017. This is indicative that despite the minor improvements, more work needs to be done to bridge the income distribution between the various segments of the labour force.

3.4. ILO SHARE OF YOUTH UNEMPLOYMENT (OUTCOME)

3.4.1. Source

<https://ilostat.ilo.org/topics/employment/>

3.4.2. What does it tell us?

- Share of youth unemployment provides the share of labour force between ages 15-24 without work but available for and are seeking employment.
- Theoretically, the share can range from anywhere between 0% and 100% but it is unlikely that an economy will have a value close to both extremes because 0% would mean that every youth is employed while 100% means that every youth is unemployed.

3.4.3. Linkages to specific EAASR pillars

Pillars	Reasons
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • Share of youth unemployment is another indicator of outcome that allows policymakers to monitor the employment situation. • One differentiating factor compared to employment to population ratio is its focus on the youth, theoretically enabling better assessment of the impact of policies targeted towards this specific segment of society.

3.4.4. Possible actions at the economy level that may impact the indicator

- Introducing youth apprenticeship schemes where youths can gain work experience and have the opportunity to gain employment.
- Reviewing and improving the education syllabus to take into account the changing economic structure.
- Promoting the establishment of career services centres at educational institutions.
- Encouraging youths to take part in career talks and job fairs.
- Giving tax incentives to employers that hire youths.
- Introducing more inclusive and flexible labour policies.

3.4.5. Strengths of the indicator

- ILO estimates have been harmonized to take into consideration differences in data collection and tabulation methodologies in different economies, thus allowing for comparability across economies and years.
- It can potentially allow for better monitoring of policy impact on youths.
- The indicator provides data that can be disaggregated by gender.

3.4.6. Limitations of the indicator

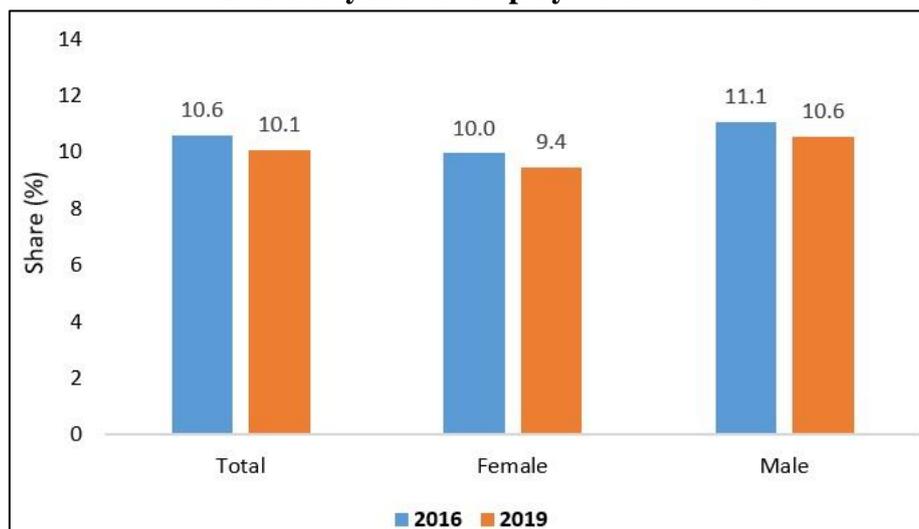
- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy and demographics.
- Despite being specific to the youth, it does not identify policies that policymakers should focus on in order to reduce the share of unemployment.
- Assuming that specific policies can affect the indicator, it takes time for the impact of policies to be captured by the indicator and, therefore, only marginal changes may be observed over time.

3.4.7. Coverage and additional information

Economies covered (since 2016)	21 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	2019
Frequency	Annual

3.4.8. Analysis

Share of youth unemployment in APEC



Note: APEC share of youth unemployment is a weighted calculation based on the total number of unemployed youth and youth labour force of all the 21 economies indicated in section 7.

Source: APEC PSU calculations based on data from ILO (accessed 11 July 2021).

Share of total youth unemployment decreased from 10.6% in 2016 to 10.1% in 2019. Both female and male youth unemployment have decreased over the same period, with unemployment among male youths remaining higher than unemployment among female youths.

3.5. WHO/UNICEF JOINT MONITORING PROGRAM INDICATORS FOR WATER SUPPLY AND SANITATION (OUTCOME)

3.5.1. Source

<https://washdata.org/data/household#!/>

3.5.2. What does it tell us?

- The indicators for water supply and sanitation provide an estimation of the percentage of an economy's total population (household-level) covered by at least basic drinking water services and by at least basic sanitation services, respectively.
- Percentages reported for “at least basic drinking water services” among economies includes both “safely managed drinking water services” and “basic drinking water services”. The former can be understood as drinking water services requiring more than 30 minutes for collection and that are: (1) accessible on premises; (2) available when needed; and (3) free from contamination.
- Percentages reported for “at least basic sanitation services” among economies includes both “safely managed sanitation services” and “basic sanitation services”. The former can be understood as a shared sanitation facility that: (1) treats and disposes excreta in situ; (2) empties and treats excreta off-site; or (3) treats wastewater off-site.

3.5.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • Availability of and access to basic services such as drinking water and sanitation increase the productivity of scarce resources and raise the competitiveness of the economy.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • Access to at least basic drinking water and sanitation services is an important basic necessity for all communities. Increase in total population covered by these basic services is critical in ensuring a more equal access to opportunities by all groups in society.

3.5.4. Possible actions at the economy level that may impact the indicator

- Building more drinking water facilities that are accessible to the community.
- Connecting more households to basic drinking water facilities and to existing sewerage networks.
- Establishing more water treatment plants to ensure adequate access to drinking water.
- Improving existing sewerage networks to widen the serviceable area;

3.5.5. Strengths of the indicator

- The indicator provides data that can be disaggregated into access at urban and rural level, hence enabling policymakers to focus their efforts on.

3.5.6. Limitations of the indicator

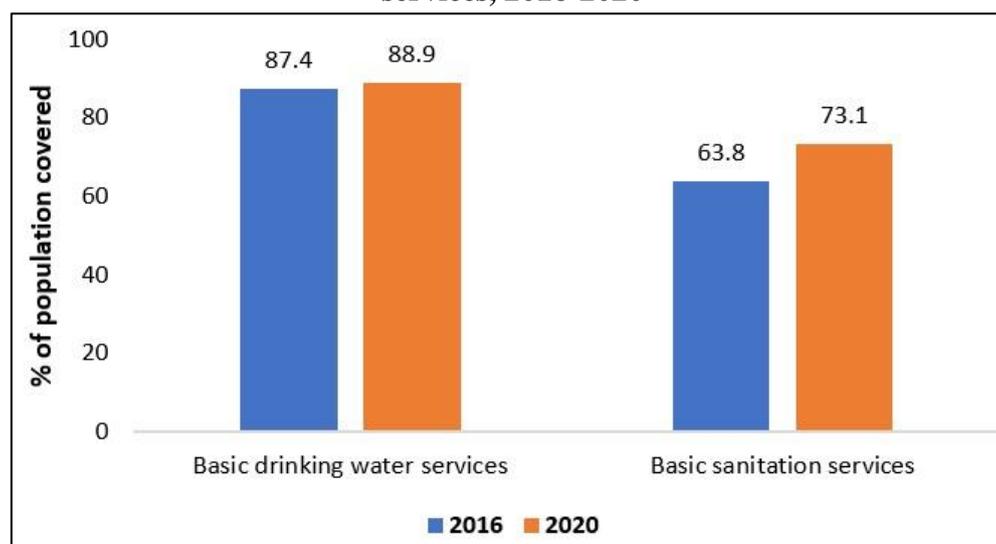
- Some data points are extrapolated whenever an economy has only one data point or two data points less than five years apart, which means that some years may not reflect actual coverage/improvements.

3.5.7. Coverage and additional information

Economies covered (since 2016)	18 (AUS; BD; CDA; CHL; PRC; HKC; INA; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; THA; USA; VN)
Latest Available Year	2020
Frequency	Annual

3.5.8. Analysis

Share of APEC population covered by at least basic drinking water and sanitation services, 2016-2020



Note: APEC population covered by at least basic drinking water services is the population-weighted average of 18 economies, namely AUS; BD; CDA; CHL; PRC; HKC; INA; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; THA; USA; and VN. APEC population covered by at least basic drinking water services is the population-weighted average of 16 economies, namely AUS; CDA; CHL; PRC; HKC; INA; MEX; NZ; PNG; PE; PHL; RUS; SGP; THA; USA; and VN. For economies that report both “basic services” and “safely managed services”, the “safely managed services” is reported.

Source: APEC PSU calculations based on data from the WHO/UNICEF (accessed 28 November 2021).

The share of APEC’s population covered by at least basic drinking water services has increased from 87.4% in 2016 to 88.9% in 2020, while the share covered by at least basic sanitation services has increased from 63.8% to 73.1% over the same period.

3.6. WORLD BANK INDICATORS ON WOMEN, BUSINESS, AND THE LAW (POLICY-BASED)

3.6.1. Source

<http://wbl.worldbank.org/>

3.6.2. What does it tell us?

- Women, Business, and the Law monitors the presence of laws and regulations that prohibit discrimination against women's participation in entrepreneurship and employment.
- For the purpose of EAASR, this set of indicators of interest are those related to mobility, workplace, pay, parenthood, entrepreneurship, and pension. The relevant questions are listed below:

Indicators	Questions as asked in the survey
Mobility	Can a woman choose where to live in the same way as a man?
	Can a woman travel outside her home in the same way as a man?
	Can a woman apply for a passport in the same way as a man?
	Can a woman travel outside the economy in the same way as a man?
Workplace	Can a woman get a job in the same way as a man?
	Does the law prohibit discrimination in employment based on gender?
	Is there legislation on sexual harassment in employment?
	Are there criminal penalties or civil remedies for sexual harassment in employment?
Pay	Does the law mandate equal remuneration for work of equal value?
	Can women work the same night hours as men?
	Can women work in jobs deemed dangerous in the same way as men?
	Can women work in industrial jobs in the same way as men?
Parenthood	Is paid leave of at least 14 weeks available to mothers?
	Does the government administer 100% of maternity leave benefits?
	Is there paid leave available to fathers?
	Is there paid parental leave?
Entrepreneurship	Is dismissal of pregnant workers prohibited?
	Does the law prohibit discrimination in access to credit based on gender?
	Can a woman sign a contract in the same way as a man?
	Can a woman register a business in the same way as a man?
Pension	Can a woman open a bank account in the same way as a man?
	Are the ages at which men and women can retire with full pension benefits equal?
	Are the ages at which men and women can retire with partial pension benefits equal?
	Is the mandatory retirement age for men and women the same?
	Are periods of absence from work due to childcare accounted for in pension benefits?

3.6.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent, and competitive markets	<ul style="list-style-type: none"> • Some of the indicators look at aspects which may influence women's participation in the labour market, hence distorting it. This could affect the competitiveness of the market and hence the overall economy.
Ensuring equal access to opportunities for all	<ul style="list-style-type: none"> • This set of indicators captures various factors that influence women's civic participation, which could affect their decision to

groups in society for more inclusive and sustainable growth, and social well-being

increase their participation in entrepreneurship and employment, work overseas, or take parental leave, among others.

3.6.4. Possible actions at the economy level that may impact the indicator

- Introducing new as well as revising existing laws/regulations with the intention to level the field and close the gender gap between men and women.
- Implementing a whole-of-government approach so as to ensure consistency of laws/regulations.
- Organizing dialogues and workshops to understand the laws/regulations that are inhibiting women to increase their participation.
- Exploring how to introduce new gender equal initiatives, such as paternal leaves and programs to reintroduce working mothers to the workforce.
- Incentivizing employers that implement gender balance policies in the workplace.

3.6.5. Strengths of the indicator

- This set of indicators are based on a reading of the laws/regulations and, therefore, can be acted upon since it is within the control of policymakers. Specifically, they are constructed using responses from expert practitioners in family, labor, and criminal law who are working on gender issues. These practitioners have to provide references to the relevant laws/regulations.
- It is possible to compare findings across economies due to the use of standard assumptions during data collection.

3.6.6. Limitations of the indicator

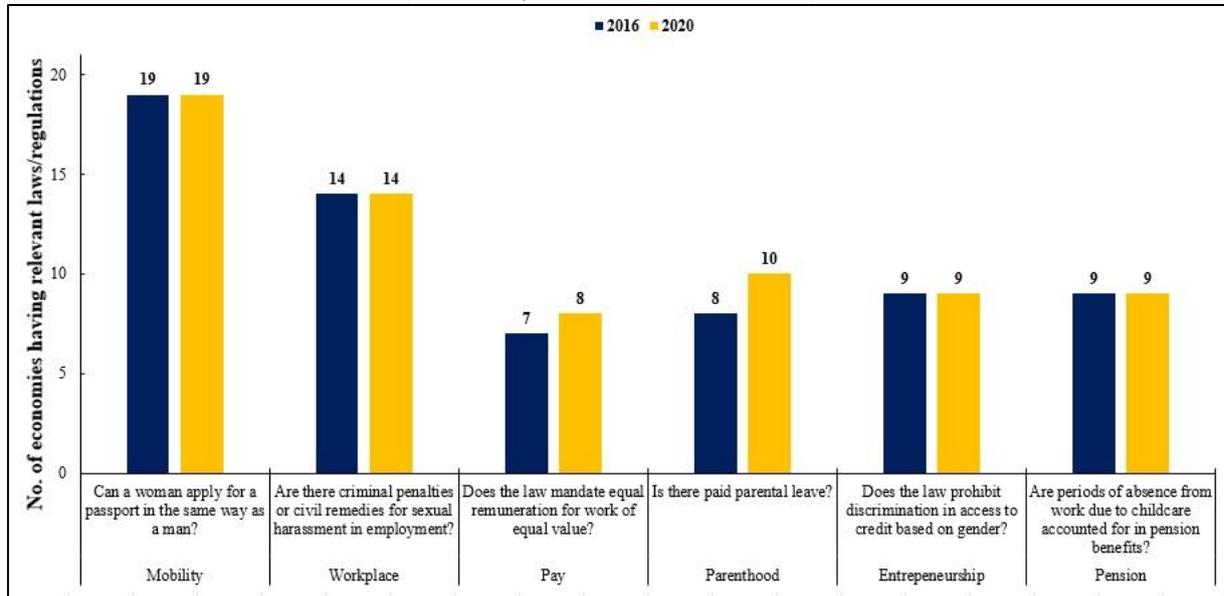
- Actual implementation of laws and regulations are not analyzed.
- To ensure comparability across economies, there are some underlying assumptions, which may not be reflective of the reality on the ground.
- The identified indicators are not exhaustive of all the constraints faced by women. Indeed, the APEC Women and the Economy dashboard has a longer list of indicators.
- Since methodology is occasionally revised and improved, some proposed indicators may no longer be comparable across time.

3.6.7. Coverage and additional information

Economies covered (since WBL2016)	21 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	WBL2020
Frequency	Annual

3.6.8. Analysis

Presence of laws/regulations on various areas that aim to protect women against discrimination (Selected, WBL2016 and 2020)



Source: APEC PSU compilations based on data from World Bank (accessed 14 January 2021).

APEC economies have a wide range of measures to protect women against discrimination. All APEC economies have reported that they have achieved equality in several areas, such as in how women in their economies can get a job, work the same night hours, sign a contract, register a business, and open a bank account the same way as a man. However, much work remains in various areas. For example, only two-thirds of economies have laws on sexual harassment in employment in WBL2020. Additionally, fewer than half of APEC economies have passed regulations mandating equal remuneration for work of equal value, prohibiting discrimination in access to credit based on gender, and indicating that periods of absence from work due to childcare should be accounted for in pension benefits.

3.7. ENERGY & CLIMATE INTELLIGENCE UNIT NET ZERO TRACKER (POLICY-BASED)

3.7.1. Source

<https://eciu.net/netzerotracker>

3.7.2. What does it tell us?

- The net zero tracker provides the estimated or expected year whereby an economy would reach net zero emissions. This indicator can, therefore, indicate an economy's commitment to mitigating climate change.
- The net zero tracker uses a scorecard that first groups economies into five categories, namely: "Achieved"; "In Law"; "Proposed Legislation"; "In Policy Document"; and, "Target Under Discussion". Once grouped, each economy is then ranked by the estimated or expected year that it will reach net zero emissions (economies with earlier years are ranked higher).

3.7.3. Linkages to specific EAASR pillars

Pillars	Reasons
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none">• The net zero tracker was designed to measure an economy's progress towards reaching net zero emissions. An economy's progress towards institutionalizing emissions reduction policies can reflect the quality of its institutions and/or systems.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none">• In order to reach net zero emissions, an economy would most likely require the use of new technology and innovation. Thus, an economy's progress in this indicator can indicate how they harness these new technologies and innovation.

3.7.4. Possible actions at the economy level that may impact the indicator

- Institutionalizing an early target year for net zero emissions through legislation.
- Speeding up the process to include net zero emissions target in laws/regulations.
- Increasing stakeholder engagement in order to identify a reasonable and acceptable target year for net zero emissions.

3.7.5. Strengths of the indicator

- The net zero tracker is a straightforward indicator that shows the extent of an economy's commitment to mitigating climate change through reducing emissions.
- Its simple system of grouping economies into various categories can be used to monitor the speed by which economies institutionalize or adopt its targets, thereby serving as a proxy for measuring how responsive the economy's institutions and/or systems are.

3.7.6. Limitations of the indicator

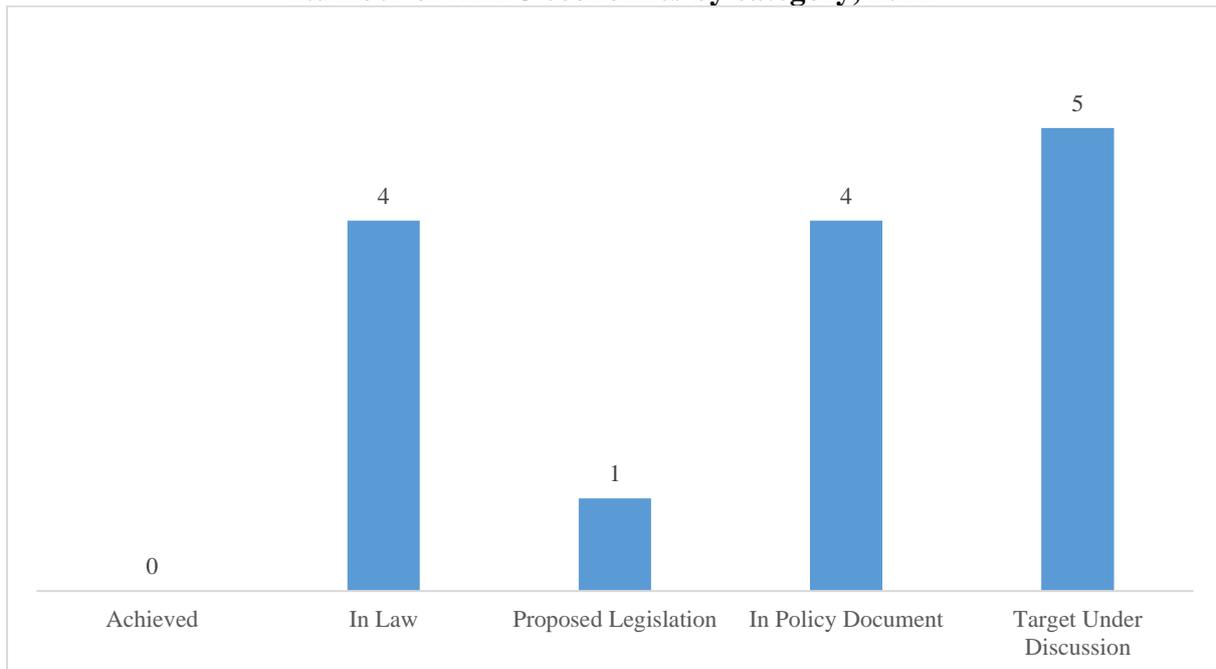
- The net zero tracker only captures an economy's target year as reflected in laws/policy documents, but does not reflect how these targets would be achieved in practice, or how far an economy is in achieving net zero emissions.

3.7.7. Coverage and additional information

Economies covered (since 2021)	14 (AUS; CDA; CHL; PRC; INA; JPN; ROK; MAS; MEX; NZ; PNG; PE; RUS; USA)
Latest Available Year	2021
Frequency	Annual

3.7.8. Analysis

Number of APEC economies by category, 2021



Source: APEC PSU calculations based on data from the Energy & Climate Intelligence Unit (accessed 29 October 2021).

As of 2021, no APEC economy has achieved net zero emissions. Most of the economies covered (57.1%) have already formalized their target year for net zero emissions either through laws or policy documents. Five economies (35.7%), however, continue to discuss their target year.

3.8. OECD PRODUCTION-BASED AND DEMAND-BASED CO₂ PRODUCTIVITY (GDP PER UNIT OF ENERGY-RELATED CO₂ EMISSIONS) (OUTCOME)

3.8.1. Source

https://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH#

3.8.2. What does it tell us?

- Production-based and demand-based CO₂ productivity estimates the productivity of the economy from the perspective of producer and consumer, respectively. Both are measured in USD per kilogram of CO₂ emissions (base period of 2015).
- Production-based emissions refer to gross direct CO₂ emissions from fossil fuel combustion emitted within the economy and exclude bunkers, sinks and indirect effects, while demand-based CO₂ emissions include the CO₂ from energy use emitted (in the economy or abroad) during the various stages of production of goods and services consumed in domestic final demand.
- An increasing trend in production-based CO₂ productivity would suggest that the economy is becoming a more energy-efficient producer, while an increasing trend in demand-based CO₂ productivity would suggest that an economy's population is consuming more energy-efficient products, whether produced domestically or imported from abroad.
- Environmental productivity metrics such as this indicator can be helpful to estimate an economy's progress towards the green economy, especially when compared alongside traditional labor productivity metrics, such as the indicator proposed in Section 3.20.

3.8.3. Linkages to specific EAASR pillars

Pillars	Reasons
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • An economy that is more energy-efficient through, for instance, the use of more sustainable sources of energy, are likely to be more resilient to future shocks, such as shortages in fossil fuels. • An economy that consumes more energy-efficient products, whether produced domestically or imported from abroad, can indicate changes in domestic consumer behavior. For instance, an increasing trend in the use of more energy-efficient products can encourage the establishment of more energy-efficient producers that rely less on fossil fuels. Producers less reliant on fossil fuels are then less vulnerable to shocks affecting the international trade of fossil fuels.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • Improving an economy's performance (as measured by this indicator) could reflect an economy's success in harnessing and promoting the utilization of green innovations and new technologies both in production as well as in consumption.

3.8.4. Possible actions at the economy level that may impact the indicator

- Strengthening the use of renewable sources of energy in electricity production.
- Improving access to capital financing for manufacturers, particularly for the purchase of more energy-efficient machineries and/or to retrofit existing factories.
- Incentivizing manufacturers that are able to improve energy efficiency in their production.
- Raising consumer awareness hence patronage of products produced through green innovations and new technologies via information campaigns.
- Incentivizing consumers to purchase more energy-efficient products through tax benefits and subsidies.

3.8.5. Strengths of the indicator

- This indicator can be compared alongside other traditional labor productivity metrics to illustrate a more holistic assessment of an economy's transition to a greener economy.

3.8.6. Limitations of the indicator

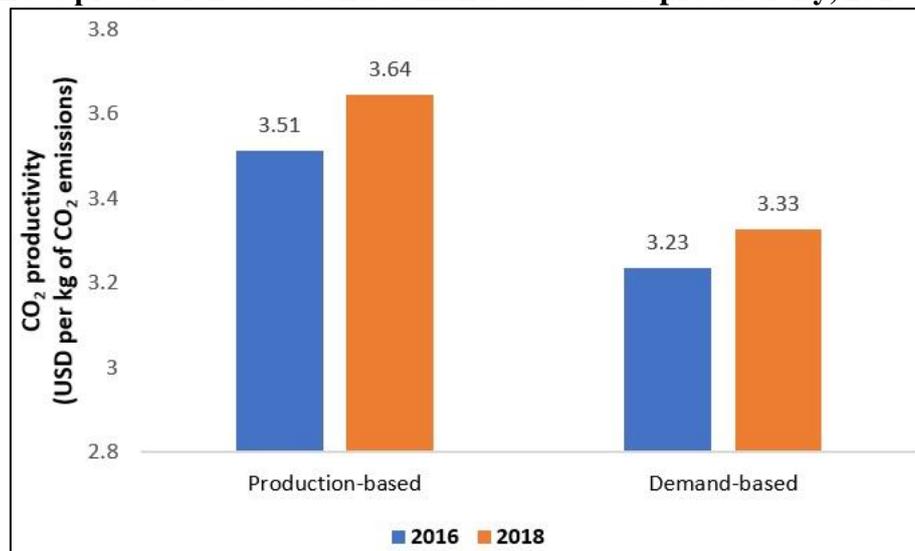
- The indicator considers only CO₂ emissions, which means that other harmful greenhouse gases such as methane and nitrous oxide are excluded.
- CO₂ emissions can also still increase over time despite economies being more energy-efficient.

3.8.7. Coverage and additional information

Economies covered (since 2016)	18 (AUS; BD; CDA; PRC; CHL; INA; JPN; ROK; MAS; MEX; NZ; PE; PH; RUS; SGP; THA; USA; VN)
Latest Available Year	2019 (for production-based) and 2018 (for demand-based)
Frequency	Annual

3.8.8. Analysis

APEC's production-based and demand-based CO₂ productivity, 2016-2018



Note: APEC aggregate is the real-GDP (2015=100) weighted average of the 18 APEC economies included in the assessment. Source: APEC PSU calculations based on the OECD Green Growth Indicators (accessed 27 November 2021).

APEC has become relatively more energy-efficient between 2016 and 2018. The region's production-based CO₂ productivity (as measured in GDP per kilogram of CO₂ emissions) increased from USD3.51 in 2016 to USD3.64 in 2018, while its demand-based CO₂ productivity increased from USD3.23 in 2016 to USD3.33 in 2018.

3.9. OECD PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT (PISA) INDICATORS ON READING, MATHEMATICS AND SCIENCE AND SOCIAL INCLUSION (OUTCOME)

3.9.1. Source

<http://www.oecd.org/pisa/data/>

3.9.2. What does it tell us?

- PISA evaluates 15-year-old students worldwide by testing the skills and knowledge that they attained to participate fully in modern societies. The average age of 15 was chosen because young people at this age are nearing the end of compulsory education in most economies.
- Specifically, students are assessed in reading, mathematics, and science, which are deemed foundational to their ongoing education. There are also additional and optional assessments on competencies in areas, such as financial literacy and collaborative problem solving. Some of these competencies have been identified as important for thriving in the digital economy.
- Results from PISA are reported using scales, where a higher score indicates better competency. Information can also be disaggregated by gender.
- PISA also builds various indices using factors recorded by schools, such as the highest educational attainment of parents, highest parental occupation, and home possessions. One such index, which would be useful for EAASR, is the index on social inclusion, which measures the amount of socioeconomic variation within schools. A higher index score implies that there is more socioeconomic diversity amongst students who attend the same schools than among students attending different schools.
- It serves to complement the UNESCO tertiary gross enrolment ratio proposed in Section 3.14.

3.9.3. Linkage to specific RAASR pillars

Pillars	Reasons
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • Improvements in the score is reflective of a potentially more competent future labour force capable of participating and making meaningful contribution to the economy. • The index of social inclusion is reflective of the extent to which educational opportunities are accessible to students from various socio-economic classes.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • Quality of education, as shown by the assessed competencies, can potentially be used to infer on the ability of the future labour force in harnessing innovation and new technology to enhance their productivity. In turn, policymakers could use the score to identify subject matters in the educational systems that could be improved upon.

3.9.4. Possible action at the economy level that may impact the indicator

- Evaluating and enhancing an existing curriculum to ensure students are being equipped with the necessary level of proficiency in reading, mathematics, and science.
- Promoting learning beyond the classroom to enable students to apply their knowledge to practical, real-world situations.
- Minimizing the gender gap in academic achievements through mindset change and scholarships.
- Organizing seminars and workshops between schools to share ways to improve teaching.

3.9.5. Strengths of the indicator

- The selection of schools and students have been made as inclusive as possible to ensure the sample comes from a broad range of backgrounds and abilities. Furthermore, transitioning to electronic means to administer the test while keeping open the option of using paper questionnaires is believed to improve inclusiveness.
- Test questions are reviewed by international contractors and participating economies to check for cultural biases. Moreover, a trial test was run in all participating economies.
- It can be used to inform and support education policy decision making.

3.9.6. Limitations of the indicator

- Exact comparability across time may be an issue as the framework for assessment are occasionally revised. For example, the PISA 2018 reading framework was revised to incorporate new forms of reading.
- Furthermore, while the intent is to monitor trends over time, each round of PISA tests one domain in detail (i.e., take up roughly one-half of the total testing time). For instance, PISA 2006 and 2015 focused on science as the major domain, while PISA 2003 and 2012 focused on mathematics.
- Some components measured by PISA does not consider the variations in performance across schools (public vs. private) within an economy.
- In some economies, particularly developing ones, the number of 15-year-olds out of school tend to be high. As such, PISA scores may not accurately reflect the educational achievement of the overall economy.
- PISA places a strong emphasis on the quantifiable aspects of education, but it reduces the importance given to other skills outside of formal channels, which may be gaining in importance.

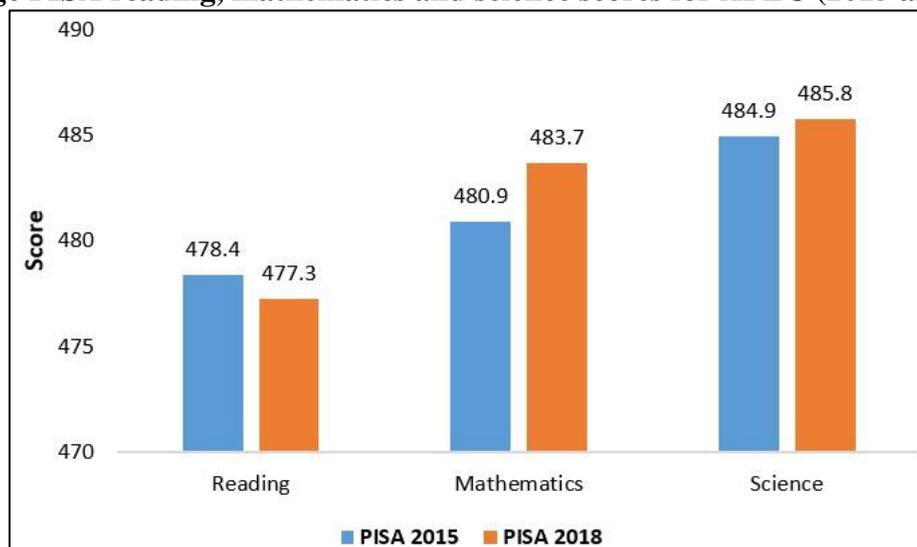
3.9.7. Coverage and additional information

Economies covered (since PISA 2015)	20 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	PISA 2018
Frequency	Triennial

Note: Only four cities/provinces in China participated in PISA 2015, namely: Beijing, Shanghai, Jiangsu and Guangdong. Similarly, only four cities/provinces in China participated in PISA 2018, namely: Beijing, Shanghai, Jiangsu, and Zhejiang.

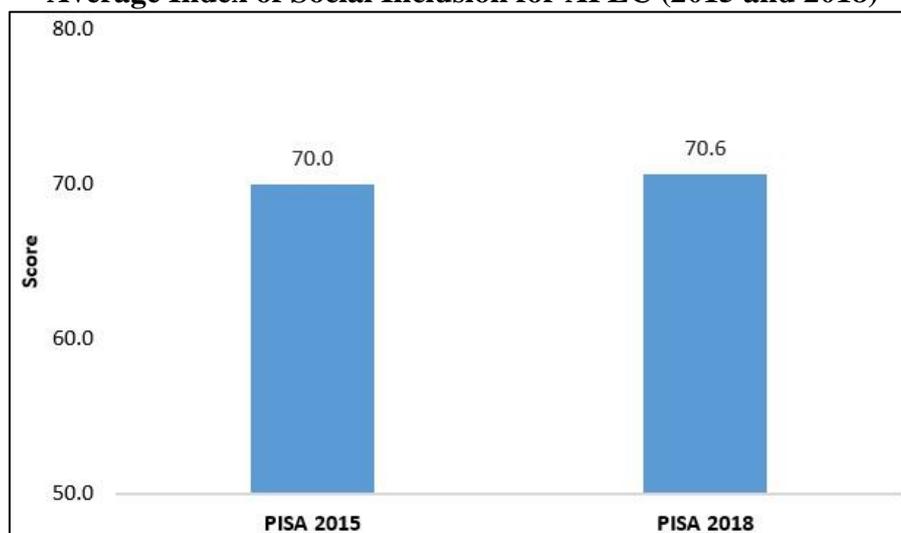
3.9.8. Analysis

Average PISA reading, mathematics and science scores for APEC (2015 and 2018)



Note: APEC average is a simple average of 17 APEC economies. Data for BD, PHL and VN were not included. Data for PNG was not available. For PRC, the four cities/provinces which participated in PISA 2015 were Beijing, Shanghai, Jiangsu and Guangdong, while the four cities/provinces that participated in PISA 2018 were Beijing, Shanghai, Jiangsu, and Zhejiang. Source: APEC PSU calculations using data from OECD PISA (accessed 11 July 2021).

Average Index of Social Inclusion for APEC (2015 and 2018)



Note: APEC average is a simple average of 16 APEC economies. Data for BD, MAS, PHL and VN were not included. Data for PNG was not available. For PRC, the four cities/provinces which participated in PISA 2015 were Beijing, Shanghai, Jiangsu and Guangdong, while the four cities/provinces that participated in PISA 2018 were Beijing, Shanghai, Jiangsu, and Zhejiang. Source: APEC PSU calculations using data from OECD PISA (accessed 11 July 2021).

The analysis shows that the average scores for mathematics had increased from 480.9 in 2015 to 483.7 in 2018. Similarly, the average score for science had increased from 484.9 in 2015 to 485.8 in 2018. Meanwhile, the average score for reading had decreased from 478.4 to 477.3 over the same period, whereas the region's average index for social inclusion rose from 70.0 in 2015 to 70.6 in 2018.

3.10. OUR WORLD IN DATA SHARE OF PRIMARY ENERGY FROM RENEWABLE SOURCES (OUTCOME)

3.10.1. Source

<https://ourworldindata.org/renewable-energy>

3.10.2. What does it tell us?

- This indicator helps to monitor an economy’s progress towards reaching a more sustainable energy mix. The renewable energy sources covered by this indicator includes hydropower, solar, wind, geothermal, bioenergy, wave, and tidal. Primary energy is calculated using the “substitution method” that takes into account the inefficiencies of energy production from fossil fuels.

3.10.3. Linkages to specific EAASR pillars

Pillars	Reasons
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • Increasing the proportion of renewable energy in the energy mix of an economy can help to make it not only greener but also more sustainable. Less reliance on fossil fuels can also help to shield the economy from shocks related to fossil fuel shortages and/or supply chain disruptions (e.g., during the COVID-19 pandemic).
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • Improvements in this indicator is indicative of an economy’s ability to harness new technologies and innovation to transition to a greener and more sustainable energy mix.

3.10.4. Possible actions at the economy level that may impact the indicator

- Investing in more infrastructure for renewable sources of energy.
- Adopting programs and policies designed to incentivize renewable energy production.
- Gradually decommissioning or repurposing power plants that use coal and other similar sources of non-renewable energy.

3.10.5. Strengths of the indicator

- This indicator can directly measure an economy’s progress towards reducing its carbon emissions and improving its energy mix to be more sustainable.

3.10.6. Limitations of the indicator

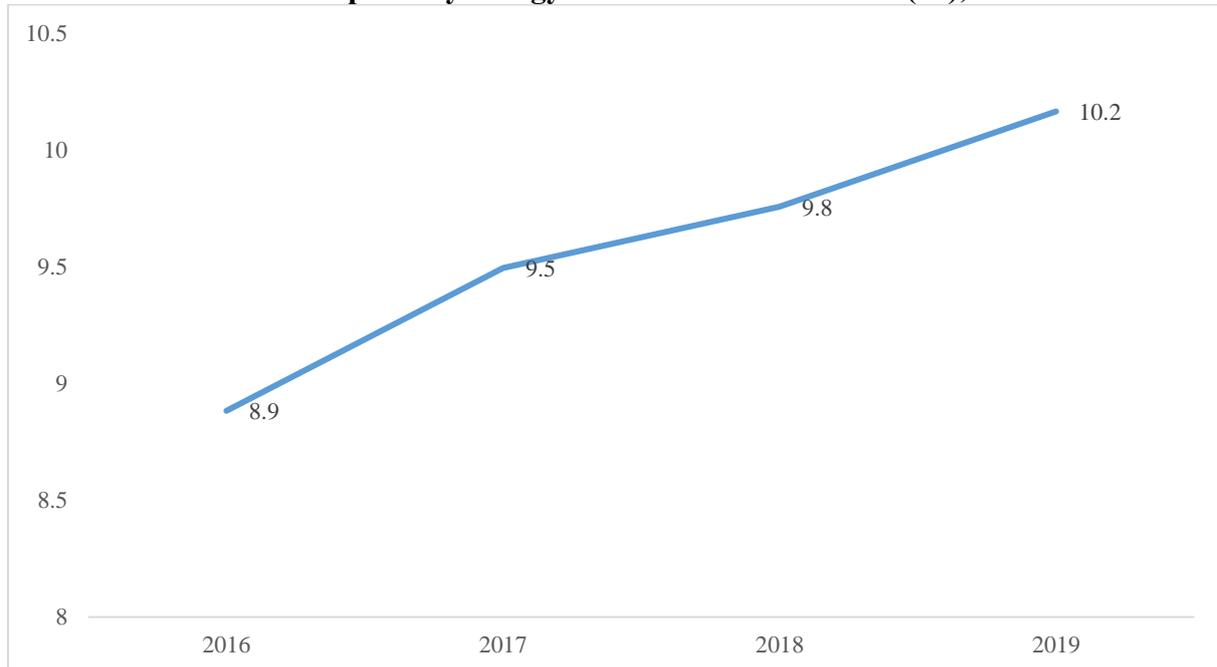
- This indicator does not include traditional biofuels that are often a key energy source for lower-income economies.
- This indicator includes hydropower, which in some cases can be considered as a non-sustainable source of renewable energy because of its detrimental effect to local communities, vegetation, and wildlife.

3.10.7. Coverage and additional information

Economies covered (since 2016)	19 (AUS; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; VN)
Latest Available Year	2019
Frequency	Annual

3.10.8. Analysis

APEC's share of primary energy from renewable sources (%), 2016-2019



Note: APEC value is the weighted average of the 19 economies with available data. Weights are based on real GDP (2010=100).

Source: APEC PSU calculations based on data from *Our World in Data* (accessed 25 October 2021).

Since 2016, APEC's share of primary energy from renewable sources have been increasing. The real GDP weighted average of APEC has increased from 8.9% in 2016 to 10.2% in 2019. This suggests that APEC, as a region, has been able to improve its energy mix to be more sustainable.

3.11. WORLD BANK ADJUSTED SAVINGS: CARBON DIOXIDE DAMAGE (% OF GNI) (OUTCOME)

3.11.1. Source

<https://data.worldbank.org/indicator/NY.ADJ.DCO2.GN.ZS>

3.11.2. What does it tell us?

- This indicator measures the cost of damage caused by carbon dioxide emissions from fossil fuel use and the manufacture of cement.
- When an economy reduces its consumption of fossil fuels, such as through using electric vehicles or adopting cleaner sources of energy, the damage caused (as measured through the indicator) will decrease.

3.11.3. Linkages to specific EAASR pillars

Pillars	Reasons
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • An economy's performance in reducing pollution damage can reflect the presence of strong institutions and/or systems capable of implementing appropriate emissions mitigation programs. These strong institutions and/or systems are equally important in ensuring resilience during shocks. • The indicator can also indicate an economy's effort to encourage businesses to adopt greener practices in order to transit to the green economy.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • Reducing pollution damage from fossil fuel use and/or cement manufacturing requires the use of new technology, such as electric vehicles, or the use of alternatives, such as sustainable construction materials. A reduction of carbon dioxide damage could, therefore, suggest that an economy has harnessed innovation and new technologies, especially those aimed facilitating the transition to the green economy.

3.11.4. Possible actions at the economy level that may impact the indicator

- Increasing the share of renewable energy sources in the economy's electricity grid.
- Promoting the use of electric vehicles as a cleaner alternative to fossil-fuel powered vehicles, provided the electricity is generated using renewable sources.
- Improving the systems for capturing carbon dioxide emissions during the manufacture of cement.

3.11.5. Strengths of the indicator

- The indicator provides a straightforward assessment of an economy's carbon dioxide emission resulting from consumption and production albeit specific to fossil fuels and to cement manufacturing only.
- The indicator provides an economic measure of the damage caused by carbon dioxide, which could be easier to interpret/understand compared to carbon dioxide being expressed in metric tons.

3.11.6. Limitations of the indicator

- Since the indicator is expressed as a percentage of GNI, economies with a larger GNI could misleadingly be perceived as performing better compared to economies with a smaller GNI even if they may have consumed the same amount of fossil fuels. Decrease in the indicator could, therefore, be the result of an increase in economic performance instead of a reduction in carbon dioxide emissions.

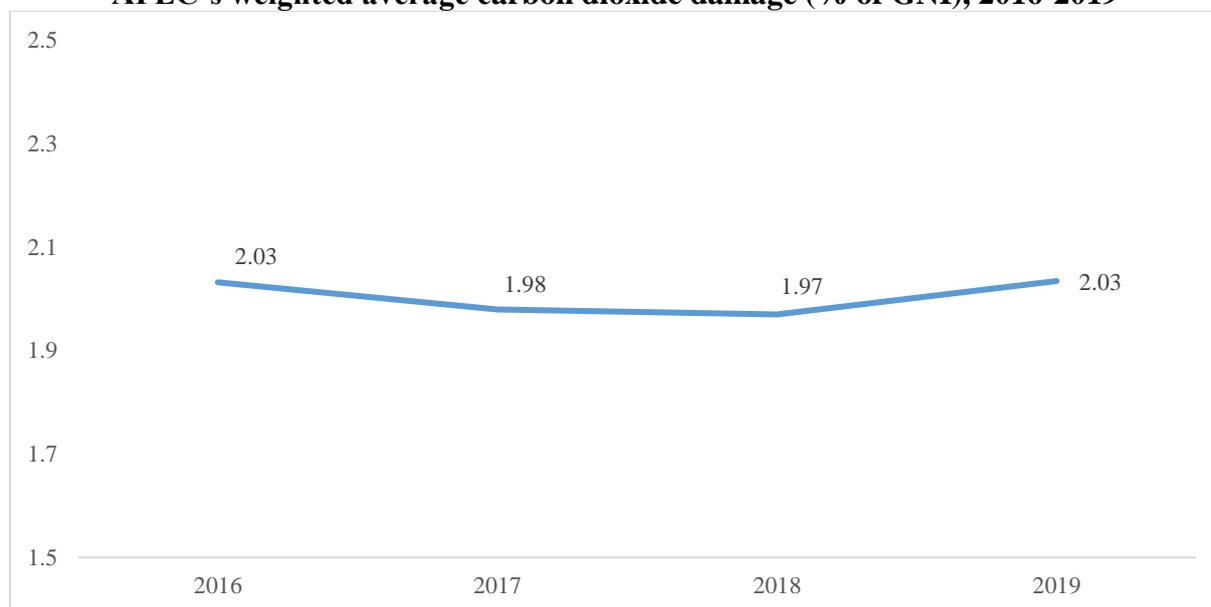
- While the indicator was designed to help measure an economy’s effort to manage pollution damage due to carbon dioxide emissions, its performance could be the result of other factors (i.e., an issue with attribution). For instance, the expectedly lower emissions in 2020 could be attributed to safe management measures in response to the COVID-19 pandemic (e.g., lockdowns and travel restrictions) instead of the result of policies and programs intended to help businesses transit to the green economy.

3.11.7. Coverage and additional information

Economies covered (since 2016)	20 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; PNG; RUS; SGP; THA; USA; VN)
Latest Available Year	2019
Frequency	Annual

3.11.8. Analysis

APEC’s weighted average carbon dioxide damage (% of GNI), 2016-2019



Note: APEC value is the weighted average of the 20 APEC economies included in the assessment. Weights are based on GNI, PPP, Current International Dollars.

Source: APEC PSU calculations based on data from the World Bank Development Indicators (accessed 5 October 2021).

APEC’s performance has improved since 2016, dropping from 2.03% to 1.97% in 2018 although APEC’s performance worsened in 2019. Changes in APEC’s performance during the period 2016-2019 can, however, be considered minimal since it practically hovers at around 2.0%, which may suggest that APEC, as a region, has not successfully implemented existing emissions reduction programs and policies.

3.12. ILO INDICATORS ON SOCIAL PROTECTION (OUTCOME)

3.12.1. Source

<https://ilostat.ilo.org/topics/social-protection/>

3.12.2. What does it tell us?

- ILO's social protection indicators tracks the proportion of the various segments of the population covered by some form of social protection.
- For the purpose of EAASR, the relevant indicators that could be monitored are: share of population covered by at least one social protection benefit; and, share of vulnerable persons covered by social assistance.

3.12.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • Well-targeted social policies raise the productivity and competitiveness of the economy.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • Increasing the coverage of the population with some form of social protection benefit provide greater economic security and resilience for the population. This in turn could help stabilize consumption, which can help businesses weather shocks and expedite their recoveries.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and social well-being	<ul style="list-style-type: none"> • Widening access to social protection by the populace could ensure a more equitable access to opportunities, such as skills training, which in turn would allow them to participate and contribute more to the economy.

3.12.4. Possible actions at the economy level that may impact the indicator

- Making it easier to qualify and apply for various benefits (e.g., unemployment and training allowance).
- Raising awareness on the types of social protection benefits available to various groups of people.
- Harmonizing procedures and establishing an economy-wide system to apply for various benefits.
- Introducing measures to protect and cover workers from workplace injuries and accidents.

3.12.5. Strengths of the indicator

- ILO estimates have been harmonized to take into consideration differences in data collection and tabulation methodologies in different economies.
- When used in combination with other indicators for the same group, such as employment opportunities (if available), it can potentially point to underlying issues that need to be tackled by policymakers.

3.12.6. Limitations of the indicator

- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy and demographics.
- It does not identify policies that policymakers should focus on in order to increase the coverage of social protection.

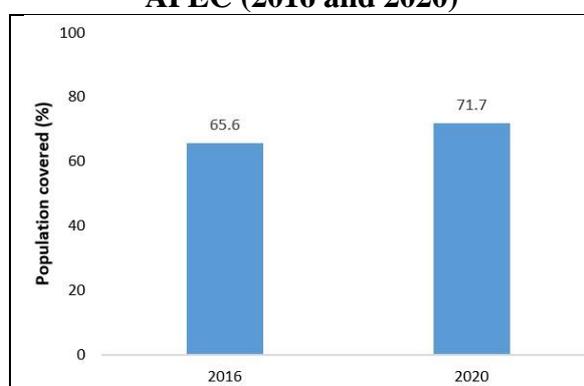
- Assuming that specific policies can affect the indicator, it takes time for the impact of policies to be captured by the indicator.

3.12.7. Coverage and additional information

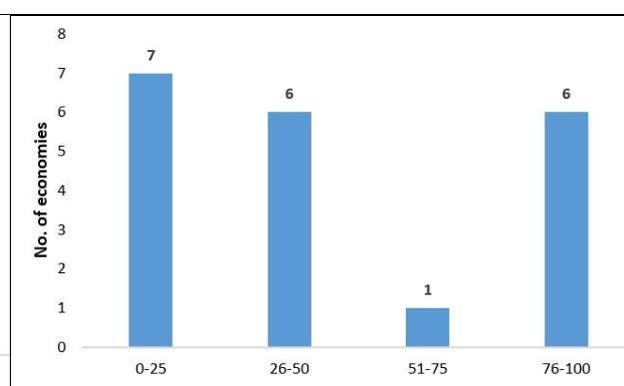
Economies covered (since 2016)	21 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; CT; THA; USA; VN)
Latest Available Year	2020
Frequency	Vary by economies

3.12.8. Analysis

Average share of population covered by at least one social protection benefit in APEC (2016 and 2020)



Share of vulnerable persons (%) covered by social assistance (2020)



Note: Average share of APEC population covered by at least one social protection benefit is a weighted average of share in 12 economies (AUS; CDA; CHL; PRC; JPN; ROK; MEX; NZ; PHL; RUS; USA; and VN) where data are available for year 2016 and 2020.

Source: APEC PSU computations based on data from ILO Social Security Inquiry Database (accessed 11 July 2021).

The average share of population covered by at least one social protection benefit in APEC has increased from 65.6% in 2016 to 71.7% in 2020. In terms of share of vulnerable persons covered by social assistance, analysis of data in 2020 shows that social assistance in seven economies covered at least half of vulnerable persons, while social assistance in 13 economies covered less than half of vulnerable persons.

3.13. UNESCO GROSS R&D EXPENDITURE (% OF GDP) (OUTCOME)

3.13.1. Source

<http://data.uis.unesco.org/>

3.13.2. What does it tell us?

- UNESCO's R&D Expenditure as a percentage of GDP measures the share of an economy's output invested on further research and development.

3.13.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • Increased investments in R&D is generally reflective of a more competitive market as the economy would be able to access new technology and innovation in facilitating various activities.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • R&D potentially creates more competitive and cost-effective products and processes. This could help firms become more agile in their recovery, and allow them to adopt new practices to better prepare against future shocks.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • Investments in R&D could boost productivity and digitalization through the development of new technologies such as artificial intelligence and machine learning.

3.13.4. Possible actions at the economy level that may impact the indicator

- Providing incentives such as research grants and tax benefits to fund innovative activities.
- Improving the quality of STEM education to encourage more employment and educational opportunities within R&D.
- Creating regulatory sandboxes to enable innovative businesses to pilot new technologies and services.

3.13.5. Strengths of the indicator

- The indicator is directly linked to GDP and, hence, could reflect the significance of R&D within an economy's output.

3.13.6. Limitations of the indicator

- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy and the element of choice.
- Assuming that specific policies can affect the indicator, it takes time for the impact of policies to be captured by the indicator.

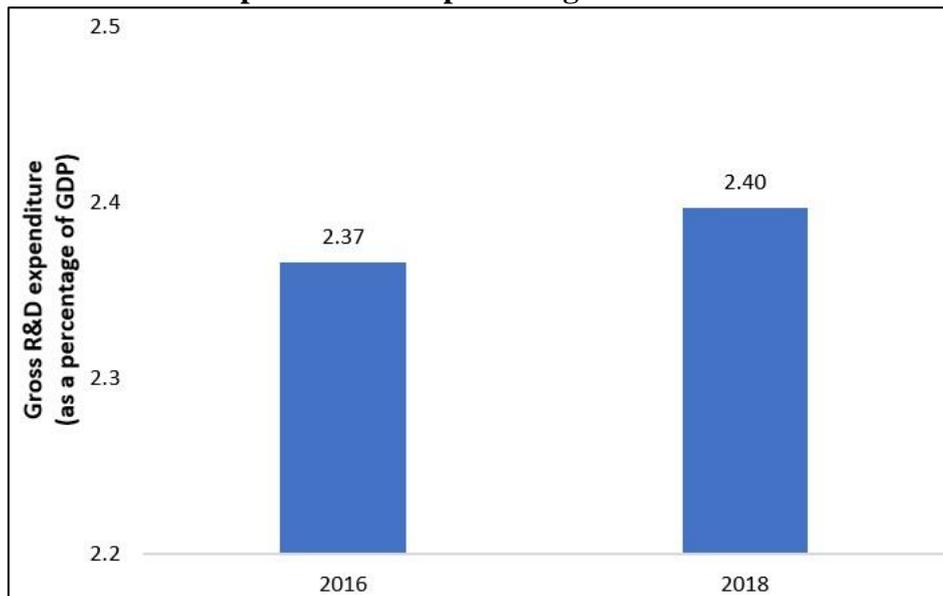
3.13.7. Coverage and additional information

Economies covered (since 2016)	18 (AUS; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; RUS; SGP; CT; THA; USA; VN)
Latest Available Year	Mostly 2018
Frequency	Annual

Note: Chinese Taipei data is from OECD (https://www.oecd-ilibrary.org/science-and-technology/gross-domestic-expenditure-on-r-d-gerd-as-a-percentage-of-gdp_331a9806-en).

3.13.8. Analysis

R&D expenditure as a percentage of GDP in APEC



Note: For APEC values in 2016, data for 2015 are used for AUS; NZ; and VN. For APEC values in 2018, data for 2017 are used for AUS; CHL; NZ; SGP; THA; and VN. The APEC average excludes BD; PNG; and PHL.

Source: APEC PSU calculations using data from UNESCO (accessed 27 November 2021).

Analysis of UNESCO data showed that the share R&D expenditure, as a percentage of GDP, has increased slightly from 2.37% in 2016 to 2.40% in 2018. It is also worthwhile to indicate that the share varies between individual economies. In 2018, the spread ranged from 0.13% to 4.53%.

3.14. UNESCO TERTIARY GROSS ENROLMENT RATIO (OUTCOME)

3.14.1. Source

<http://www.uis.unesco.org/datacentre/Pages/default.aspx>

3.14.2. What does it tell us?

- Tertiary gross enrolment ratio (GER) provides the number of students enrolled in the tertiary level of education regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education (i.e., tertiary).
- A high tertiary GER points to a high degree of participation in tertiary education.
- It is possible for GER to exceed 100% because the number of students enrolled in tertiary education may include over-aged and under-aged students (i.e., early or late entrants), as well as grade repetition.

3.14.3. Linkage to specific EAASR pillars

Pillars	Reasons
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • As the COVID-19 pandemic caused massive disruptions to schooling and altered the future of work, it is important to ensure that there are enough qualified workers to fill up new jobs, and that their skills are in line with emerging business needs. • Tertiary GER is one way to monitor the level of participation in tertiary education and, consequently, make inferences on the resilience of the economy against future shocks and in the changing global landscape.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • By providing opportunities to pursue education at a higher level, an economy raises the likelihood of an individual to participate in the markets, both as a consumer and as a producer.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • Education is a critical component of development as it enables individuals to learn new skills and raise their productivity. Assuming that quality education is provided, higher GER could be reflective of a future labour force that is capable of harnessing innovation and new technology to enhance their productivity.

3.14.4. Possible actions at the economy level that may impact the indicator

- Increasing the number of tertiary institutions.
- Providing scholarships for needy students.
- Facilitating upgrading opportunities for working adults by offering part-time degrees.
- Encouraging continuous learning among working adults.
- Promoting online platforms for the delivery of education.

3.14.5. Strengths of the indicator

- A standardized definition allows for comparability across economies and years.

3.14.6. Limitations of the indicator

- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy and the element of choice.
- Unlike policy indicators, it does not identify policies that policymakers should focus on in order to raise gross enrolment ratio.

- The indicator is not granular enough to see if students are studying in fields which are becoming more relevant.
- Assuming that specific policies can affect the indicator, it takes time for the impact of policies to be captured by the indicator. For example, policies aimed at expanding the availability of education may require the establishment of new institutions and training of teachers, which can take time to realize.

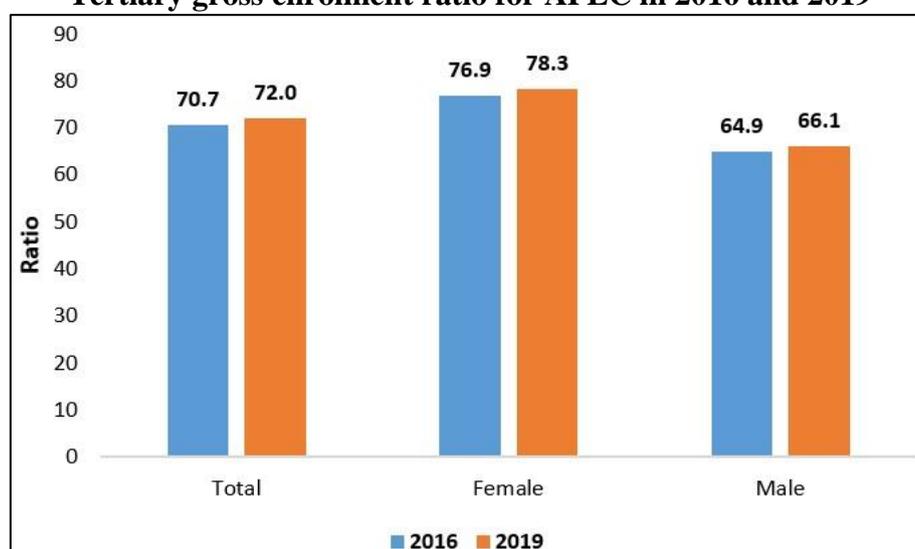
3.14.7. Coverage and additional information

Economies covered (since 2016)	19 (AUS; BD; CDA; CHL; PRC; HKC; INA; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	2019
Frequency	Annual

Note: Chinese Taipei data is from Ministry of Education (<https://english.moe.gov.tw/cp-86-18943-e698b-1.html>).

3.14.8. Analysis

Tertiary gross enrolment ratio for APEC in 2016 and 2019



Note: APEC tertiary gross enrolment ratio is a simple average of the ratio of 16 economies (AUS; BD; CDA; CHL; PRC; HKC; INA; ROK; MAS; MEX; NZ; PE; RUS; SGP; CT; and USA). For 2019 average ratio, 2018 data is used for AUS; CDA; CHL; INA; ROK; MEX; NZ; RUS; SGP; and USA. 2017 data is used for PE.

Source: APEC PSU computations based on data from UNESCO (accessed 11 May 2021) and Chinese Taipei's Ministry of Education (accessed 14 July 2021).

APEC tertiary gross enrolment ratio has improved from 70.7 in 2016 to 72.0 in 2019. Breaking down the ratio by gender shows that the improvement is contributed by the increase in both female and male tertiary gross enrolment ratio during the period. However, it can also be observed that female tertiary gross enrolment ratio is higher than that of male.

3.15. WORLD BANK AND OECD INDICATORS ON HEALTHCARE RESOURCES (OUTCOME)

3.15.1. Source

<http://data.worldbank.org/data-catalog/world-development-indicators>; <http://stats.oecd.org/index.aspx>

3.15.2. What does it tell us?

- Physicians per 1,000 people provides one measure of the level of human resources available in the health sector, while hospital beds per 1,000 people provides a measure of the capacity of the healthcare sector to respond to the needs of the community, such as during the pandemic.
- A higher number of physicians and hospital beds per 1,000 people can, arguably, be associated with better access to healthcare since it will be easier for the population to obtain treatment.
- In the World Bank World Development Indicators, physicians include both generalist and specialist medical practitioners, while in the OECD, it refers to practicing physicians.

3.15.3. Linkage to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • Availability of and access to healthcare services increase the productivity of scarce resources and raise the competitiveness of the economy.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • Healthcare access, as measured by physicians and hospital beds per 1,000 people, reflects the ease through which the economy's workforce can seek treatment in times of need. Consequently, it can be used to infer on the resilience of businesses and the wider economy during shocks, such as the COVID-19 pandemic, as well as their ability to recover from these events.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • Limitations notwithstanding, improved healthcare access can potentially lead to a healthier workforce capable of making more meaningful contributions to the economy. • Improved healthcare access is one indicator that can be used to reflect the economy's social policy pertaining to health.

3.15.4. Possible actions at the economy level that may impact the indicator

- Training more physicians.
- Having more mutual recognition agreements (MRAs) for healthcare professionals with other economies.
- Encouraging building a career in the healthcare sector.
- Introducing graduate medical programs.
- Supporting the building of more healthcare infrastructure/facilities (e.g., community hospitals).
- Reforming the healthcare sector to improve access across various measures (e.g., telehealth and health insurance).

3.15.5. Strengths of the indicator

- It is one way of monitoring access to healthcare.

3.15.6. Limitations of the indicator

- Underlying data are compiled from several sources, such as economy-wide population censuses and labour force and employment surveys. Therefore, there are likely to be variations in coverage and quality, which may affect comparability across economies.

- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy and element of choice.
- Assuming that specific policies can affect the indicator, it takes time for the impact of policies to be captured by the indicator.
- The use of the indicator to measure inclusion is limited by the average-vs.-distribution effect. For instance, an economy with a high number of physicians per 1,000 people could be indicative of a situation where most of the physicians are concentrated in metropolitan centers where access by certain segments of the population, including the vulnerable communities, may be limited.

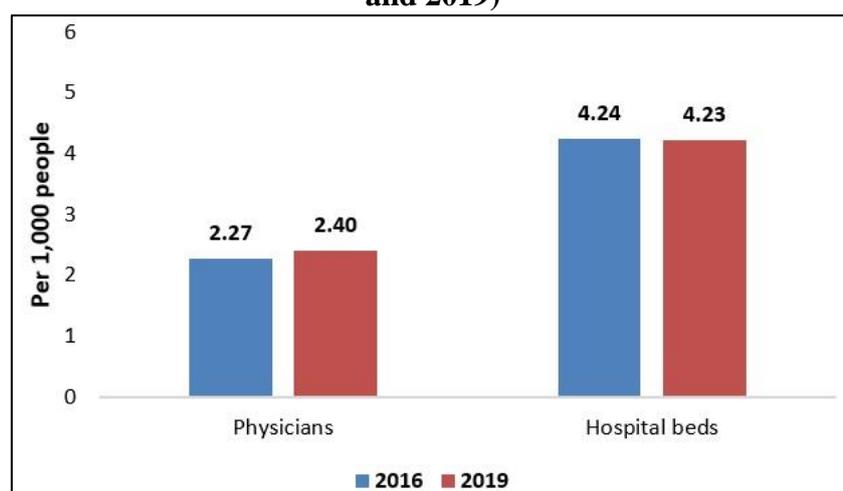
3.15.7. Coverage and additional information

Economies covered (since 2016)	20 (AUS; BD; CDA; CHL; PRC; INA; JPN; ROK; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	2019
Frequency	Annual

Note: 1) Physicians per 1,000 people - Data for Australia; Canada; Japan; Korea; Mexico; New Zealand; Russia; and United States are from OECD, while data for the rest are from World Bank World Development Indicators. 2) Chinese Taipei data is calculated from Ministry of Health and Welfare (http://www.mohw.gov.tw/CHT/DOS/Statistic.aspx?f_list_no=474).

3.15.8. Analysis

Comparison of physicians and hospital beds per 1,000 people in APEC economies (2016 and 2019)



Note: APEC number of physicians per 1,000 people is the simple average of 14 economies, while that for number of hospital beds per 1,000 people is the simple average of 15 economies. Physicians per 1,000 people - For 2016 data, 2015 data is used for BD and JPN. For 2019 data, 2018 data is used for AUS; CHL; INA; JPN; ROK; MEX; NZ; RUS; THA; and USA. 2017 data is used for BD and PRC. Hospital beds per 1,000 people – For 2019 data, 2018 data is used for CHL; JPN; ROK; MEX; and RUS. 2017 data is used for BD; PRC; INA; MAS; PE; SGP; and USA.

Source: APEC PSU computations based on data from World Bank World Development Indicators (accessed 11 May 2021), OECD (accessed 11 May 2021), and Chinese Taipei's Ministry of Health and Welfare (accessed 11 May 2021).

The average number of physicians per 1,000 people in APEC has increased from 2.27 in 2016 to 2.40 in 2019, while the average number of hospital beds per 1,000 people has fallen slightly from 4.24 in 2016 to 4.23 in 2019.

3.16. ITU INDICATORS ON ACCESS TO ICT INFRASTRUCTURE (OUTCOME)

3.16.1. Source

<https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

3.16.2. What does it tell us?

- This set of indicators evaluates the level of access individuals had to critical ICT infrastructure.
- It serves to complement the WEF indicators on infrastructure, which is proposed in Section 3.25.
- The list of indicators and their respective definitions are as follows:

Indicator	Definition
Mobile cellular subscription (per 100 inhabitants)	<ul style="list-style-type: none"> • Mobile cellular subscribers refer to users of portable telephones subscribing to an automatic public mobile telephone service using cellular technology, which provides access to the public switched telephone network. Users of both post-paid subscriptions and pre-paid accounts are included.
Individuals using the internet (percentage of population)	<ul style="list-style-type: none"> • The estimated number of internet users out of total population.
Fixed broadband subscription (per 100 inhabitants)	<ul style="list-style-type: none"> • Fixed-broadband subscriptions refers to fixed subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s. This includes cable modem, DSL, fibre-to-the-home/building, other fixed (wired)-broadband subscriptions, satellite broadband and terrestrial fixed wireless broadband.
Active mobile broadband subscription (per 100 inhabitants)	<ul style="list-style-type: none"> • Active mobile-broadband subscriptions refer to the sum of standard mobile-broadband and dedicated mobile-broadband subscriptions to the public Internet.

3.16.3. Linkage to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • Access to ICT infrastructure can increase the productivity of scarce resources and raise the competitiveness of the economy. • A widespread ICT network can cultivate the digital economy, which could increase the reach of existing businesses and open new business opportunities.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • The COVID-19 pandemic has shifted many businesses into the digital space. Indeed, with new arrangements like work from home and teleconferencing becoming the norm for the foreseeable future, the adoption of digital solutions by many businesses have become a necessity rather than an option. Access to ICT infrastructure would reflect the resilience of businesses as well as their ability to recover from such shocks.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • Access to ICT infrastructure allow various segments of the society to participate in and make meaningful contributions to an economy that has been increasingly digitized. • ICT infrastructure can bring along new employment opportunities, as well as encourage various groups, like the youth, to pick up new skills that are in demand.
Harnessing innovation and new technology, and investing in skills	<ul style="list-style-type: none"> • Access to ICT infrastructure is increasingly becoming critical to access public services remotely, such as education and healthcare services.

to boost productivity and digitalization	<ul style="list-style-type: none"> Improved ICT competitiveness could encourage firms to introduce new business and innovative activities within a host economy. Moreover, resilient ICT networks could also lead to the introduction of new services and software that could boost productivity and accelerate digitalization.
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3.16.4. Possible action at the economy level that may impact the indicator

- Reducing the cost of accessing ICT through actions, such as by increasing competition in the telecommunications sector or by reducing tariffs on imports of ICT-related goods and services.
- Providing support for different segments of society, including disadvantaged households, to access ICT infrastructure.
- Increasing ICT coverage to rural areas to narrow the rural-urban digital divide.
- Giving incentives towards the development of ICT infrastructure.
- Providing ICT training to women to minimize the gender digital divide.

3.16.5. Strengths of the indicator

- Standardized definition allows for comparability across economies and years.

3.16.6. Limitations of the indicator

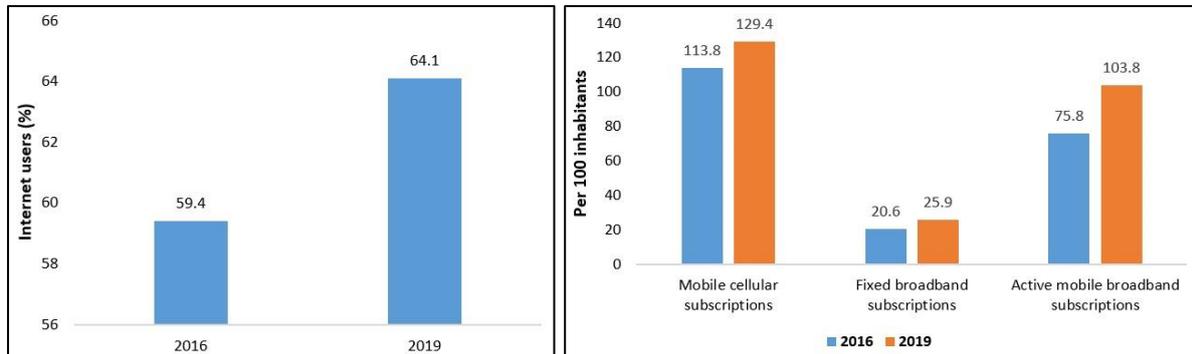
- Some indicators, such as the percentage of individuals using the internet, are collected through household surveys. When data is missing, numbers are estimated.
- Indicators measure paid access to ICT infrastructure and do not take into consideration access via schools or work, which is often free.
- The use of the indicator to measure inclusion is limited by the average-vs.-distribution effect. For instance, individuals in some economies may have multiple mobile cellular subscriptions, which means that reported values/estimations can be overstated. In addition, the indicator does not reflect geographical challenges, which is important for measuring inclusion.

3.16.7. Coverage and additional information

Economies covered (since 2016)	21 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PNG; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	2019
Frequency	Annual

3.16.8. Analysis

APEC's access to critical ICT infrastructure between 2016 and 2019



Note: APEC average is a population weighted average of 21 APEC economies.

Source: APEC PSU computations based on data from ITU World Telecommunication/ICT Indicators Database (accessed 11 July 2021).

The share of internet users in the APEC region has increased over time, from 59.4% in 2016 to 64.1% in 2019. The same can be said for mobile cellular subscriptions, which has increased from 113.8 per 100 inhabitants in 2016 to 129.4 per 100 inhabitants in 2019. Likewise, fixed broadband subscriptions per 100 inhabitants has been increasing over time, from 20.6 per 100 inhabitants in 2016 to 25.9 per 100 inhabitants in 2019, while active mobile-broadband subscriptions per 100 inhabitants increased from 75.8 per 100 inhabitants in 2016 to 103.8 per 100 inhabitants in 2019.

3.17. OECD DIGITAL SERVICES TRADE RESTRICTIVENESS INDEX (POLICY-BASED)

3.17.1. Source

<https://stats.oecd.org/Index.aspx?DataSetCode=STRI#>

3.17.2. What does it tell us?

- The OECD Digital Services Trade Restrictiveness Index identifies, catalogues, and quantifies barriers that affect trade in digitally-enabled services.
- It assesses the state of restrictiveness in five main areas involved in the delivery of digital services, namely: infrastructure and connectivity, electronic transactions, payment systems, intellectual property rights, and, other barriers affecting trade in digitally enabled services (i.e., requirements, such as the use of local software and mandatory technology transfers).
- This index takes a value between 0 and 1, where 0 means that the sub-sector is completely open while 1 means that it is completely closed.

3.17.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • The digital STRI gives policymakers clear policy areas to work on because it identifies regulations that are currently in force. As such, most of the areas addressed in the digital STRI are actionable and could help in developing a more conducive environment for competitive and well-functioning market.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • Given the sudden surge in digitalization caused by COVID-19, many businesses and individuals have become more reliant on digital solutions and tools. As such, easing regulatory burdens in digital trade can expedite and improve the delivery of both digital and non-digital products and services.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • The index touches upon connectivity and e-commerce issues, such as access to internet and other requirements to engage in e-commerce. As the digital economy is contingent on access to the internet, the digital STRI provides some information on the inclusivity of an economy's digital space (e.g., regulated pricing on telecommunication services). Moreover, it also shows how easy it is for the general population to participate in e-commerce as it explores if there are any onerous requirements to engage in e-commerce.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • As the index covers areas, such as intellectual property rights and technology transfers, it shows the economy's conduciveness and reception to new technology, as well as what measures it has in place to protect innovation and encourage future developments and investments.

3.17.4. Possible actions at the economy level that may impact the indicator

- Facilitating digital connectivity by investing in infrastructure and implementing strategies to make internet access more affordable.
- Adjust regulations governing cross-border data flows to facilitate growth of data-utilizing businesses while ensuring data security and privacy.
- Making e-commerce space more accessible to both local and foreign providers, such as by offering online tax registration and declarations to non-resident providers to formalize their participation.
- Establishing laws and regulations to protect confidential information and intellectual property rights.

- Accepting electronic signatures as an equivalent of a hand-written signature in terms of legal validity.
- Removing discriminatory treatment, such as on payment settlement methods (e.g., accepting cards issued in other jurisdictions) and treatment of copyrights (e.g., equal treatment on both local and imported goods).
- Reducing barriers, such as mandatory technology transfer, that discourage businesses from introducing new technologies.

3.17.5. Strengths of the indicator

- The digital STRI methodology captures complementarity and hierarchy of measures where restrictions observed at highest level would render those at lower level irrelevant, hence allowing policymakers to focus on regulations that matter most.
- The digital STRI is based on factual information with clear reference to sources, allowing policymakers to address specific laws and regulations in question.
- Presence of policy simulator enables policymakers to directly observe how improvements in laws and regulations can improve scores.

3.17.6. Limitations of the indicator

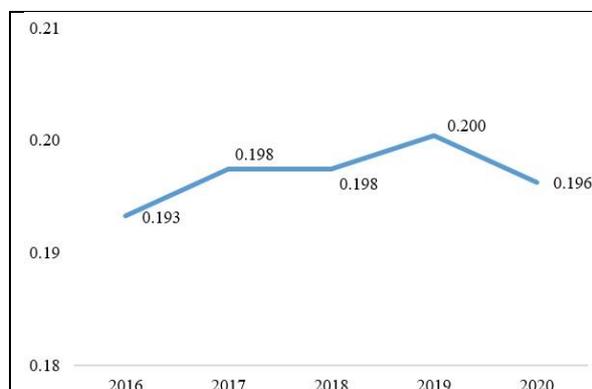
- Actual implementation of laws and regulations is not analyzed.
- While the OECD has attempted to make the indicators consistent across years and economies despite methodological changes, this may not be the case for future updates.
- While the digital STRI can provide an indication on whether an economy has better access to the digital economy (e.g., through better ICT infrastructure), it does not capture directly access by various segments of the society.

3.17.7. Coverage and additional information

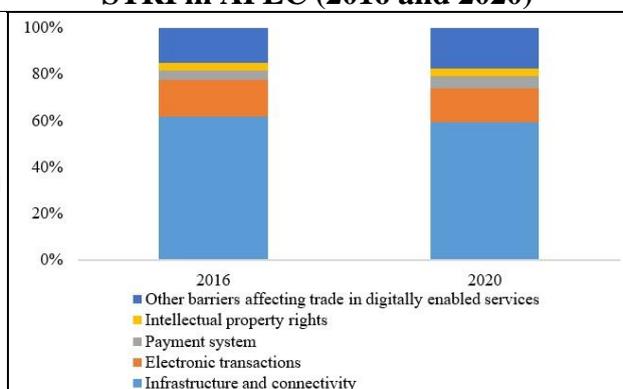
Economies covered (since 2016)	14 (AUS; CDA, CHL; PRC; INA; JPN; ROK; MAS; MEX; NZ; PE; RUS; THA; USA)
Latest Available Year	2020
Frequency	Annual from 2014

3.17.8. Analysis

APEC Digital STRI score (2016-2020)



Share of 5 types of restrictions in Digital STRI in APEC (2016 and 2020)



Note: APEC score is the average score of 14 economies as indicated in section 7.

Source: APEC PSU computations based on data from OECD (accessed 11 May 2021).

The digital STRI score for APEC as a whole was on an upward trend between 2016 and 2019, indicating a region that was becoming more restrictive with regards to trade in digitally-enabled services, before falling in 2020. Breaking down the overall score into the five areas shows that in both 2016 and 2020, the main restrictions are those relating to infrastructure and connectivity, followed by electronic transactions. While APEC has made progress in reducing restrictions in these two areas between 2016 and 2020, APEC has seen an increase in restrictions in two other areas, namely: other barriers affecting trade in digitally enabled services; and, payment system over the same period.

3.18. OECD FDI REGULATORY RESTRICTIVENESS INDEX (POLICY-BASED)

3.18.1. Source

<http://www.oecd.org/investment/fdiindex.htm>

3.18.2. What does it tell us?

- FDI Regulatory Restrictiveness Index (FDI RRI) analyzes statutory restrictions on foreign direct investment (FDI) in various economies.
- It covers many sub-sectors within primary, secondary, and tertiary sectors.
- Although FDI RRI only measures one of the many elements determining the investment climate, it is among the most important elements since more restrictive economies tend to receive less FDI when controlled for economy size.
- Four types of restrictions on FDI are captured, namely: foreign equity limitations; screening or approval mechanisms; restrictions on the employment of foreigners as key personnel; and, operational restrictions.
- The score for each sub-sector is obtained by adding the scores for the four types of restrictions and is capped at a value of 1, which is the most restrictive.
- While the main criterion in assigning a score to each measure is whether or not it is discriminatory, measures considered non-discriminatory are covered too if they burden foreign investors.

3.18.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • FDI RRI enables policymakers to potentially improve regulations pertaining to FDI because it provides the linkage between qualitative information gleaned from the regulations and the score. Consequently, this may eventually lead to more open, well-functioning, transparent and competitive markets.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • FDI RRI could show policymakers which economic sectors face significant barriers to investment, allowing them to identify sectors that they could potentially liberalize to support economic recovery. • FDI liberalization could also facilitate FDI relocation, hence strengthening resilience.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • FDI liberalization are likely to attract more FDI to an economy, thereby facilitating the entry of more economic opportunities to various segments of society. However, it is not direct as indicated in the limitations section.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • FDI liberalization could lead to companies in the technology frontier to invest, which could help economies harness innovation and help its people boost their productivity and digital skills.

3.18.4. Possible actions at the economy level that may impact the indicator

- Raising foreign equity limits and allowing foreign participation in various sectors.
- Amending regulations to facilitate the purchase of land.
- Increasing the threshold amount of investment below which automatic approval will be granted.
- Doing away with requirements for economic needs test prior to employing foreign personnel in certain sectors.

- Removing restrictions on profit/capital repatriation.
- Revising policies that discriminate between domestic and foreign providers.

3.18.5. Strengths of the indicator

- Indicator attempts to give scores depending on the scope of measures, theoretically providing greater details on the exact areas needing improvements.
- The large number of sub-sectors enable a more targeted response by policymakers and, consequently, finer tracking of progress over time.
- Consistency of sources of information.

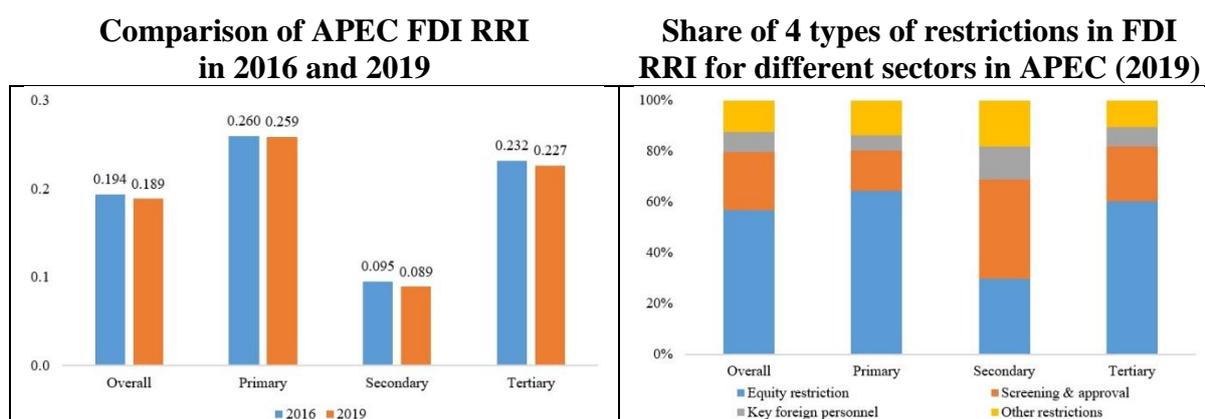
3.18.6. Limitations of the indicator

- Actual enforcement/implementation issues are not reviewed.
- Measures that may be discriminatory, but taken for reasons, such as public order and security interests, are not scored.
- There are other determinants of investment climate that are not reflected by the indicator, such as market size, geography, and integration with other markets.
- While the OECD has attempted to make the indicators consistent across years and economies despite methodological changes, this may not be the case for future updates.
- The linkage between the indicator and inclusion is indirect. FDI liberalization would only make an economy more attractive for foreign investors. The ability of various segments of the society to access opportunities made possible by these investments is more important for achieving a more inclusive economy. Unfortunately, the FDI RRI does not capture access to opportunities directly.

3.18.7. Coverage and additional information

Economies covered (since 2016)	18 (AUS; BD; CDA; CHL; PRC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; THA; USA; and VN)
Latest Available Year	2019
Frequency	Annual since 2010

3.18.8. Analysis



Note: APEC score is the average of the 18 economies as indicated in section 7. For the left figure, APEC score for both years do not include BD and SGP as their data are only available from 2018 onwards.

Source: APEC PSU calculations based on data from OECD (accessed 11 May 2021).

APEC's FDI RRI has fallen from 2016 to 2019, showing that the region's regulations on FDI has become less restrictive. This liberalization is observed across all sectors. Breaking down the score for year 2019 shows that equity restriction is the primary contributor to overall FDI restrictions in the

region. While this is also true for both the primary and tertiary sectors, screening and approval is the main contributor for FDI restrictions in the secondary sector.

3.19. OECD SERVICES TRADE RESTRICTIVENESS INDEX (POLICY-BASED)

3.19.1. Source

<https://stats.oecd.org/Index.aspx?DataSetCode=STRI#>

3.19.2. What does it tell us?

- Services Trade Restrictiveness Index (STRI) analyzes and identifies regulatory policies that are currently in force and may restrict trade in services.
- It provides information pertaining to 19 services sub-sectors, including accounting, engineering, legal, telecommunications, transport, and commercial banking, among others.
- It captures a mix of general and sector-specific policy measures, which are grouped into five areas, namely: restrictions on foreign entry; restrictions on movement of people; other discriminatory measures; barriers to competition; and, regulatory transparency.
- It takes a value between 0 and 1, where 0 means that the sub-sector is completely open while 1 means that it is completely closed.

3.19.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none">• STRI enables policymakers to potentially improve policies pertaining to services trade because it identifies regulations that are currently in force and, therefore, may lead to markets that are more well-functioning and competitive. STRI also provides greater transparency to services regulations, which, hitherto, are challenging to identify because they straddle different government agencies and often implemented with other policy objectives in mind.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none">• By identifying restrictions affecting trade in various services sectors, STRI allows policymakers to potentially act on them so as to facilitate trade and support business recovery. For example, access to competitive telecommunications services would enable businesses to leverage on digital tools, such as e-commerce as an alternative sales channel.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none">• Improvements in regulations, as indicated by the STRI, may potentially facilitate deeper participation by various segments of society in more sectors.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none">• Some indicators in STRI focus on discrimination between local and foreign suppliers. As technology diffusion can be slow, having more open markets that prohibits discrimination against foreign suppliers can facilitate technology transfer. Easier technology transfers could then benefit a wide range of sectors, especially as new technology and optimized process could increase the workforce.

3.19.4. Possible actions at the economy level that may impact the indicator

- Expanding the legal forms that foreign firms can take in the economy where services are provided.
- Eliminating requirements that directors or managers must be its own nationals or residents.
- Removing the capital requirements for the establishment of firms.
- Establishing laws of regulations to allow for the recognition of qualifications earned abroad.
- Improving procedures and time to process business visas.

3.19.5. Strengths of the indicator

- The STRI methodology captures complementarity and hierarchy of measures where restrictions observed at a higher level would render those at a lower level irrelevant, essentially allowing policymakers to focus on regulations that matter most.
- The STRI is based on factual information with clear reference to sources, hence identifying the exact laws and regulations to improve.
- Presence of a policy simulator enables policymakers to directly observe how improvements in laws and regulations can lead to lower scores.

3.19.6. Limitations of the indicator

- The STRI captures most favored nation (MFN) restrictions and does not take into account concessions made by economies in certain agreements, such as preferential trade agreements (PTAs) and mutual recognition agreements (MRAs).
- Actual implementations of laws and regulations are not analyzed.
- While the OECD has attempted to make the indicators consistent across years and economies despite methodological changes, this may not be the case for future updates.
- The linkage between the indicator and inclusion is indirect. Services trade liberalization may not necessarily lead to a more inclusive economy, for example, in cases where the liberalization does not lead to job creation and job opportunities for wider segments of the society. Unfortunately, the STRI does not capture access to opportunities directly.

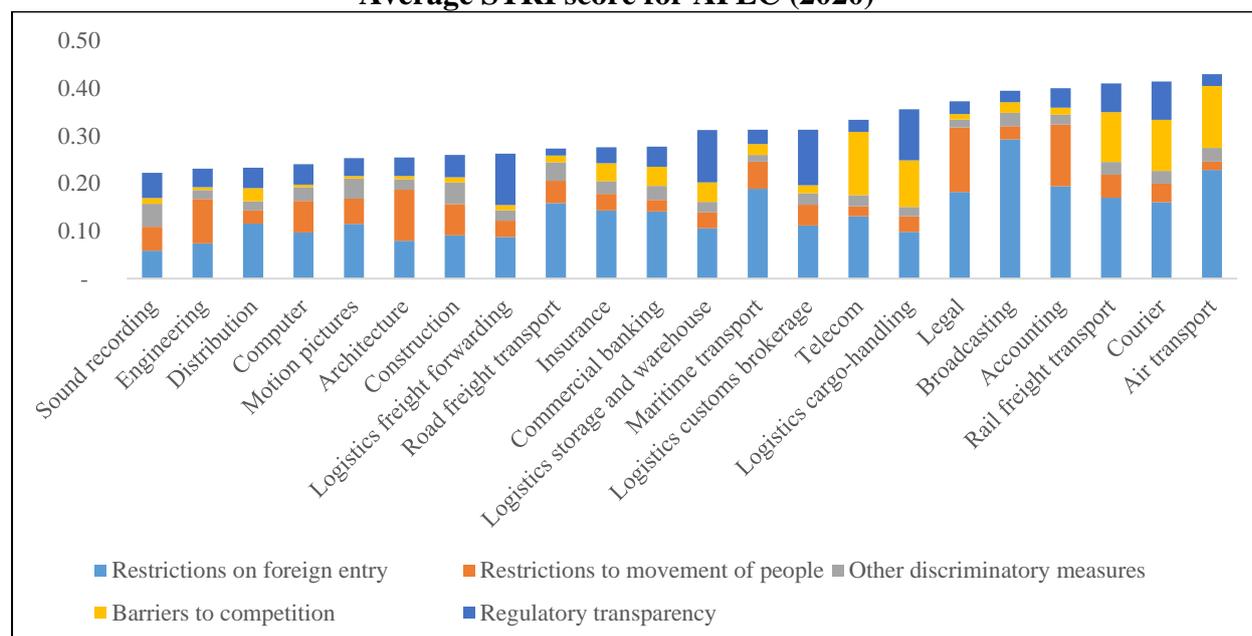
3.19.7. Coverage and additional information

Economies covered (since 2016)	16 (AUS; CDA, CHL; PRC; INA; JPN; ROK; MAS; MEX; NZ; PE; RUS; CT; THA; USA; VN)
Latest Available Year	2020
Frequency	Annual since 2014

Note: Data for Chinese Taipei and Viet Nam are from the APEC index and only available for year 2019 (<https://apecservicesindex.org/documents/report-pilot-%20measuring-regulatory-environment-services-trade%20-apec.pdf>). Data for Chinese Taipei are only available for the following sub-sectors: distribution; computer; logistics storage and warehousing; and telecom. Data for Viet Nam are only available for the following sub-sectors: distribution; computer; and logistics storage and warehousing.

3.19.8. Analysis

Average STRI score for APEC (2020)



Note: APEC score for distribution; computer; and logistics storage and warehousing is the average score of 16 economies (14 from OECD STRI and 2 from APEC index), APEC score for telecom is the average score of 15 economies (14 from OECD STRI and 1 from APEC index), while the APEC score for the other sub-sectors is the average score of 14 economies covered by the OECD STRI. Data from the APEC index refers to year 2019.

Source: APEC PSU computations based on data from OECD (accessed 28 November 2021).

Analyzing the 2020 OECD STRI data shows that for APEC, on average, sound recording and engineering were the least restrictive sub-sectors, while air transport, courier, and rail freight transport were among the most restrictive sub-sectors. Breaking down the scores by restrictions indicates that the main restrictions affecting services trade vary between sub-sectors. For example, the main contributing restrictions for some sectors (e.g., accounting, broadcasting, and air transport) were foreign equity, while for others (e.g., architecture and engineering), it was regulations affecting the movement of people.

3.20. THE CONFERENCE BOARD LABOUR PRODUCTIVITY PER PERSON EMPLOYED (OUTCOME)

3.20.1. Source

<https://www.conference-board.org/data/economydatabase/total-economy-database-productivity>

3.20.2. What does it tell us?

- Labour productivity per person employed is measured as total real GDP of the economy divided by the number of people employed in the economy. It informs on the average contribution of each working individual to the real GDP of the economy.
- Real GDP is used instead of nominal GDP to ensure that the increase or decrease in labour productivity is not simply due to factors, such as the increase in the price of the goods or services.
- Higher labour productivity over time indicates that each working individual is becoming more productive while lower labour productivity over time indicates that each working individual is becoming less productive.

3.20.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • Labour productivity per person employed is indicative of the competitiveness of the market.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • Increasing labour productivity per person could help businesses with reduced resources have a more productive workforce. • Higher labour productivity per person could likewise lead to stronger business performance, boosting business recovery capabilities, and making them less vulnerable against shocks.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • Firms with a highly productive labour force are more competitive in providing their goods and services. • Limitations notwithstanding, efforts to increase labour productivity per person through upskilling and training available workers could open up opportunities to various groups of people, including the youth, women, and elderly workers, among others.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • Higher labour productivity per person could be linked to increased propensity to adopt new technologies and good work practices. As such, labour productivity per person could be indicative or serve as a gauge for the extent of the adoption of innovation and new technology among the workforce.

3.20.4. Possible actions at the economy level that may impact the indicator

- Introducing a skills-upgrading fund to facilitate firms in sending their employees to attend training courses.
- Providing grants to automate certain processes across different sectors.
- Encouraging businesses to attend technology seminars.
- Organizing public-private dialogues to understand what businesses need to improve productivity.
- Promoting the use of big data and internet of things to monitor and improve existing processes.

3.20.5. Strengths of the indicator

- Estimates have been harmonized to take into consideration differences in different economies, thus allowing for comparability across economies and years.

3.20.6. Limitations of the indicator

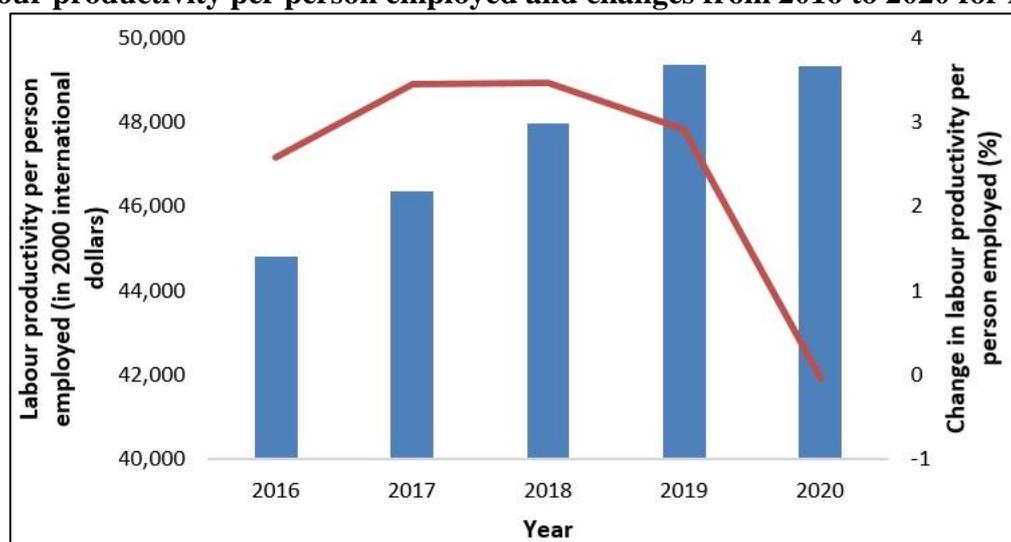
- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy and demographics.
- It does not identify policies that policymakers should focus on in order to raise labour productivity.
- Assuming that specific policies can affect the indicator, it takes time for the impact of policies to be captured by the indicator. For example, although skills upgrading is beneficial in the long run, employees can take time to implement and incorporate these new skills into their existing processes.
- The linkage between the indicator and inclusion is not straightforward. Increased labour productivity per person employed may make an individual more attractive as an employee, hence promoting inclusion. However, it is also possible to envision a situation where increased labour productivity per person employed may mean less labour is needed, hence lesser inclusion.

3.20.7. Coverage and additional information

Economies covered (since 2016)	19 (AUS; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA and VN)
Latest Available Year	2020
Frequency	Annual

3.20.8. Analysis

Labour productivity per person employed and changes from 2016 to 2020 for APEC



Note: APEC score is the weighted average score of 19 economies as indicated in section 7.

Source: APEC PSU computations based on data from *The Conference Board Total Economy database* (accessed 13 May 2021).

Labour productivity per person employed increased steadily from approximately USD 45,000 in 2016 to USD 49,000 in 2019 and hovered around there in 2020 due to the COVID-19 pandemic. As observed, while the change in labour productivity had been in the range of 2.5% to 3.5% between 2016 and 2019, it fell to -0.04% in 2020.

3.21. UNESCO PERCENTAGE OF GRADUATES FROM STEM PROGRAMS IN TERTIARY EDUCATION (OUTCOME)

3.21.1. Source

<http://data.uis.unesco.org/>

3.21.2. What does it tell us?

- This indicator provides the percentage of tertiary graduates who completed a program related to science, technology, engineering, and mathematics.
- Tertiary graduate refers to a person who, during the reference school or academic year, has successfully completed a tertiary program.
- It serves to complement the UNESCO tertiary gross enrolment ratio proposed in Section 3.14.

3.21.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • The nature of the fourth industrial revolution means that STEM fields will become more important. As such, economies looking to be competitive in the future should have a sizeable workforce skilled in STEM areas.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • The COVID-19 pandemic highlighted the importance of both digitalization and medical research. As most economic activities shifted to the digital space, governments and businesses will look for more innovations. Moreover, scientists will be important to inform on countermeasures against future shocks, such as pandemics and climate change. As such, having more STEM graduates will help economies boost recovery and resilience against future shocks.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • STEM programs at the tertiary level are typically more expensive than other tertiary programs. Moreover, STEM programs may be unattractive due to its perceived difficulty. Monitoring this indicator can indirectly provide policymakers a gauge of the accessibility of STEM programs for students. Moreover, policymakers can also infer if more work needs to be undertaken to upgrade its basic education system to attract and retain students' interest in STEM fields.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • Having more STEM graduates in an economy can serve as a gauge to how prepared the workforce is to work in innovative and new technology sectors.

3.21.4. Possible actions at the economy level that may impact the indicator

- Establishing new tertiary institutions and programs specializing in STEM fields.
- Offering scholarships and fellowships to students interested in STEM.
- Reforming STEM education at the primary and secondary level to include emerging fields.
- Partnering with the private sector to provide more opportunities to graduates of STEM programs.

3.21.5. Strengths of the indicator

- Standardized definition allows for comparability across economies and years.
- This indicator provides data that can be disaggregated by gender.

3.21.6. Limitations of the indicator

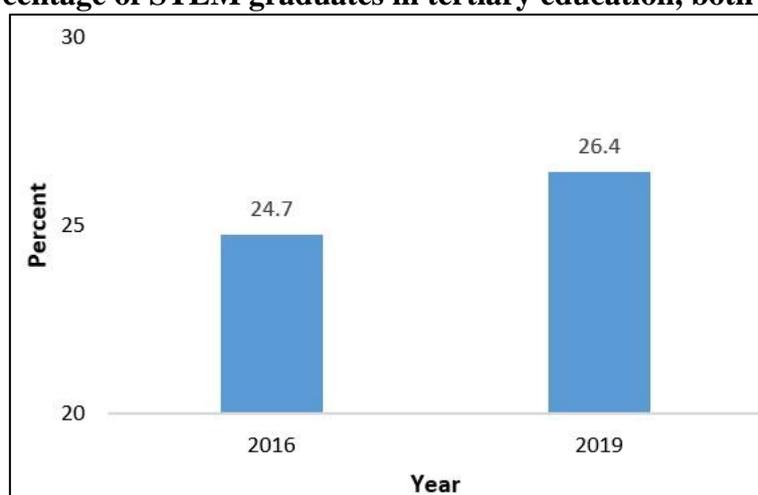
- It is an outcome indicator and, hence, may be affected by factors other than policies, such as the state of the global economy and the element of choice.
- Unlike policy indicators, it does not identify specific policies to improve on the indicator.
- Assuming that specific policies can affect the indicator, it takes time for the impact of policies to be captured by the indicator. For example, policies aimed at expanding the number of STEM graduates may require the establishment of new institutions and training of teachers that can take time to realize.

3.21.7. Coverage and additional information

Economies covered (since 2016)	16 (AUS; BD; CDA; CHL; INA; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; THA; USA; VN)
Latest Available Year	2019
Frequency	Annual but patchy

3.21.8. Analysis

Percentage of STEM graduates in tertiary education, both sexes



Note: APEC percentage is the simple average of 11 economies (AUS; BD; CDA; CHL; INA; ROK; MEX; NZ; PE; RUS; and SGP). AUS and BD data in 2016 refer to 2015 data. AUS; CDA; CHL; INA; NZ; RUS; and SGP data in 2019 refer to 2018 data, while MEX; PE; and ROK data in 2019 refer to 2017 data.

Source: APEC PSU compilations based on data from UNESCO (accessed 27 January 2021).

The percentage of STEM graduates in tertiary education in APEC has increased from 24.7% in 2016 to 26.4% in 2019. However, there is a wide variation in the percentage across individual economies.

3.22. WEF GLOBAL COMPETITIVENESS INDICATORS FOR PRODUCT MARKET EFFICIENCY (PERCEPTION-BASED)

3.22.1. Source

<https://www.weforum.org/reports/global-competitiveness-report-2019>

3.22.2. What does it tell us?

- This set of indicators rates the efficiency of an economy's product market by measuring the business community's perception in two areas: the economy's environment for domestic market competition; and, its degree of trade openness.
- Only existing indicators derived from the Executive Opinion Survey of the World Economic Forum are monitored because they are fully perception-based and will complement proposed indicators that are not based on perceptions.
- The list of indicators and how they are asked in the survey are as follows:

Indicators	Questions as asked in the survey
Domestic market competition	
Distortive effect of taxes and subsidies on competition	In your economy, to what extent do fiscal measures (subsidies, tax breaks, etc.) distort competition? (1 = distort competition to a great extent; 7 = do not distort competition at all)
Extent of market dominance	In your economy, how do you characterize corporate activity? (1 = dominated by a few business groups; 7 = spread among many firms)
Competition in services	Average score of three questions: 1. In your economy, how competitive is the provision of professional services (legal services, accounting, engineering, etc.)? 2. In your economy, how competitive is the provision of retail services? 3. In your economy, how competitive is the provision of network sector (telecommunications, utilities, postal, transport, etc.)? In each case, the answer ranges from 1 (not at all competitive) to 7 (extremely competitive).
Trade openness	
Prevalence of non-tariff barriers	In your economy, to what extent do non-tariff barriers (e.g. health and product standards, technical and labelling requirements, etc.) limit the ability of imported goods to compete in the domestic market? (1 = strongly limit; 7 = do not limit at all)

3.22.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • This set of indicators provides business executives' perspectives about the efficiency and openness of the product market within an economy. The more open an economy is to international trade, the more businesses will perceive the market to be well-functioning and competitive.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • Diversification is important to ensure the resilience of supply chains to sudden shocks like the COVID-19 pandemic. This set of indicators shows how easy it is for international businesses to operate in a market, and, therefore, assesses how likely an economy can support an expansive and resilient trade network. The presence of diversified businesses and trade networks can also stimulate economic recovery and improve resilience to future shocks.

Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> This set of indicators give an indirect measure of how fair the playing ground is for businesses of all sizes, including MSMEs to operate in an economy. For instance, if businesses report that the market has many players instead of just a few dominant firms, then the market is, arguably, more conducive and inclusive for MSMEs. More inclusive markets also give more options for consumers, thereby making opportunities and resources more accessible for various groups in society.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> Connectivity is an important building block of the digital economy. One of the sub-indicators measure the perceived quality of the network sector, covering aspects, such as utilities, telecommunications, and transport. As such, there is a proxy to measure how existing technologies and infrastructure in key sectors complement efforts to boost productivity, innovation, and digitalization.

3.22.4. Possible actions at the economy level that may impact the indicator

- Reducing taxes and subsidies in some sectors.
- Putting in place competition policies and ensuring that they are adapted to the changing economic landscape.
- Enhancing the competitiveness of MSMEs (e.g., by adopting digital technologies).
- Reviewing and removing unnecessary non-tariff measures and other onerous requirements.
- Improving the efficiency of border clearance procedures to make it easier for businesses to trade.

3.22.5. Strengths of the indicator

- This set of indicators provides executives' perspectives and, hence, complements indicators that are not perception-based.
- It allows for the monitoring of implementation of regulations and real situations on the ground as opposed to analyzing the regulations themselves.

3.22.6. Limitations of the indicator

- Perception-based indicators may be biased.
- It takes time to change perceptions even in the presence of actual improvements.
- When there is a change in methodology, it may be the case that some of the indicators may no longer be included in the survey.
- Perceptions may not change in the same direction as policies.

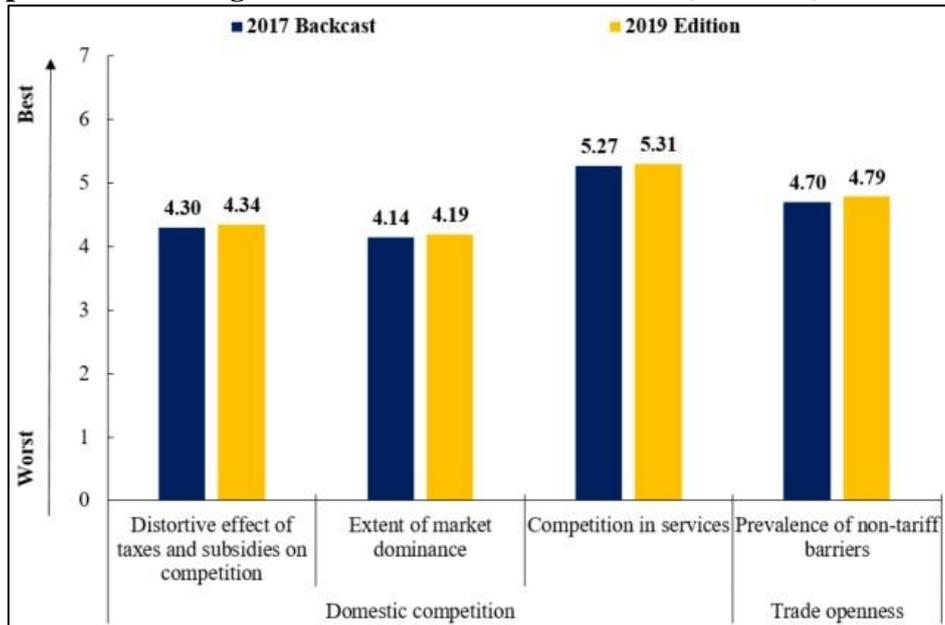
3.22.7. Coverage and additional information

Economies covered (since GCR2017)	20 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	GCR2019 ⁵
Frequency	Annual

⁵ The World Economic Forum has published the Global Competitiveness Report (GCR) 2020 as a special COVID-19 edition. However, the 2020 edition paused the collection of indicators featured in the Global Competitiveness Index 4.0. As such, this report analyzes data in GCR 2019 to assess the region's progress in various areas.

3.22.8. Analysis

Comparison of average scores for APEC in GCR2017 (backcast) and GCR2019



Note: APEC score is a simple average of the scores of 20 economies indicated in section 7.

Source: APEC PSU calculations based on data from the World Economic Forum (accessed 12 May 2021).

APEC average values across the four areas have improved between the 2017 backcast and the 2019 edition. Of the four areas, APEC scored the highest at 5.31 in competition in services and the lowest in the extent of market dominance at 4.19 in the 2019 edition, which is a modest improvement from the 4.14 recorded in the 2017 edition.

3.23. WEF GLOBAL COMPETITIVENESS INDEX FOR BUSINESS DYNAMISM, INNOVATION, AND INTELLECTUAL PROPERTY (PERCEPTION-BASED)

3.23.1. Source

<https://www.weforum.org/reports/global-competitiveness-report-2019>

3.23.2. What does it tell us?

- The set of indicators captures the various aspects within the economy that contribute to business dynamism and innovation, as well as the protection of intellectual property rights.
- Business dynamism refers to the efficiency and quality of individual firms' operations and strategies, while innovation refers to the availability of an environment that is conducive to innovative activity.
- Only existing indicators derived from the Executive Opinion Survey of the World Economic Forum are monitored because they are fully perception-based and will complement proposed indicators that are not based on perceptions.
- The list of indicators and how they are asked in the survey are as follows:

Indicators	Questions as asked in the survey
Business dynamism	
Attitudes towards entrepreneurial risk	In your economy, to what extent do people have an appetite for entrepreneurial risk? (1 = not at all; 7 = to a great extent)
Willingness to delegate authority	In your economy, to what extent does senior management delegate authority to subordinates? (1 = not at all; 7 = to a great extent)
Growth of innovative companies	In your economy, to what extent do new companies with innovative ideas grow rapidly? (1 = not at all; 7 = to a great extent)
Companies embracing disruptive ideas	In your economy, to what extent do companies embrace risky or disruptive business ideas? (1 = not at all; 7 = to a great extent)
Innovation capability	
Diversity of workforce	In your economy, to what extent do companies have a diverse workforce (e.g., in terms of ethnicity, religion, sexual orientation, gender)? (1 = not at all; 7 = to a great extent)
State of cluster development	In your economy, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)? (1 = non-existent; 7 = widespread in many fields)
Multistakeholder collaboration	Average score of three questions: 1. In your economy, to what extent do people collaborate and share ideas within a company? (1 = not at all; 7 = to a great extent) 2. In your economy, to what extent do companies collaborate in sharing ideas and innovating? (1 = not at all; 7 = to a great extent) 3. In your economy, to what extent do business and universities collaborate on research and development (R&D)? (1 = do not collaborate at all; 7 = collaborate extensively)
Commercialization	
Buyer sophistication	In your economy, on what basis do buyers make purchasing decisions? (1 = based solely on the lowest price; 7 = based on sophisticated performance attributes)
Intellectual property	
Intellectual property protection	In your economy, to what extent is intellectual property protected? (1 = not at all; 7 = to a great extent)

3.23.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> This set of indicators provide the perspectives of business executives on the state of various factors that can be used to infer about the competitiveness of a market. As business executives generally run firms' operations on a daily basis, their perspectives would play a significant role in influencing firms' decisions on whether to site certain business operations in the economies, including those that are innovation-intensive and, hence, of higher value-added.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> While COVID-19 has caused a sizable economic shock, its fallout has also opened new business opportunities that economies can leverage to facilitate economic recovery. Businesses will take advantage of these opportunities if they can manage entrepreneurial risk and are ready to embrace risky and disruptive business ideas. The perception of business leaders on the appetite for entrepreneurial risk and disruptive ideas can serve as a proxy to measure how conducive the business environment is for companies to take these risks and adapt to shocks.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> Besides promoting innovation, an environment that is supportive of a diverse workforce and encourage cross-sectoral collaboration with various stakeholders, such as businesses and academia are likely to provide more equal access to opportunities, regardless of the segments of the society that individuals belong to.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> Some of the indicators, such as the state of cluster development and multistakeholder collaboration on R&D, provide perspectives of business executives on the readiness of an economy to better harness innovation and new technology. For example, a higher level of cluster development would give an economy the opportunity to better specialize in the provision of a particular service and product.

3.23.4. Possible actions at the economy level that may impact the indicator

- Providing grants to encourage the development of risky but potentially disruptive and profitable business ideas.
- Creating regulatory sandboxes to test and pilot business ideas.
- Improving the coverage and enforcement of intellectual property rights protection.
- Encouraging employers to offer skills upgrading for staff and to ensure diversity in their workforce.
- Facilitating joint research activities/partnerships between institutions and industries.
- Establishing agency to identify basic research with industry applications.
- Providing incentives to encourage firms to undertake R&D activities.

3.23.5. Strengths of the indicator

- This set of indicators provides executives' perspectives and, hence, complements indicators that are not perception-based.
- It allows for the monitoring of the implementation of regulations and real situations on the ground as opposed to analyzing the regulations themselves.

3.23.6. Limitations of the indicator

- Perception-based indicators may be biased.
- It takes time to change perceptions even in the presence of actual improvements.

- When there is a change in methodology, it may be the case that some of the indicators may no longer be included in the survey.
- Perceptions may not change in the same direction as policies.

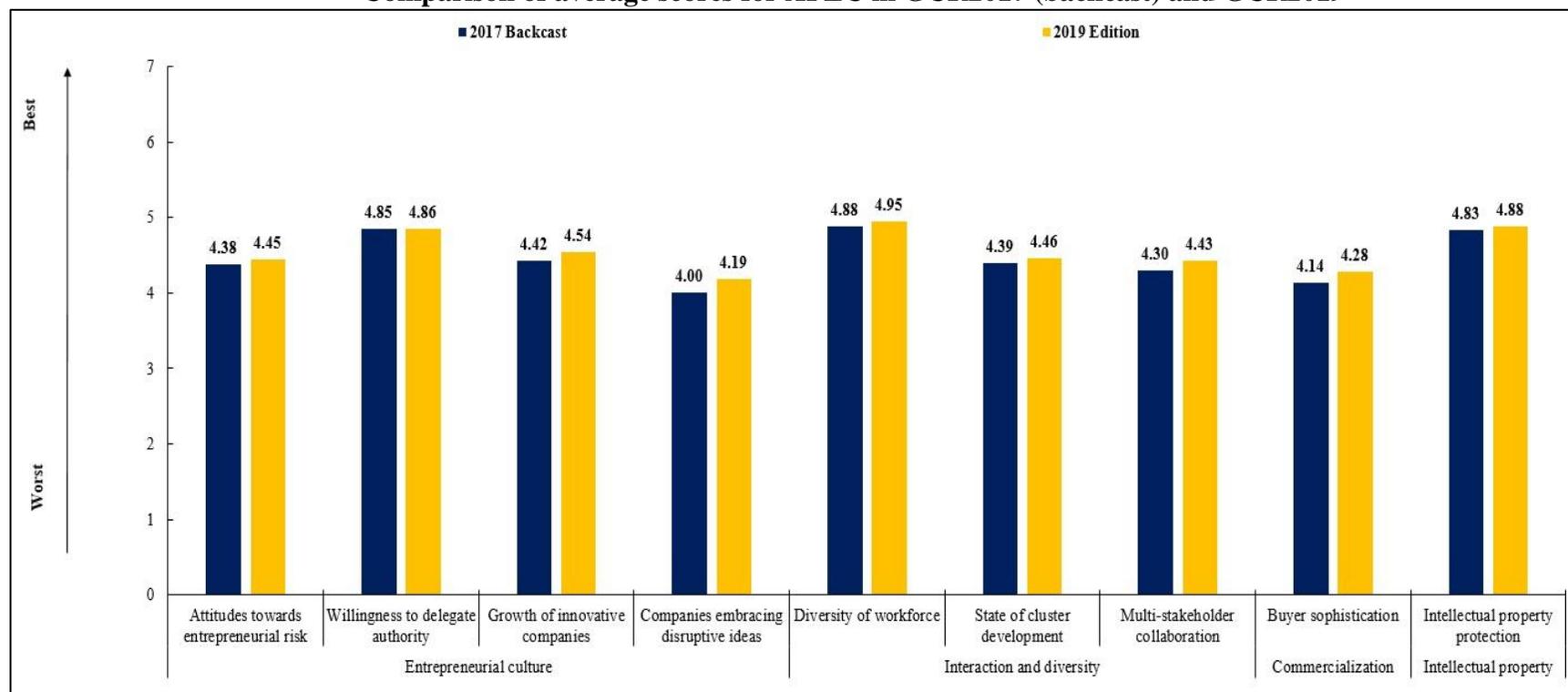
3.23.7. Coverage and additional information

Economies covered (since GCR2017)	20 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	GCR 2019 ⁶
Frequency	Annual

⁶ The World Economic Forum has published the Global Competitiveness Report (GCR) 2020 as a special COVID-19 edition. The 2020 edition paused the collection of indicators featured in the Global Competitiveness Index 4.0. As such, this report is instead using the GCR 2019 to assess the region's progress in various areas.

3.23.8. Analysis

Comparison of average scores for APEC in GCR2017 (backcast) and GCR2019



Note: APEC score is a simple average of the scores of 20 economies indicated in section 7.

Source: APEC PSU calculations based on data from the World Economic Forum (accessed 12 May 2021).

APEC registered improvements in values between the 2017 backcast and the 2019 edition across all nine areas covered. Among the four areas covered under entrepreneurial culture, APEC scored the highest in terms of willingness to delegate authority (4.86), while it scored the lowest in terms of companies embracing disruptive ideas (4.19) in the 2019 edition. Of the three areas covered under interaction and diversity, APEC scored the highest in terms of diversity of workforce (4.95), while its scores for state of cluster development and multi-stakeholder consultation stood at 4.46 and 4.43, respectively in the same edition.

3.24. WEF GLOBAL COMPETITIVENESS INDICATORS FOR FINANCIAL SYSTEM (PERCEPTION-BASED)

3.24.1. Source

<https://www.weforum.org/reports/global-competitiveness-report-2019>

3.24.2. What does it tell us?

- This set of indicators captures the perspectives of business executives on various aspects within the economy that determine the efficiency of the financial system.
- The efficiency of the financial system is assessed on two areas, namely: those pertaining to depth; and, those pertaining to stability.
- Only existing indicators derived from the Executive Opinion Survey of the World Economic Forum are monitored because they are fully perception-based and will complement proposed indicators that are not based on perceptions.
- The list of indicators and how they are asked in the survey are as follows:

Indicators	Questions as asked in the survey
Depth	
Financing of SMEs	In your economy, to what extent can small- and medium-sized enterprises (SMEs) access finance they need for their business operations through the financial sector? (1 = not at all; 7 = to a great extent)
Venture capital availability	In your economy, how easy is it for start-up entrepreneurs with innovative but risky projects to obtain equity funding? (1 = extremely difficult; 7 = extremely easy)
Stability	
Soundness of banks	In your economy, how do you assess the soundness of banks? (1= extremely low-banks may require capitalization; 7= extremely high-banks are generally healthy with sound balance sheets)

3.24.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • This set of indicators provides business executives' perspectives about the efficiency of the financial system within the economy in allocating scarce resources. Arguably, a more efficient financial system will expedite and optimize the allocation of resources to projects, leading to a more well-functioning and competitive market.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • Access to finance and loans would be crucial for firms, including MSMEs in particular, as they navigate the challenges brought forth by COVID-19. Ensuring efficiency and accessibility in the financial system can make it easier for economies to initiate their path to economic recovery.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • Many MSMEs are dynamic and innovative but may face difficulty in accessing finance, hence hampering their growth and sustainability. This set of indicators can be used to infer the ease of access to finance by firms and, therefore, their potential to participate more in the market.
Harnessing innovation and new technology, and investing in skills	<ul style="list-style-type: none"> • As the set of indicators shows how easy it is for businesses to access funding, it can be used to indirectly infer the ease by which businesses can invest in innovation and new technology.

to boost productivity and digitalization	
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3.24.4. Possible actions at the economy level that may impact the indicator

- Offering easier access to loans/capital for MSMEs with potential.
- Leveraging crowd-funding as a mechanism to access finance.
- Establishing MSME centers that are able to link MSMEs to potential financiers.
- Organizing seminars and workshops to share ways to improve firms' chances of accessing finance.
- Using prudential tools to limit systemic risk in the financial system.
- Enhancing knowledge of MSMEs in various financial products and services.

3.24.5. Strengths of the indicator

- This set of indicators provides executives' perspectives and, hence, complements indicators that are not perception-based.
- It allows for the monitoring of the implementation of regulations and real situations on the ground as opposed to analyzing the regulations themselves.

3.24.6. Limitations of the indicator

- Perception-based indicators may be biased.
- It takes time to change perceptions even in the presence of actual improvements.
- When there is a change in methodology, it may be the case that some of the indicators may no longer be included in the survey.
- Perceptions may not change in the same direction as policies.
- The indicator does not include micro-sized enterprises and the informal sector.

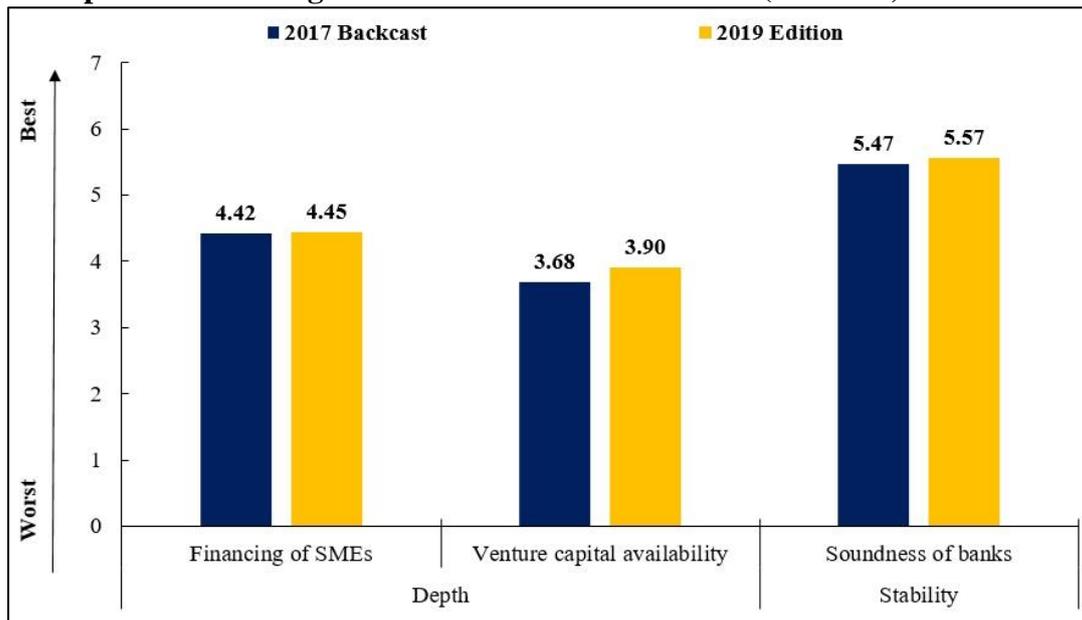
3.24.7. Coverage and additional information

Economies covered (since GCR2017)	20 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	GCR 2019 ⁷
Frequency	Annual

⁷ The World Economic Forum has published the Global Competitiveness Report (GCR) 2020 as a special COVID-19 edition. However, the 2020 edition paused the collection of indicators featured in the Global Competitiveness Index 4.0. As such, this report analyzes data in GCR 2019 to assess the region's progress in various areas.

3.24.8. Analysis

Comparison of average scores for APEC in GCR2017 (backcast) and GCR2019



Note: APEC score is a simple average of the scores of 20 economies indicated in section 7.

Source: APEC PSU calculations based on data from the World Economic Forum (accessed 12 May 2021).

It can be observed from the above figure that all three areas have seen improvements in values between 2017 backcast and the 2019 edition. APEC registered a score of 5.57 and 4.45 in terms of soundness of banks and financing of SMEs, respectively, in the 2019 edition. APEC's score for venture capital availability stood at 3.90.

3.25. WEF GLOBAL COMPETITIVENESS INDEX FOR INFRASTRUCTURE (PERCEPTION-BASED)

3.25.1. Source

<https://www.weforum.org/reports/global-competitiveness-report-2019>

3.25.2. What does it tell us?

- This set of indicators captures the various aspects related to infrastructure in the economy.
- Only existing indicators derived from the Executive Opinion Survey of the World Economic Forum are monitored because they are fully perception-based and will complement proposed indicators that are not based on perceptions.
- The list of indicators and how they are asked in the survey are as follows:

Indicators	Questions as asked in the survey
Transport infrastructure	
Quality of road infrastructure	In your economy, what is the quality (extensiveness and condition) of road infrastructure? (1 = extremely poor – among the worst in the world; 7 = extremely good – among the best in the world)
Efficiency of train services	In your economy, how efficient (i.e., frequency, punctuality, speed, price) are train transport services? (1 = extremely inefficient, among the worst in the world; 7 = extremely efficient, among the best in the world)
Efficiency of air transport services	In your economy, how efficient (i.e., frequency, punctuality, speed, price) are air transport services? (1 = extremely inefficient, among the worst in the world; 7 = extremely efficient, among the best in the world)
Efficiency of seaport services	In your economy, how efficient (i.e., frequency, punctuality, speed, price) are seaport services (ferries, boats)? (1 = extremely inefficient, among the worst in the world; 7 = extremely efficient, among the best in the world)
Utility infrastructure	
Reliability of water supply	In your economy, how reliable is the water supply (lack of interruptions and flow fluctuations)? (1 = extremely unreliable; 7 = extremely reliable)

3.25.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • Availability of and access to infrastructure and related services increase the productivity of scarce resources and raise the competitiveness of the economy.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • The state of infrastructure in an economy plays a critical role in supporting business recovery and resilience against shocks. For example, many essential services, including those in airports and seaports, ensure the resilience of supply chains and, hence, the timely delivery of goods and services despite the lockdown measures put in place by governments to stem the spread of COVID-19, making businesses less susceptible to shocks. The same infrastructure and related services would also be critical in boosting business recovery as economies move towards normalcy.
Ensuring equal access to opportunities for all groups in society for more inclusive and	<ul style="list-style-type: none"> • Availability of and access to infrastructure and related services allow various segments of the society to participate in and make meaningful contributions to the economy. For example, access/proximity to transport nodes would make it easier for people living nearby to participate in the labour market. Additionally, the

sustainable growth, and well-being	reliability of water supply would affect the less well-off to a greater extent.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> The application of innovation and new technology can improve the efficiency of infrastructure-related services, with implications on the wider economy as many of these services facilitate and complement other business activities. For instance, access to reliable and resilient sources of energy are key to operating high value-added industries, such as logistics hubs and data centres. Business executives' perspectives on the state of infrastructure and related services in the economy could be reflective of their views on the readiness of the economy in harnessing innovation and new technology.

3.25.4. Possible actions at the economy level that may impact the indicator

- Increasing access to basic services, such as clean water.
- Improving transport networks in rural areas.
- Creating integrated transport hubs in key nodes across the economy.
- Exploring the role of public-private partnerships (PPP) in boosting infrastructure investment.

3.25.5. Strengths of the indicator

- This set of indicators provides executives' perspectives and, hence, complements indicators that are not perception-based.
- It allows for the monitoring of the implementation of regulations and real situations on the ground as opposed to analyzing the regulations themselves.

3.25.6. Limitations of the indicator

- Perception-based indicators may be biased.
- It takes time to change perceptions even in the presence of actual improvements.
- When there is a change in methodology, it may be the case that some of the indicators may no longer be included in the survey.
- Perceptions may not change in the same direction as policies.
- The linkage between the indicator and inclusion is indirect. Improved access to transportation infrastructure is a first step to connecting remote communities to opportunities but whether they can utilize these connections is a separate matter. Unfortunately, the indicator does not capture utilization directly.

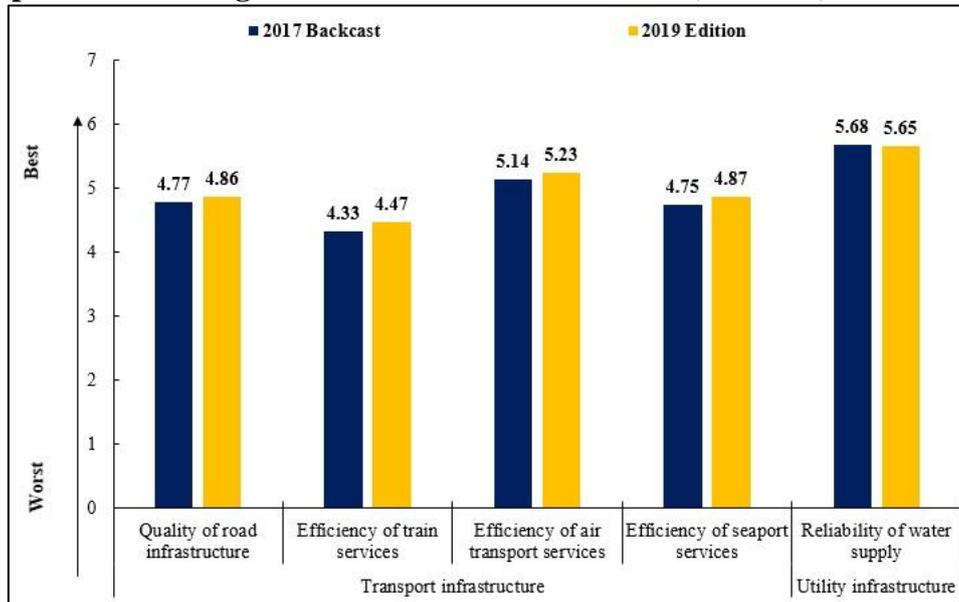
3.25.7. Coverage and additional information

Economies covered (since GCR2017)	20 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	GCR 2019 ⁸
Frequency	Annual

⁸ The World Economic Forum has published the Global Competitiveness Report (GCR) 2020 as a special COVID-19 edition. The 2020 edition paused the collection of indicators featured in the Global Competitiveness Index 4.0. As such, this report is instead using the GCR 2019 to assess the region's progress in various areas.

3.25.8. Analysis

Comparison of average scores for APEC in GCR2017 (backcast) and GCR2019



Note: APEC score is a simple average of the scores of 20 economies indicated in section 7.

Source: APEC PSU calculations based on data from the World Economic Forum (accessed 12 May 2021).

APEC registered improvements in values between the 2017 backcast and the 2019 edition across all four areas covered in transport infrastructure. Of the four areas, APEC scored the highest in terms of efficiency of air transport services (5.23), while it scored the lowest in terms of efficiency of train services (4.47) in the 2019 edition. In terms of reliability of water supply, however, the average value has fallen from 5.68 in the 2017 edition to 5.65 in the 2019 edition.

3.26. WEF GLOBAL COMPETITIVENESS INDICATORS FOR LABOUR MARKET EFFICIENCY (PERCEPTION-BASED)

3.26.1. Source

<https://www.weforum.org/reports/global-competitiveness-report-2019>

3.26.2. What does it tell us?

- This set of indicators captures the perspectives of business executives on various aspects within the economy that contribute to labour market efficiency.
- Labour market efficiency indicators are classified into two groups, namely: those pertaining to flexibility; and, those pertaining to meritocracy and incentivization.
- For the purpose of EAASR, only existing indicators derived from the Executive Opinion Survey of the World Economic Forum are monitored because they are fully perception-based and will complement proposed indicators that are not based on perceptions.
- The list of indicators and how they are asked in the survey are as follows:

Indicators	Questions as asked in the survey
Flexibility	
Hiring and firing practices	In your economy, to what extent do regulations allow for the flexible hiring and firing of workers? (1 = not at all; 7 = to a great extent)
Cooperation in labour-employer relations	In your economy, how do you characterize labour-employer relations? (1 = generally confrontational; 7 = generally cooperative)
Flexibility of wage determination	In your economy, how are wages generally set? (1 = by a centralized bargaining process; 7 = by each individual company)
Active labour market policies	In your economy, to what extent do labour market policies help unemployed people to reskill and find new employment (including skills matching, retraining, etc.)? (1 = not at all; 7 = to a great extent)
Ease of hiring foreign labour	In your economy, how restrictive are regulations related to the hiring of foreign labour? (1 = highly restrictive; 7 = not restrictive at all)
Internal labour mobility	In your economy, to what extent do people move to other parts of the economy for professional reasons? (1 = not at all; 7 = to a great extent)
Meritocracy and Incentivization	
Reliance on professional management	In your economy, who holds senior management positions in companies? (1 = usually relatives or friends without regard to merit; 7 = mostly professional managers chosen for merit and qualifications)
Pay and productivity	In your economy, to what extent is pay related to employee productivity? (1 = not at all; 7 = to a great extent)

3.26.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • These indicators provide business executives' perspectives about how well workers are allocated in the economy and how productive they are in the economy. Ultimately, inferences can be made from the indicators on whether a market is relatively more open, well-functioning, transparent, and competitive when compared to another.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • Some of the indicators under this pillar, such as flexibility of wage determination, could give indications on the flexibility that firms have to respond to sudden shocks. This would help them in being more adept in boosting their recovery and resilience against future shocks.

<p>Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being</p>	<ul style="list-style-type: none"> • Business executives generally run firms' operations on a daily basis and make decisions on employment matters, among others; hence, their perspectives on employment issues will reflect their actions, such as whether or not to hire more people. This will inadvertently determine whether wider segments of the society can participate in the markets.
<p>Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization</p>	<ul style="list-style-type: none"> • The ability of firms to harness innovation and new technology to boost productivity and innovation is, arguably, dependent on multiple factors in the labour market, such as the ease of finding the right individuals and responsive labour policies. Ease in hiring foreign labour, for example, could facilitate skills and technology transfer. For jobs where skilled labour is still difficult to find, responsive labour policies could enable firms to offer prospective employees traineeships and upskilling initiatives, eventually hiring them for more productive and higher paid jobs. Business executives' perspectives on these factors will have an implication on their views regarding the readiness of their firms to embrace productivity-boosting innovation and new technology.

3.26.4. Possible actions at the economy level that may impact the indicator

- Making labour regulations more transparent and easily accessible.
- Enhancing the partnerships between government, employers and employees.
- Relooking existing mechanisms on wage setting/bargaining.
- Organizing public-private dialogues to tackle operational issues pertaining to employment (e.g., hiring and firing practices).
- Promoting meritocracy.

3.26.5. Strengths of the indicator

- This set of indicators provides executives' perspectives and, hence, complements indicators that are not perception-based.
- It allows for the monitoring of the implementation of regulations and real situations on the ground as opposed to analyzing the regulations themselves.

3.26.6. Limitations of the indicator

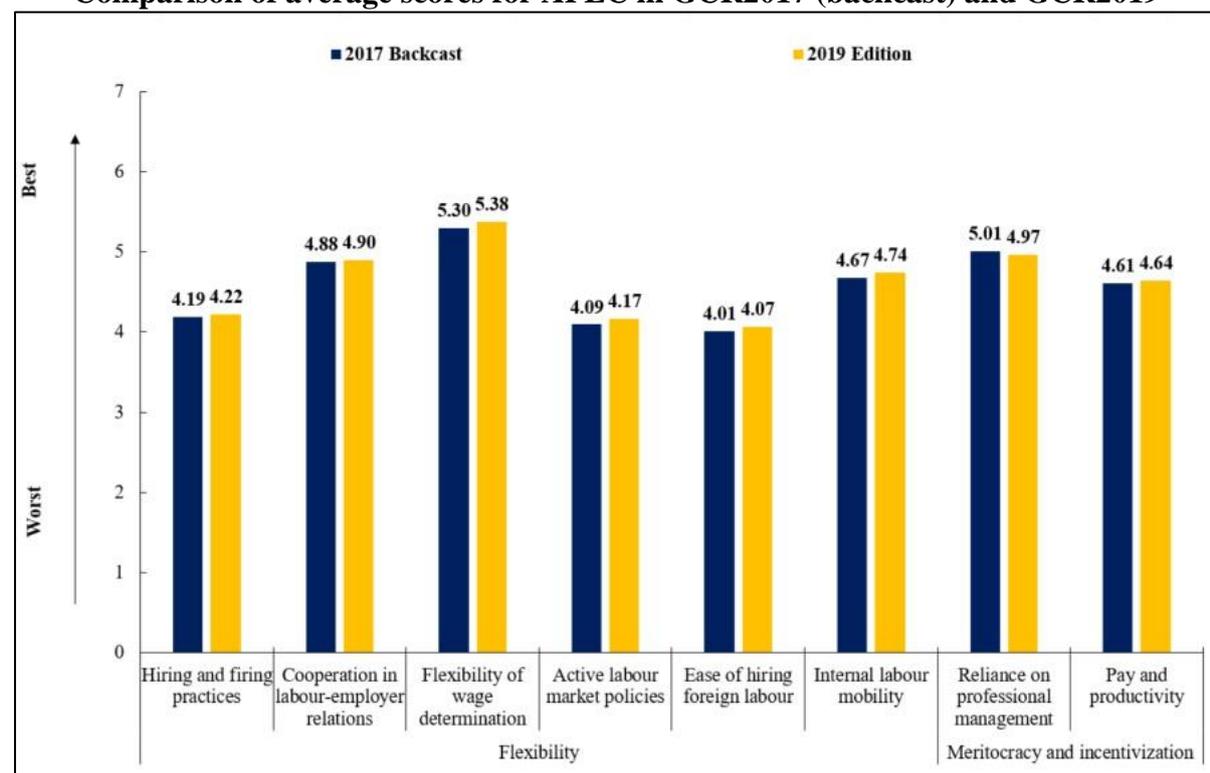
- Perception-based indicators may be biased.
- It takes time to change perceptions even in the presence of actual improvements.
- When there is a change in methodology, it may be the case that some of the indicators may no longer be included in the survey.
- Perceptions may not change in the same direction as policies.
- The linkage between the indicator and inclusion is indirect as business executives may not focus so much on equity issues.

3.26.7. Coverage and additional information

Economies covered (since GCR2017)	20 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	GCR 2019 ⁹
Frequency	Annual

3.26.8. Analysis

Comparison of average scores for APEC in GCR2017 (backcast) and GCR2019



Note: APEC score is a simple average of the scores of 20 economies indicated in section 7.

Source: APEC PSU calculations based on data from the World Economic Forum (accessed 12 May 2021).

Of the eight indicators, five of them (i.e., hiring and firing practices, cooperation in labour-employer relations, flexibility of wage determination, reliance on professional management, and pay and productivity) have been tracked earlier prior to GCR2018, while three have only been introduced from GCR2018 onwards as part of the new Global Competitiveness Index 4.0 (i.e., active labour market policies, ease of hiring foreign labour and internal labour mobility). Despite these being newly introduced, WEF has calculated the 2017 backcast values. It can be observed from the above figure that all, except one area, have seen improvements in values between the 2017 backcast and the 2019 edition. Among the eight indicators, APEC scored the highest in flexibility of wage determination (5.38) and the lowest in ease of hiring foreign labour (4.07) in the 2019 edition.

⁹ The World Economic Forum has published the Global Competitiveness Report (GCR) 2020 as a special COVID-19 edition. However, the 2020 edition paused the collection of indicators featured in the Global Competitiveness Index 4.0. As such, this report analyzes data in GCR 2019 to assess the region's progress in various areas.

3.27. WEF GLOBAL COMPETITIVENESS INDICATORS FOR SKILLS (PERCEPTION-BASED)

3.27.1. Source

<https://www.weforum.org/reports/global-competitiveness-report-2019>

3.27.2. What does it tell us?

- This set of indicators surveys the business community’s perception of the skill level of an economy’s workforce, asking questions on both the skills of the current workforce and the extent to which they think educational institutions are preparing the workforce for the future.
- Only existing indicators derived from the Executive Opinion Survey of the World Economic Forum are monitored because they are fully perception-based and will complement proposed indicators that are not based on perceptions.
- The list of indicators and how they are asked in the survey are as follows:

Indicators	Questions as asked in the survey
Current workforce	
Extent of staff training	In your economy, to what extent do companies invest in training and employee development? (1 = not at all; 7 = to a great extent)
Quality of vocational training	In your economy, how do you assess the quality of vocational training? (1 = extremely poor among the worst in the world; 7 = excellent among the best in the world)
Skillset of graduates	Average score of two questions: 1. In your economy, to what extent do graduating students from secondary education possess the skills needed by businesses? 2. In your economy, to what extent do graduating students from university possess the skills needed by businesses? In each case, the answer ranges from 1 (not at all) to 7 (to a great extent).
Digital skills among active population	In your economy, to what extent does the active population possess sufficient digital skills (e.g. computer skills, basic coding, digital reading)? (1 = not at all; 7 = to a great extent)
Ease of finding skilled employees	In your economy, to what extent can companies find people with the skills required to fill their vacancies? (1 = not at all; 7 = to a great extent)
Future workforce	
Critical thinking in teaching	In your economy, how do you assess the style of teaching? (1 = frontal, teacher based, and focused on memorizing; 7 = encourages creative and critical individual thinking)

3.27.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • This set of indicators captures the business executives’ perspectives on the skill level of an economy’s workforce. The more skilled an economy’s workforce is, the more able it is to support the operations of job functions that require specific skills, hence contributing to more competitive markets.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • This set of indicators shows business executives’ perspectives on the adaptability of the workforce to shocks and challenging situations, such as the COVID-19 pandemic. Shocks, like the pandemic, have shifted much of the workforce to a “work from home” scheme. As such, a workforce with strong digital skills is better equipped to adapt to new business and work models.

Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> This set of indicators can be used to gauge the readiness and skillset of the workforce to access various opportunities that may arise. For instance, business executives' perspectives on the ease of finding workers with specific skills can be indicative of how ready the workforce is to take up new jobs. Economies training their population with in-demand skills are better able to provide their people with a more equal and inclusive access to new opportunities.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> This set of indicators captures the readiness of the workforce to utilize their skills to harness innovation and new technologies.

3.27.4. Possible actions at the economy level that may impact the indicator

- Incentivizing companies and firms to invest in employee training and upskilling initiatives.
- Reforming the educational system to promote critical thinking and digital literacy.
- Engaging businesses and academia to help match education offerings with current and future needs.
- Encouraging return migration of skilled labor to practice their vocation back in their home economies.
- Supporting high-tech industries to provide new job opportunities.
- Initiating education and training to support the upskilling of the workforce.

3.27.5. Strengths of the indicator

- This set of indicators provides executives' perspectives and, hence, complements indicators that are not perception-based.
- It allows for the monitoring of the implementation of regulations and real situations on the ground as opposed to analyzing the regulations themselves.

3.27.6. Limitations of the indicator

- Perception-based indicators may be biased.
- It takes time to change perceptions even in the presence of actual improvements.
- When there is a change in methodology, it may be the case that some of the indicators may no longer be included in the survey.
- Perceptions may not change in the same direction as policies.
- The indicator may be biased to those who can afford courses/education to develop their digital skills.

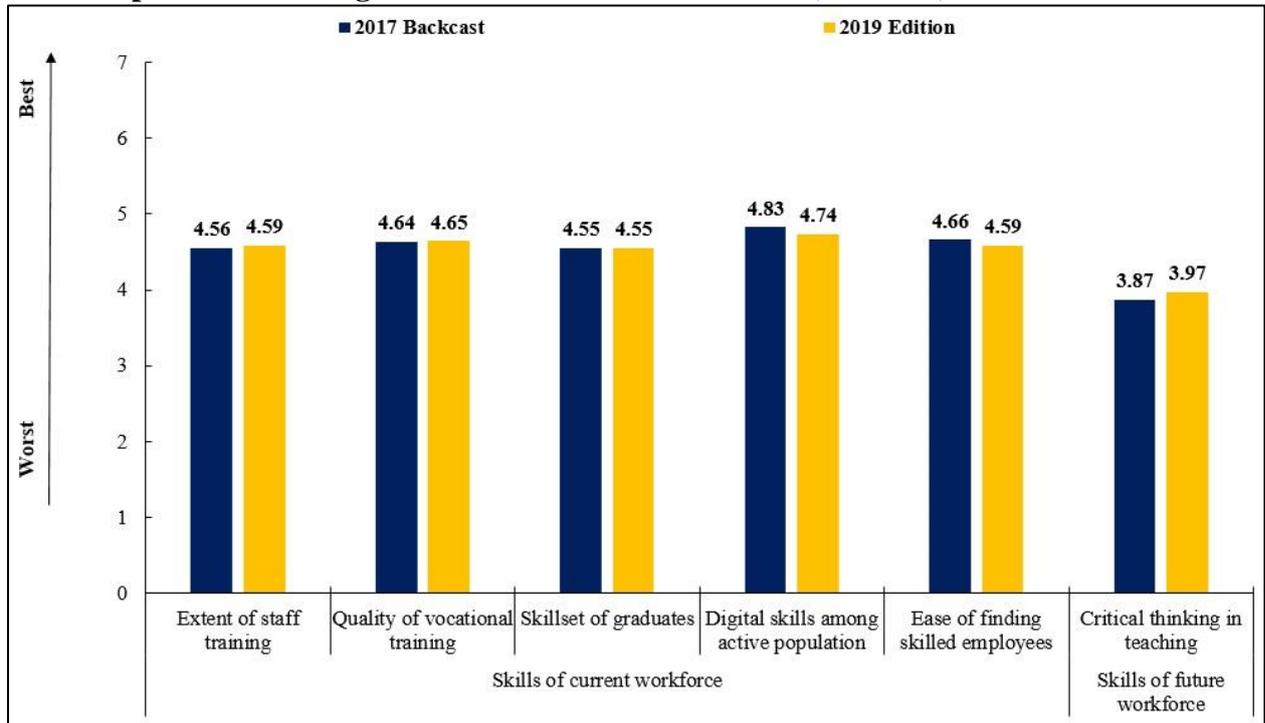
3.27.7. Coverage and additional information

Economies covered (since GCR2017)	20 (AUS; BD; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; and VN)
Latest Available Year	GCR 2019 ¹⁰
Frequency	Annual

¹⁰ The World Economic Forum has published the Global Competitiveness Report (GCR) 2020 as a special COVID-19 edition. However, the 2020 edition paused the collection of indicators featured in the Global Competitiveness Index 4.0. As such, this report uses data in GCR 2019 to assess the region's progress in various areas.

3.27.8. Analysis

Comparison of average scores for APEC in GCR2017 (backcast) and GCR2019



Note: APEC score is a simple average of the scores of 20 economies indicated in section 7.

Source: APEC PSU calculations based on data from the World Economic Forum (accessed 12 May 2021).

APEC average values across four areas (i.e., extent of staff training, quality of vocational training, skillset of graduates, and critical thinking in teaching) have improved between the 2017 and the 2019 edition. However, the average values for two areas (i.e., digital skills among active population, and ease of finding skilled employees) have fallen over the same period. Of the six areas, APEC scored the highest in digital skills among the active population in the 2019 edition (4.74) while it scored the lowest in terms of critical thinking in teaching (3.97).

3.28. WORLD BANK GLOBAL FINDEX INDICATORS ON SHARE OF POPULATION MAKING AND RECEIVING DIGITAL PAYMENTS IN THE LAST YEAR (15+) (OUTCOME)

3.28.1. Source

<https://globalfindex.worldbank.org/>

3.28.2. What does it tell us?

- The World Bank Global Findex database is a comprehensive dataset on financial inclusion based on a survey covering how adults save, borrow, make payments, and manage risk.
- For the purposes of EAASR, the focus is on the proportion of respondents aged 15+ who have made digital payments and purchases in the last year.
- Survey data is also disaggregated by gender, educational level, wealth (e.g., richest 60% and poorest 40%), and area (e.g., rural).

3.28.3. Linkages to specific EAASR pillars

Pillars	Reasons
Creating an enabling environment for open, transparent and competitive markets	<ul style="list-style-type: none"> • These indicators tell us the readiness of the population and, by extension, the economy in embracing the digital economy. The higher the share of population, the more competitive the economy would be.
Boosting business recovery and resilience against future shocks	<ul style="list-style-type: none"> • Adopting digital payments can provide a lifeline for people and businesses to continue economic activity in the midst of a crisis, such as in the current COVID-19 pandemic or state of natural disasters.
Ensuring equal access to opportunities for all groups in society for more inclusive and sustainable growth, and well-being	<ul style="list-style-type: none"> • As the survey respondents include people of various age groups and gender, data collected from the survey can provide policymakers with a more holistic and nuanced understanding of the state of financial inclusion across various groups in an economy. This can help policymakers craft targeted policy interventions.
Harnessing innovation and new technology, and investing in skills to boost productivity and digitalization	<ul style="list-style-type: none"> • Exposure to digital financial solutions is indicative of the extent through which the population and, hence, the economy harness innovation and new technology. It is also indicative of the level of skills of the population with regards to digitalization.

3.28.4. Possible actions at the economy level that may impact the indicator

- Establishing a supportive ecosystem for the development of digital financial providers.
- Standardizing laws regulating the financial technology space and e-commerce to facilitate cross-border transactions and transfers.
- Investing in improved information and communications technology infrastructure.
- Conducting literacy drives on the advantages of digital financial solutions.
- Incentivizing uptake of new financial solutions, such as faster access to cash transfers and remittances.

3.28.5. Strengths of the indicator

- As the indicator is based on individual survey data, it is possible to disaggregate survey data into demographic groups, such as gender, age groups, and urban/rural residents.
- It is possible to compare findings across economies due to the use of standard assumptions during data collection.

3.28.6. Limitations of the indicator

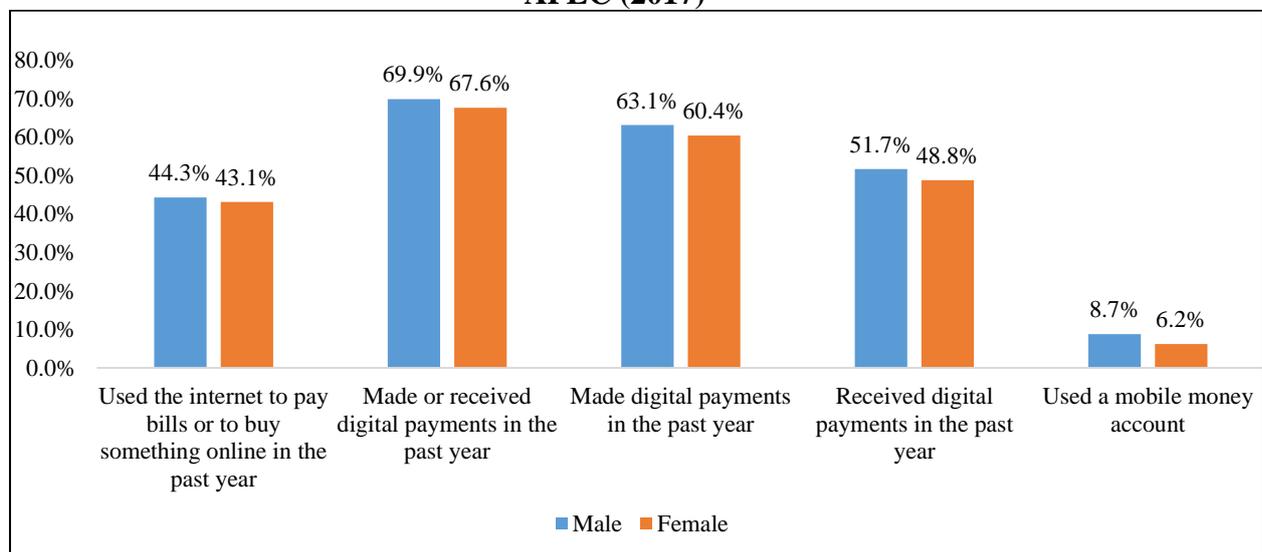
- Survey sampling methods face limitations, such as geographic reach. As such, survey results may not be fully reflective of the situation in the entire economy.
- Data on digital purchases is limited for some economies.
- To ensure comparability across economies, there are some underlying assumptions that may not be reflective of the reality on the ground. (e.g., payments received into a card assume that such cards are linked to a bank account or a card-based account, or an individual only uses a financial institution account if he or she owns an account).
- Since methodology is occasionally revised and improved, some proposed indicators may no longer be comparable across time.
- Since the database is created to support the World Bank goal of Universal Financial Access by 2020, there is a risk that the database will not be available for later years.
- The indicator may not capture the presence of proxy users (i.e., users who indirectly participate in the digital economy through other people, such as their children or grandchildren). The indicator's inability to capture proxy users could mean that the reported percentage shares are understated.

3.28.7. Coverage and additional information

Economies covered	19 (AUS; CDA; CHL; PRC; HKC; INA; JPN; ROK; MAS; MEX; NZ; PE; PHL; RUS; SGP; CT; THA; USA; VN)
Latest Available Year	The Global Findex Database 2017
Frequency	Every three years

3.28.8. Analysis

Percentage of People Making and Receiving Digital Payments in the last year (15+) in APEC (2017)



Note: The APEC numbers are a simple average of the percentage recorded by the 19 economies where data is available.
 Source: APEC PSU compilations based on data from World Bank (accessed 19 January 2021).

The survey results showed that, while almost half of APEC's population have used some form of digital payment tools, there is a gender gap between male and female usage of these tools. Moreover, APEC has a very low usage of mobile money accounts.

4. CONCLUSION

The endorsement of EAASR by Structural Reform Ministers in June 2021 reflects APEC's longstanding commitment to structural reforms in the region. EAASR's four pillars demonstrate both the importance of continuing to address the gaps identified in the RAASR Final Review and the urgency of responding to the new challenges amidst the evolving economic landscape. EAASR also recognized the important role of structural reforms in promoting inclusive and sustainable growth and urged economies to consider the approaches identified in the 2018 EC paper titled "Structural Reforms for Inclusive Growth: Three Approaches". In line with the spirit and intent of EAASR, the PSU has proposed the updated list of indicators in this report for the consideration of EC members. While it should be acknowledged that these indicators are not exhaustive and, hence, will not be able to cover every aspect of structural reform efforts, the PSU hopes that the updated list will be more relevant and fit for the purpose of monitoring APEC's collective progress under EAASR.

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