

Enhancing the Effectiveness of Tourist Travel Facilitation Measures in the APEC Region

ISSUES PAPER No. 16

APEC Policy Support Unit

June 2026



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Produced for:
Tourism Working Group
Asia-Pacific Economic Cooperation

APEC#226-SE-01.9

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TABLE OF CONTENTS

Key Messages	ii
1. Introduction and Project Overview	1
2. Travel Facilitation Measures in APEC	2
Role of Travel Facilitation in Tourism Development.....	3
Traditional Measures at the Border.....	5
<i>Traditional Visas</i>	5
<i>Visa-on-arrival</i>	5
<i>Passenger Name Record and Advance Passenger Information</i>	6
Digitally Enabled Travel Facilitation.....	7
<i>E-Visas</i>	8
<i>Electronic Travel Authorisation (ETA)</i>	9
<i>E-Gates</i>	10
<i>E-Forms</i>	11
<i>Privacy Concerns with Digital Travel Facilitation</i>	12
3. Quantitative Impact Analysis	14
Tourism Trends in the APEC Region	14
Status of Travel Facilitation in APEC: Survey Responses	15
Impact of Travel Facilitation on Tourist Arrivals.....	19
<i>Visa Types, E-Visa and ETA</i>	20
<i>E-Gates and E-Forms</i>	23
4. Policy Discussion	27
Appendix 1: Data, Methodology and Results	30
Variables and Data Sources	30
Gravity Model Equations.....	31
Estimation Results and Interpretation.....	31
Appendix 2: RFI Questionnaire	35

KEY MESSAGES

- Tourism is a major driver of economic growth in many APEC economies and contributes significantly to GDP and jobs. In 2024, the APEC region was estimated to have received 439 million international visitors, of whom 359 million are from other APEC economies. In 2019, when visitor arrivals to the region reached 716 million, tourism was estimated to have contributed 10.4% of the region's GDP and 334 million jobs. However, since the 2020 COVID-19 pandemic, international travel in APEC has not yet fully recovered and remains at about 60% of 2019 arrival levels.
- Even as overtourism and congestion need to be managed at the local level, it is clear that the macroeconomic benefits of tourism in terms of jobs and growth come with visitor volume. Tourist travel facilitation, including through the use of digital technologies, can support the tourism sector's growth and recovery if implemented well. By improving travel documentation systems, modernising border controls, and embracing digital tools such as e-visas, e-gates, and electronic arrival cards, APEC economies are working to create a travel environment that is conducive to travel and tourism while ensuring safety and security at the border.
- At the same time, the use of digital technology in travel facilitation gives rise to privacy concerns across the traveller journey, particularly regarding the collection, use, sharing, and protection of personal and biometric data. Although such concerns may lessen travellers' willingness to adopt these technologies, acceptance is generally higher where there is confidence in data security and where the benefits, including greater processing efficiency and a more seamless travel experience, are evident and communicated.
- APEC economies have made significant progress in reducing travel restrictions and facilitating people-to-people connectivity. In 2014, 152 out of APEC's 420 of origin-destination pairs required a traditional visa or similar entry requirement from visitors; in 2026 this number has gone down to 66, easing travel for 86 origin-destination pairs during the period.
- A rigorous analysis of bilateral tourist arrivals data, visitor entry policy data and macroeconomic data shows strong and positive impacts of travel facilitation and the use of digital technologies. Even after controlling for other factors that affect bilateral visitor arrivals, a destination economy can expect 7.2% to 27.0% more visitor arrivals from the origin economy as a result of removing visa or similar entry requirements. The impacts are even more pronounced by type—i.e., traditional visa vs. electronic visa vs. visa-on-arrival—showing that policies that efforts at facilitating entry requirements have significant impacts on bilateral tourist arrivals.
- The use of digital travel facilitation is also positive and significant, albeit with nuances to consider. Switching from a traditional to an electronic visa or similar entry requirement is associated with a 15.0% increase in bilateral arrival flows. On the other hand, in cases where there are no visa requirements, adding an electronic travel authorisation requirement is associated with a 29.3% reduction in arrivals. These findings point to the importance of considering costs, processes, wait times and traveller uncertainty in developing electronic travel facilitation measures.

- Data analysis on the use of e-gates and e-forms do not show a statistically significant impact on bilateral tourist arrivals. While these measures could improve the traveller experience at the border, they do not necessarily affect decision-making on destination selection. On the other hand, indicative data on e-gate use point to slightly higher visitor arrivals in the destinations that use them. Meanwhile, economies that have studied the impact of e-gates and e-forms point to positive impacts in terms of border efficiency and security as well as generally positive experience from travellers.

Policy Considerations

- **Consider tourism in formulating visitor entry policies.** Visitor entry policies matter for tourism and can affect a tourist's decision to visit or skip a destination. While visas or similar travel requirements may serve important functions related to border control, security, or risk mitigation, studies have repeatedly shown that the policy choice to impose visas is not without its costs. Evidence from this analysis suggests that visa requirements reduce visitor arrivals, while removing (or facilitating) them can significantly increase arrivals. In developing travel facilitation policy, economies need to balance security and border control needs against lost tourism and foregone economic opportunities.
- **Digitalisation does not automatically mean facilitation.** Digital tools can improve travel, but only if designed well. Tools such as e-gates, e-forms, e-visas, and AI can improve efficiency, transparency, and traveller experience. However, poorly designed systems can create new bottlenecks instead of reducing them. Digital literacy gaps and accessibility barriers may exclude some travellers, and traditional systems may sometimes work better if digital systems are too cumbersome. Likewise, some travellers may need support and assistance when using new digital tools and navigating digital information platforms. Ease of use, accessibility, traveller trust, and clear communication are critical to ensure that digitalisation leads to travel facilitation.
- **Travel facilitation digitalisation is not just technological but institutional.** Technology does not exist in a vacuum; it depends on user trust, clear rules, connectivity, and sufficient technical and administrative capacity. The benefits of digital adoption may be limited if institutional and governance processes are not also updated to support interoperability, resilience, and trust. At the same time, the use of personal and biometric data in travel facilitation raises valid privacy and misuse concerns, requiring clear frameworks for data governance, privacy protection, interoperability, and accountability. Agencies implementing these technologies need stronger technical and governance capabilities. In addition, digital travel facilitation must remain adaptable and scalable, with gradual integration strategies that allow border systems and capacities to evolve with new challenges and innovations.
- **Monitor and evaluate impacts of travel facilitation policies.** Many economies have used e-visas, ETAs, and e-gates for years, but systematic evidence on their impact is still limited. More regular monitoring is needed to assess effects on visitor arrivals, traveller experience, and border functions. Evidence-based evaluation helps policymakers decide whether these measures are effective and aligned with economic goals.

1. INTRODUCTION AND PROJECT OVERVIEW

Tourism begins before the first step is taken. Even before a ticket is purchased or a room is booked, a tourist has already started thinking about the destination: its attractions, culture, and cuisine as well as the expected logistics and conveniences. Especially in situations where travel is discretionary and done for leisure, ease of travel and crossing borders could become deciding factors in choosing—or skipping—a destination.

Travel facilitation measures are vital in promoting tourism as they significantly enhance the ease and convenience with which people can explore new destinations. By reducing the bureaucratic hurdles and simplifying entry processes, such measures could make international travel more accessible and attractive, drawing visitors towards a destination. On the other hand, the expectation of tomes of paperwork, high entry costs, and very long queues could be enough to deter a potential tourist. Consequently, economies invest in robust travel facilitation measures and technologies, hoping to promote tourist arrivals which can translate into substantial economic benefits.

Digitalisation plays a pivotal role in modern travel facilitation, with innovations such as e-visas, e-gates, and e-forms revolutionising the way travellers navigate through entry requirements and points of entry. E-visas or other forms of digitally processing entry requirements are implemented to streamline the application process, allowing travellers to apply online and receive their visas electronically, thereby eliminating the need for physical paperwork and reducing processing times. E-arrival forms facilitate cross-border crossings by allowing travellers to send their forms in advance while ensuring border authorities have the information needed to process visitors. E-gates, on the other hand, expedite border control procedures by using automated systems to verify travel documents and biometrics, resulting in faster and more efficient passenger clearance while minimising the need for manual intervention. These digital solutions not only enhance the traveller experience by minimising wait times and improving security but also enable governments to manage and monitor visitor flows more effectively. Digitalisation, coupled with other travel facilitation policies, can potentially improve an economy's competitiveness as a tourist destination.

In 2025, the Tourism Working Group (TWG) and the APEC Policy Support Unit (PSU) initiated this study to examine the impacts of travel facilitation measures with a focus on the use of digital technologies. In December 2025, a Request-for-Information (RFI) was conducted among TWG members to gather data and updates on the current state of electronic travel facilitation measures in the region (see Appendix 2 for the full questionnaire). This issues paper presents the findings, analysis, and conclusions of the study.

This study contributes to APEC's priorities related to people-to-people connectivity, tourism, and facilitating the cross-border movement of people as endorsed by Leaders in the APEC Putrajaya Vision 2040 and the Aotearoa Plan of Action. It also supports the TWG's 2026 Work Plan focus areas related to advancing data-driven tourism policy and enhancing travel facilitation, accessibility and connectivity to improve travel experience and remove barriers for travel.

2. TRAVEL FACILITATION MEASURES IN APEC

For international travellers, the first point of physical contact where travel documents are verified and entry requirements are fulfilled is usually at departure, followed by further inspection at immigration checkpoints. This process can at times be smooth, but other times travellers face long waits and tomes of paperwork. Behind this brief encounter lies a complex system balancing two priorities: keeping borders secure while making travel as easy and efficient as possible.

For many decades, crossing a border required paper-based travel documents issued through brick-and-mortar offices, often involving multiple forms, carbon-copy duplicates, and possible in-person interviews and waiting periods. These processes ensured security but also created frictions to mobility, especially for tourists and business travellers. Today, as international tourism rebounds from COVID-19, governments are rethinking how borders can serve as gateways for visits and exchange, while ensuring that they remain secure. In this regard, technology can help.

Travelers today increasingly interact with digital systems. At airports, seaports and other travel nodes, visitors are being required to use self-service check-in booths, automated security gates, and other digital interfaces. The use of digital technology extends to borders, starting with chips in biometric passports and now with the use of artificial intelligence in screening procedures. As “smart borders” evolve, the very nature of international travel is changing. Processes that were once manual and analogue are now carried out through engagement with digital technologies.

Digitisation is also redefining the physical and spatial logic of borders. The positioning of material components such as biometric cameras, e-gates, and fingerprint scanners along with their underlying networks and computational infrastructure, shapes how borders operate and where they are effectively located.

This is where travel facilitation comes in. Travel facilitation refers to the policies and technologies that make it simpler, faster, and safer for people to move across borders. Within the APEC region, travel facilitation plays a vital role in connecting economies that together account for nearly 60% of global GDP and a third of international arrivals. By improving travel documentation systems, modernising border controls, and embracing digital tools such as e-visas, e-gates, and electronic arrival cards, APEC members are working to create a travel environment that is conducive to travel and tourism.

Understanding how these measures evolve from traditional visa-on-arrival schemes to fully digitalised, data-driven border systems help explain how tourism contributes not just to leisure and business, but also to regional prosperity and connectivity. It is also worth noting that the requirements for visitor entry between economies are as varied as the APEC economies themselves. For example, some economies may allow certain travellers to cross the border with a valid identification other than a passport, such as an enhanced driving license (Canada and the United States) or an official government-issued identification card (Chile, Peru and other Mercosur affiliated or member economies). Likewise, some destination economies may impose entry requirements before one embarks on the journey, such as the Entry-Exit Permit (EEP) between China and Hong Kong, China. Throughout this report, “passport” and “visa” will be

used to mean “passport or other travel documents” and “visa or similar entry requirement,” respectively.

ROLE OF TRAVEL FACILITATION IN TOURISM DEVELOPMENT

International tourism is a significant driver of economic development, employment, and cultural exchange. In 2019, it represented approximately 10.3% of global Gross Domestic Product (GDP) and sustained around 330 million jobs.¹ For many economies in the Asia-Pacific region, it represents a critical source of foreign exchange earnings and a major employer across hospitality, transport, and retail sectors. Travel facilitation plays a central role in enabling this economic engine: when border procedures are streamlined and entry requirements are simplified, more visitors choose a destination, stay longer, and spend more. Conversely, complex visa requirements, long processing times, and cumbersome entry procedures act as deterrents, diverting tourists to more accessible destinations. The architecture of global visa regimes has undergone radical transformation over the past fifteen years. In 2008, approximately 77% of the world's population was required to apply for a traditional tourist visa before traveling; by 2023, that figure had dropped significantly to 47%.² This trend toward openness is driven by the perception that visa facilitation is central to stimulating economic growth and job creation.³

Travel facilitation measures are central to enhancing tourism development and fostering economic growth among member economies. Global international arrivals are projected to reach 1.8 billion by 2030, with Asia-Pacific leading recovery: tourist arrivals in the region in the first quarter of 2024 reached 82% of pre-pandemic levels, compared to 65% in 2023.⁴ This rapid rebound signals the importance of modernising travel facilitation through digitalisation and improved border management.

APEC's capacity building projects under the SOM Steering Committee on Economic and Technical Cooperation (SCE) illustrate the region's progress on bridging the digital divide, expanding access to ICT, and deploying digital platforms that support seamless information sharing and service delivery across borders.⁵ In the tourism sector, projects such as the development of digital tools to formalise informal tourism businesses and the creation of the

¹ World Travel & Tourism Council, "Security & Travel Facilitation," accessed 26 April 2026, <https://wttc.org/initiatives/security-travel-facilitation>.

² UN Tourism, Tourism Visa Openness Report 2023 (Madrid: UN Tourism, 2023), <https://www.e-unwto.org/doi/10.18111/9789284425044>.

³ UN Tourism, The Impact of Visa Facilitation on Job Creation in the G20 Economies: Report Prepared for the 4th T20 Ministers' Meeting, Mexico, 15–16 May 2012 (Madrid: UN Tourism, 2012), <https://www.e-unwto.org/doi/book/10.18111/9789284414727>.

⁴ UN Tourism, "International Tourism Reached 97% of Pre-Pandemic Levels in the First Quarter of 2024," accessed 26 April 2026, <https://www.untourism.int/news/international-tourism-reached-97-of-pre-pandemic-levels-in-the-first-quarter-of-2024>.

⁵ APEC, "2024 APEC Senior Officials' Report on Economic and Technical Cooperation," Concluding Senior Officials' Meeting, Lima, Peru, 11–12 November 2024, https://mddb.apec.org/Documents/2024/SOM/CSOM/24_csom_007.pdf.

APEC Tourism Cooperation Platform illustrate how digitalisation directly facilitates smoother travel, optimises logistics for service providers, and enriches the overall traveller experience.⁶⁷

Travel facilitation has long been a policy lever in APEC, with economies progressively adopting measures to streamline procedures and boost mobility. One of the objectives of the APEC Connectivity Blueprint 2015–2025⁸ was to reduce visa restrictions, enhance cross-border mobility and reduce barriers for travellers. The United Nations World Tourism Organization (UNWTO, now UN Tourism)⁹ has highlighted how visa facilitation in APEC economies is linked to increased tourism flows, greater international mobility, and measurable economic benefits.

UNWTO also notes there has been a growing tendency towards unilateral visa-free entry requirements in recent years. In 2008, 71% of visa policies were reciprocal—i.e., visa policies were based on bilateral partners' policies—but by 2023 only 42% were reciprocal.¹⁰ This indicates an increasing tendency for economies to unilaterally decide on whether to facilitate their entry requirements.

Current policies and instruments reflect this evolution. The APEC Business Mobility Group's (BMG) flagship APEC Business Travel Card (ABTC), which was developed to facilitate business travel, provides a five-year card with a single application through the home economy, pre-clearance decisions by participating members, and fast-track immigration checkpoint lanes at major airports and has become a model of coordinated travel facilitation in the region. While the ABTC caters specifically to business travellers, its process of applying once for multiple pre-clearances shows how regional coordination can lower administrative barriers for qualified travellers while preserving border control, offering a functional example of multilateralism in practice¹¹. Complementary instruments include the APEC Business Travel Handbook, which centralises visa rules and contact points, and information-sharing mechanisms such as pre-clearance tracking and the work of the BMG.¹²

As APEC economies continue to evolve their travel facilitation policies, it is worthwhile to consider the growing importance of person-to-person (PTP)¹³ tourism and the travel facilitation policies needed to tap into this market. PTP tourism, which encompasses activities such as

⁶ APEC, Study to Generate Digital Tools for the Transition to Formal Economy of Tourism Businesses in the Asia-Pacific Region (Singapore: APEC, 2025), <https://apec.org/publications/2025/02/study-to-generate-digital-tools-for-the-transition-to-formal-economy-of-tourism-businesses-in-the-asia-pacific-region>.

⁷ APEC, "APEC Platform for Promoting Cooperation in the Tourism Sector in the Asia-Pacific Region," 12th Tourism Ministerial Meeting, Cusco, Peru, 9 June 2024, https://mddb.apec.org/Documents/2024/MM/TMM/24_tmm_005.pdf.

⁸ APEC, "2014 APEC Economic Leaders' Declaration," APEC Economic Leaders' Meeting, Beijing, China, 10–11 November 2014, https://www.apec.org/meeting-papers/leaders-declarations/2014/2014_aelm.

⁹ UN Tourism, Tourism Visa Openness Report 2013 (Madrid: UN Tourism, 2013), <https://www.e-unwto.org/doi/book/10.18111/9789284415809>.

¹⁰ UN Tourism, Tourism Visa Openness Report 2023 (Madrid: UN Tourism, 2023), <https://www.e-unwto.org/doi/10.18111/9789284425044>.

¹¹ APEC, "APEC Business Travel Card (ABTC and Virtual ABTC)," accessed 26 April 2026, <https://www.apec.org/groups/committee-on-trade-and-investment/business-mobility-group/abtc>. <https://www.apec.org/groups/committee-on-trade-and-investment/business-mobility-group/abtc>

¹² APEC, *APEC Business Travel Handbook*, accessed 26 April 2026, <https://www.apec.org/engage-with-us/resources/business-resources/apec-business-travel-handbook>

¹³ Person-to-person (PTP or P2P) tourism refers to the sharing economy model as applied to tourism, where travellers communicate directly with hosts at the destination for accommodation, tours and other experiences. It replaces traditional intermediaries such as travel agencies or tour operators and is usually enabled by digital platforms,

homestays, workation (i.e., work + vacation), educational exchanges and wellness tourism, not only fosters deeper connections among member economies but also contributes to the tourism resilience and MSME opportunities in the sector.¹⁴ Furthermore, as economies increasingly adopt visa-waiver arrangements, the potential for increased mobility and cooperation becomes closer to realisation.¹⁵

TRADITIONAL MEASURES AT THE BORDER

Traditional Visas

Visas refer to an official authorisation granted by an economy allowing a foreign visitor to apply to enter, stay, or transit.¹⁶ The purpose of visas is to control entry based on security, health, labour market, or other considerations. The establishment of visa facilitation agreements can serve as a tool to strengthen bilateral relationships, encouraging cooperation on various fronts, including trade and tourism.¹⁷ Additionally, the harmonisation of visa policies can enhance the attractiveness of APEC economies as tourism destinations, particularly for travellers from emerging economies, thereby boosting economic resilience in a rapidly changing global landscape.

Traditional visas often involve paperwork, visits to an authorised office in charge of issuing visas, and sometimes an interview. Visa application costs can vary according to bilateral agreements, purpose of travel, length of stay, or validity of the visa. Traditional visas are usually affixed on a passport or other travel document, but may also be issued as a separate document. According to the UNWTO (2023), the use of a traditional visa has been on a downward trend: before 2008, 77% of the world's population needed a traditional visa to travel, but by 2023 this proportion has gone down to 47%.

Visa-on-arrival

Visa-on-arrival (VOA) schemes allow travellers to obtain their visa directly upon arrival at the border or airport, instead of applying in advance. VOA schemes can enhance the attractiveness of destinations by simplifying the pre-departure process for travellers, thus promoting a more seamless tourism experience. By reducing before-the-border bureaucratic hurdles, these schemes facilitate the immediate flow of tourists.

¹⁴ Oscar F. Picazo, Nina Ashley O. dela Cruz, and Soraya Ututalum, "People-to-People Tourism in APEC: Facilitating Cross-Border Entry and Exit, with Special Focus on ASEAN," Discussion Paper DP 2015-16 (Makati City: Philippine Institute for Development Studies, 2015), https://ideas.repec.org/p/phd/dpaper/dp_2015-16.html.

¹⁵ Richard D. Bedford and Jacqueline M. Lidgard, "Visa-Waiver and the Transformation of Migration Flows Between New Zealand and Countries in the Asia-Pacific Region, 1980–1996," in Lee Boon Thong and Tengku Shamsul Bahrin, eds., *Vanishing Borders: The New International Order of the 21st Century* (London: Ashgate, 1998), 91–110.

¹⁶ The term "visa" comes from the Latin *charta visa*, which means "the paper has been seen" and signifies that a document has gone through proper inspection and vetting. The modern usage of the term started in the late 1800s when the United Kingdom started issuing visas to British passport holders to allow them to enter certain British territories where travel is otherwise restricted.

¹⁷ Daniel Thym, "Visa Policy," in *European Migration Law* (Oxford: Oxford University Press, 2023), 280–300, <https://doi.org/10.1093/oso/9780192894274.003.0012>.

VOA mechanisms are designed to enable the spontaneous travel market without eliminating screening or visa requirements, catering to business professionals and leisure travellers who may arrange travel on short notice. It also serves as a border control tool for destination economies with limited overseas infrastructure. By shifting the process from the traveller's point of origin to the destination economy's port of entry, economies can effectively manage arrivals without the overhead of maintaining a comprehensive network of overseas offices.

However, VOA is not without operational drawbacks. Because the visa is issued at the port of entry, passengers queue at dedicated counters before proceeding to passport control, creating congestion at busy airports and seaports. Long waiting times can offset the convenience intended by the scheme, especially during peak travel periods. These operational constraints have driven several economies such as Indonesia and Viet Nam to introduce electronic VOA (e-VOA) systems, which allow travellers to obtain pre-approval online while retaining the flexibility of a VOA framework. E-VOA systems combine the accessibility of traditional VOA with the processing efficiencies of e-visa systems, reducing bottlenecks at borders while maintaining border authority oversight.

Passenger Name Record and Advance Passenger Information

The integration of data systems provided by transportation providers such as Passenger Name Record (PNR) and Advance Passenger Information (API) is becoming increasingly vital in enhancing border security while enabling tourism. PNR data is provided by airlines at the time of booking and cover many data points such as travel itinerary, ticket information, payment details, contact information, and even Special Service Requests (SSR) such as meal preferences. On the other hand, API involves documents and information submitted and verified at check-in, often containing personal details, purpose of visit, and sometimes health or security declarations.¹⁸ These systems allow for the pre-screening of travellers, enabling border control authorities to identify potential risks before they arrive, thereby streamlining the entry process and enhancing overall security measures without compromising the visitor experience.¹⁹ The use of PNR/API reduces wait times and increases border efficiency without compromising security.²⁰

Although PNR and API systems are now fully digital, their origins predate the digital era. PNR data is generated during the booking process and was originally collected by airlines for their own commercial and operational purposes. On the other hand, API data, derived from travel documents at check-in, was introduced later as part of early border control initiatives. The role of PNR and API in travel facilitation expanded significantly after the 11 September 2001 terrorist attacks, which increasingly prompted governments to require airlines to provide passenger data to authorities prior to arrival. This marked the beginning of systematic government access to airline reservation systems. Subsequently, international data-sharing

¹⁸ International Organization for Migration (IOM), "Passenger Data – Advance Passenger Information (API) and Passenger Name Record (PNR)" (Geneva: IOM Immigration and Border Governance Division, n.d.), <https://www.iom.int/sites/g/files/tmzbd12616/files/documents/passenger-data-advance-passenger-information-and-passenger-name-record.pdf>.

¹⁹ Chang R. Han, Rachel McGauran, and Hans Nelen, "API and PNR Data in Use for Border Control Authorities," *Security Journal* 30, no. 4 (2017): 1045–1063, <https://doi.org/10.1057/sj.2016.4>.

²⁰ International Civil Aviation Organization (ICAO), *Passenger Data Exchange Programs (PNR and API): Guidelines and Implementation* (Montreal: ICAO, 2020).

frameworks emerged, including the first European Union (EU)–US PNR agreement in 2004.²¹ At the global level, the International Civil Aviation Organization has developed standards and recommended practices to facilitate the transmission of API and PNR data.²²

DIGITALLY ENABLED TRAVEL FACILITATION

Recent decades have seen the rapid uptake of digitalisation in the travel experience including border control and travel facilitation. Moreover, developments in AI, cloud computing, internet of things, and big data analytics have led to their integration in the tourism and travel experience. Table 2.1 presents a passenger journey map—i.e., how technology is applied and interacts with passengers at each node—specifically for smart airports, although similar nodes and touchpoints could be applied to seaports and land crossings as well, where applicable.

Table 2.1. Passenger Journey Map for Smart Airports

Stage	Check-in		Security control	Border control	Boarding	All stages
Application	Smart check-in	Smart baggage handling	Smart security	Smart border control	Smart boarding	Smart airport applications
Goals	Smart check-in of passenger's documents and baggage and issuance of boarding pass and bag tags.		Verification of documents without personal assistance; screening passenger and carry-on bag.	Verification of passenger's identity and crossing the restricted area by self-service.	Self-boarding to the aircraft.	Facilitated passenger journey.
Process (Activity)	Enter surname and booking reference/PNR via a specific technology to issue the boarding pass.	Scan passport, print out and affix the baggage tag, then put them in the automated bag drop area.	Scan passenger's documents (passport, visa, other documents) and capture their photo to confirm the match between their information in e-passport and the taken photo with stored information in government database. Decide whether to proceed or do additional checks.	Enter the e-gate; scan travel documents (passport, visas, and other travel requirements), then data are processed to verify information; exit the e-gate.	Scan the boarding pass in scanning machine then open the e-gate; verify the scanned document.	Each application is differently processed based on its job.
Information	Biographic / biometric		Biometric	Biometric	Boarding pass	Different
Enabling technology	Kiosks, autonomous system (intelligent kiosks), biometric tech (smart path), automated system	Automated system, RFID tech	Biometric tech	Biometric tech, automated system, RFID tech	RFID tech, automated system	Mobile devices
Internet of Things, Cloud Servers						

Source: Adapted from M. I. Alabsi and A. Q. Gill. 2021. "A Review of Passenger Digital Information Privacy Concerns in Smart Airports." *IEEE Access*. <https://doi.org/10.1109/ACCESS.2021.3061425>.

²¹ European Parliament, "Timeline of the EU–US PNR Agreements," 26 March 2012, <https://www.europarl.europa.eu/news/en/press-room/20120326BKG41893/transfer-of-air-passengers-data-to-the-us-what-s-at-stake/7/timeline-of-the-eu-us-pnr-agreements>.

²² ICAO, *API Guidelines and PNR Reporting Standards* (Montreal: ICAO, 2013), <https://www.icao.int/facilitation-programmes/api-guidelines-and-pnr-reporting-standards>.

Many of the stages described in Table 2.1 are in the ambit of port operations as well as transport providers (e.g., check-in, boarding or embarkation). Travel facilitation, as discussed in the study, focusses on the security control and border control stages of the table.

E-Visas

E-visas (including electronic visas-on-arrival, or e-VOAs) are travel documents that travellers apply for and receive through an online system, often without the requirement to visit or send documents to a physical office. By shifting applications, payment, and supporting documentation to digital channels, e-visa systems can reduce in-person visits and paperwork, shorten processing times, and lower administrative burdens for both travellers and immigration authorities—benefits that became especially salient during COVID-19-related disruptions to consular services.²³ Well-designed platforms can also support more consistent decision-making and stronger cybersecurity practices by standardising workflows and controls across the visa process.

E-visa adoption has expanded rapidly in the past decade. UNWTO estimates that 18% of the global population could apply for a visa online in 2023, compared with 3% a decade earlier.²⁴ This shift reflects broader efforts to make entry processes more predictable and user-friendly by streamlining processing and reducing reliance on physical documentation, while retaining the ability to screen applicants before travel.

More accessible visa processes can support tourism recovery and diversification by enabling long-stay segments such as remote workers and other emerging traveller profiles. For example, many destinations now process digital nomad visa (DNV) applications within a month, and more than three-quarters of such programmes offer fully online procedures.²⁵ Increased arrivals and longer stays can translate into employment and income effects across hotels, restaurants, transport, and other visitor-facing industries.²⁶

Digital visa systems can also strengthen border management by enabling pre-travel screening and verification against digital databases, including (where applicable) biometric checks. Evidence from Indonesia's Batam Island illustrates how service quality shapes user perceptions: Putri et al. (2023) found that clarity, informativeness, and perceived security of the e-visa platform are associated with higher tourist satisfaction, with travellers valuing ease of use, protection of personal data, and transparent information flows.²⁷ However, satisfaction alone may not translate into repeat visits, as destination factors such as cost, distance, and broader travel conditions can be more decisive.

²³ United Nations World Tourism Organization (UNWTO). Tourism Data Dashboard: E-visa Adoption and Digital Entry Systems. Madrid: UNWTO, 2022.

²⁴ United Nations World Tourism Organization (UNWTO). Tourism Visa Openness Report 2023. Madrid: UNWTO, 2023. <https://www.e-unwto.org/doi/10.18111/9789284425044>.

²⁵ United Nations World Tourism Organization (UNWTO). Tourism Visa Openness Report 2023. Madrid: UNWTO, 2023. <https://www.e-unwto.org/doi/10.18111/9789284425044>.

²⁶ Picazo, Oscar F., Soraya Ututalum, and Nina Ashley de la Cruz. *People-to-People Tourism in APEC: Facilitating Cross-Border Entry and Exit, with Special Focus on ASEAN*. <https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps1516.pdf>.

²⁷ Putri, Aghnia Yuniarto, I Nyoman Darma Putra, and Made Antara. "The Influence of Electronic Visa Service Quality on Satisfaction and Intention to Visit Back to Batam in the New Normal Era." <https://jws.rivierapublishing.id/index.php/jws/article/view/470/1047>.

Roselló and Gallego's²⁸ (2024) typology further distinguishes between two models of digital visas. "E-visa Red" involves online submission and payment but may still require additional questionnaires, interviews, or verification at immigration checkpoints. "E-visa Blue" refers to a simpler end-to-end digital process typically completed within three days. Their results suggest that design frictions matter: Red-type regimes reduce arrivals relative to visa-free travel (up to 91% without fixed effects and 7% with controls), whereas Blue-type systems have a smaller impact (about 63% without fixed effects) and are not statistically different from visa-free regimes once controls are included. The findings underline that simplifying requirements and improving user experience can help capture facilitation gains while preserving oversight.

Mehdiyev (2024)²⁹ similarly notes that administrative burdens can persist even in advanced economies. Long processing times, high denial rates, and backlogs can deter legitimate travellers, illustrating that digitisation alone does not guarantee facilitation without improvements in transparency, capacity, and end-to-end processing.

The evidence suggests that e-visas and related digital entry systems can reduce administrative frictions and support pre-travel screening, with potential tourism spillovers. However, outcomes depend on implementation choices: systems that minimise unnecessary steps and communicate requirements clearly are more likely to deliver facilitation benefits than those that replicate complex, paper-era procedures in digital form.

Electronic Travel Authorisation (ETA)

Electronic Travel Authorization (ETA) systems have been implemented in various economies to enhance border security, streamline immigration processes, and manage the flow of travellers. ETAs are required from travellers who do not need a visa to enter a destination and need to be obtained prior to departure. These systems, such as Canada's ETA and the EU's European Travel Information and Authorization System (ETIAS), aim to pre-screen travellers from visa-exempt economies, thereby identifying potential security threats and facilitating smoother entry processes.

ETA systems enhance border security by allowing authorities to screen travellers before they arrive at the border. For instance, ETIAS is designed to identify potential threats related to terrorism, organised crime, and illegal migration by cross-referencing traveller data with various security databases.³⁰ In Canada, the ETA system is part of a broader security perimeter with the United States, which aims to control Canada's borders by making decisions at points of departure rather than at ports of entry.³¹

²⁸ Roselló, Jaume, and María Santana-Gallego. "The Effect of Visa Types on International Tourism." <https://www.sciencedirect.com/science/article/pii/S0264999324001135>.

²⁹ Mehdiyev, Vusal. "The Impact of Economic Diplomacy on U.S. Visa Approvals." https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5049449.

³⁰ Anastasios Nikolaos Kanellopoulos, "The European Travel Information and Authorization System (ETIAS): Enhancing Counterterrorism and Counterintelligence Efforts," *HAPSc Policy Briefs Series 4*, no. 2 (2023): 26–34, <https://doi.org/10.12681/hapscpbs.36658>. <https://ejournals.epublishing.ekt.gr/index.php/hapscpbs/article/view/36658>

³¹ Government of Canada, Electronic Travel Authorization Regulatory Impact Analysis Statement, *Canada Gazette* Vol 149 No 8 (22 April 2015), <https://gazette.gc.ca/rp-pr/p2/2015/2015-04-22/html/sor-dors/77-eng.html>.

ETAs and e-visas are functionally similar in the sense that they both need to be accomplished by the traveller prior to departure. While ETAs are not a visa requirement and may require less documentation and less time to process compared to an e-visa, failure to obtain the electronic authorisation prior to departure will result in denial to board or embark.

E-Gates

Automated electronic gates (e-gates) allow travellers to complete border clearance with minimal one-to-one processing by a border officer. By reading passport chip data and verifying identity using biometrics (most commonly facial recognition and fingerprints), e-gates can speed up routine checks, improve accuracy, and allow officers to focus on exceptions and higher-risk cases.

Evidence suggests that travellers generally view e-gates positively because they streamline processing and reduce waiting times, improving the overall passenger experience.³² OECD analysis similarly links e-gate use to higher passenger satisfaction due to shorter queues and smoother clearance.³³

E-gate systems often combine automated passport control (APC) with biometric matching. Travellers scan their passports, respond to standard immigration questions (where applicable), and have a live biometric data captured for comparison with the passport chip or other approved references. This shifts routine identity checks to self-service lanes while maintaining verification standards.

Biometric technologies (e.g., facial recognition, fingerprint scanning, and in some cases iris recognition) strengthen identity assurance by verifying that the person presenting a travel document is its rightful holder. When integrated into e-gates and other automated checkpoints, biometrics can reduce impersonation and document fraud risks while supporting consistent decision-making across high-volume entry points. Airports such as Singapore Changi, Abu Dhabi International, and several across the EU illustrate how biometrics and automated processing can be deployed at scale.

Operationally, e-gates can help airports manage rising passenger volumes by improving throughput, easing congestion at primary inspection, and supporting more efficient deployment of border officers and space. Studies underline that e-gates can improve the passenger journey by reducing waiting times and limiting repetitive document checks.³⁸ By automating passport reading and biometric matching, e-gates help officers focus on higher-risk or exceptional cases while maintaining service quality as volumes increase.

Beyond speed and convenience, e-gates contribute to airport operations by alleviating congestion, optimising staffing, and improving operational predictability. Airports such as Incheon International Airport have prioritised the integration of biometric systems to enhance service quality and maintain competitiveness within the Airport Service Quality (ASQ)

³² Yu, Tsung-Ying, and Po-Tsang Huang. "Explore the Use of Visitors E-GATE System Intention." In *Proceedings of the International Conference on Managing the Asian Century*, edited by Purnendu Mandal, 523–530. Singapore: Springer, 2013. https://doi.org/10.1007/978-981-4560-61-0_58.

³³ Organisation for Economic Co-operation and Development (OECD). *Biometrics and Security in International Travel: Policy Implications*. Paris: OECD Publishing, 2020.

framework.³⁴ Automated clearance reduces paper use, shortens queues, and improves crowd management, all of which contribute to a smoother and easier passenger flow.

However, the implementation of biometric e-gates is not without challenges. Concerns over data privacy and information security remain among the strongest barriers to widespread acceptance. Passengers express unease about how their biometric data are stored, shared, and deleted, fearing potential misuse or breaches.³⁵ These concerns can directly affect their willingness to use biometric systems, even when the perceived benefits such as time savings and convenience are substantial. Addressing these privacy issues through transparent data governance and communication is therefore essential for building long-term public trust.

E-Forms

E-forms are digital versions of paper immigration, customs, or health declaration forms that travellers submit online before travel or upon arrival. By moving data capture upstream and standardising inputs, e-forms can reduce manual processing and paperwork at ports of entry while providing authorities with timely information for border management, public health monitoring, and security screening.³⁶ Implementations such as Singapore's e-arrival card demonstrate how well-designed e-form systems can improve operational efficiency and data quality, but they also underscore the importance of robust privacy and cybersecurity safeguards and access for travellers with limited connectivity or digital literacy.³⁷

The experiences of early adopters highlight both the operational gains of e-forms and the practical design choices needed to maximise uptake and reliability. Singapore was among the first APEC economies to implement an electronic arrival card system. Introduced in 2018 and fully launched in 2019, the platform allows travellers to submit entry declarations via an official website or mobile application up to three days before arrival. It replaced paper-based arrival cards and later incorporated health declarations, an adaptation that proved particularly valuable during the COVID-19 pandemic. The system is widely cited for improving processing efficiency and data management while reducing errors associated with manual form handling.³⁸ As with similar systems, ongoing usability considerations include support for travellers with limited internet access or without smartphones, as well as language accessibility and user guidance for those unfamiliar with online interfaces.

Following Singapore's example, Indonesia launched its E-Arrival Card initiative in 2021 and continues to expand coverage across major entry points, including Soekarno-Hatta International Airport (Jakarta) and Ngurah Rai International Airport (Bali). Early trials have

³⁴ Cheong Kim, Francis Joseph Costello, and Kun Chang Lee, "Integrating Qualitative Comparative Analysis and Support Vector Machine Methods to Reduce Passengers' Resistance to Biometric E-Gates for Sustainable Airport Operations," *Sustainability* 11, no. 19 (2019): 5349, <https://doi.org/10.3390/su11195349>.

³⁵ Cristian Morosan, "Information Disclosure to Biometric E-Gates: The Roles of Perceived Security, Benefits, and Emotions," *Journal of Travel Research* 57, no. 6 (2018): 743–753, <https://doi.org/10.1177/0047287517711256>.

³⁶ M. Ammoury, B. Salman, C. E. Caicedo Bastidas, and S. Kumar, "The Use of Advanced Solutions Towards COVID-19 Recovery at Airports in Eastern U.S.A.," *Construction Research Congress 2022* (American Society of Civil Engineers, 2022), <https://doi.org/10.1061/9780784485279.049>.

³⁷ Parida Johanna Siregar, Arthur Josias Simon Runturambi, and Stanislaus Riyanta, "Improving E-Arrival Card System Performance for Indonesia: A Review of Singapore's Implementation," *Asian Journal of Engineering, Social and Health* 3, no. 7 (2024), <https://doi.org/10.46799/ajesh.v3i7.358>.

³⁸ Siregar, Runturambi, and Riyanta, 2024, *op cit*.

been reported as efficient and user-friendly, with integration into immigration databases and features such as GPS-based monitoring to support compliance with immigration and health requirements. At the same time, implementation priorities include ensuring access for travellers with limited connectivity, aligning workflows with evolving public health policies, and improving interoperability across agencies—particularly among immigration, health, and transport authorities. Enhancements such as group submissions, 24-hour support, multilingual interfaces, and the removal of parallel paper forms can further reduce duplication and improve data quality.

Privacy Concerns with Digital Travel Facilitation

Concerns about the collection, use, and privacy of personal data collected in the process of travel facilitation are real, and these can be compounded by risks associated with digital technology. In a meta-analysis of studies related to privacy concerns in smart airports, Alabsi and Gill (2021) note a rising trend in raising these concerns and identify commonly cited privacy concerns related to the use of digital technology in travel (Table 2.2).

Table 2.2. Data privacy concerns and current solutions in smart airports

Category	Concerns	Current solutions
Collection	<ul style="list-style-type: none"> - Collection and transfer of PNR and API - Preservation of privacy in big data 	<ul style="list-style-type: none"> - Multi-dimensional encryption algorithm to ensure the confidentiality, integrity, availability and non-repudiation of shared information in System Wide Information Management - Security-as-a-service framework to solve the privacy-protection challenge in big data - Regional agreement for sharing PNR
Error	<ul style="list-style-type: none"> - Data manipulation, deletion and loss - Data protection in big data - Data integrity preservation 	<ul style="list-style-type: none"> - Public Key Information (PKI) to secure the sharing of e-passport information. - Security-as-a-service framework to solve the data-protection challenge in big data. - Fog and multi-access edge paradigm (FMEC)
Unauthorised use	<ul style="list-style-type: none"> - Secondary usage of stored data - Data leakage 	<ul style="list-style-type: none"> - Encrypt (using AES algorithm) the e-passport information in Quick Response Code (QR) to avoid data leakage challenge in RFID chip - FMEC to prevent the secondary use of information in cloud server
Unauthorised access	<ul style="list-style-type: none"> - Unauthorised access - Hacking 	<ul style="list-style-type: none"> - PKI cryptographic method to secure the access to e-passport information - FMEC to prevent the unauthorised access to the information in cloud server

Source: Adapted from M. I. Alabsi and A. Q. Gill. 2021. "A Review of Passenger Digital Information Privacy Concerns in Smart Airports." *IEEE Access*. <https://doi.org/10.1109/ACCESS.2021.3061425>.

Privacy concerns from travellers cover all sections of the journey, from booking the ticket to crossing passport control and the use of biometric data. Privacy and security issues could be related to the use of technology (entry, transfer, and loss of data), misuse of data, and unauthorised access and disclosure of this data (e.g., hacking).

Research on biometric disclosure behaviour suggests that travellers' willingness to share biometric information depends primarily on two factors: perceived security and perceived

benefits.³⁹ Travelers are significantly more open to using digital platforms when they believe their data are protected and when the benefits, such as shorter wait times and seamless boarding, are clearly communicated. General privacy concerns tend to have only a moderate deterrent effect and can be offset by strong security assurances and visible efficiency gains. Interestingly, studies also find that convenience orientation or the general preference for ease and speed does not necessarily predict higher willingness to disclose biometric data. Instead, emotional factors play an unexpectedly important role: positive emotions such as confidence and excitement increase perceptions of safety, while anxiety or unease can heighten resistance. This highlights the importance of data governance, transparency, and communication in the rollout of digital travel facilitation technologies.

³⁹ Cristian Morosan, "Information Disclosure to Biometric E-Gates: The Roles of Perceived Security, Benefits, and Emotions," *Journal of Travel Research* 57, no. 6 (2018): 743–753, <https://doi.org/10.1177/0047287517711256>.

3. QUANTITATIVE IMPACT ANALYSIS

TOURISM TRENDS IN THE APEC REGION

Based on data published by UNWTO, total tourist arrivals in the APEC region reached 716.4 million in 2019, growing at an average rate of 3.4% per year between 1995 and 2019 just before the COVID-19 pandemic (Figure 3.1). In 2020, border closures in response to the COVID-19 pandemic resulted in a massive drop in visitor arrivals to 171.0 million, decreasing further in 2021 to 158.0 million. Tourist arrivals in the APEC region have started to recover since 2022, reaching an estimated 439.0 million visitors in 2024.

Figure 3.1. Total tourist arrivals in APEC, 1995-2022 (in million persons)



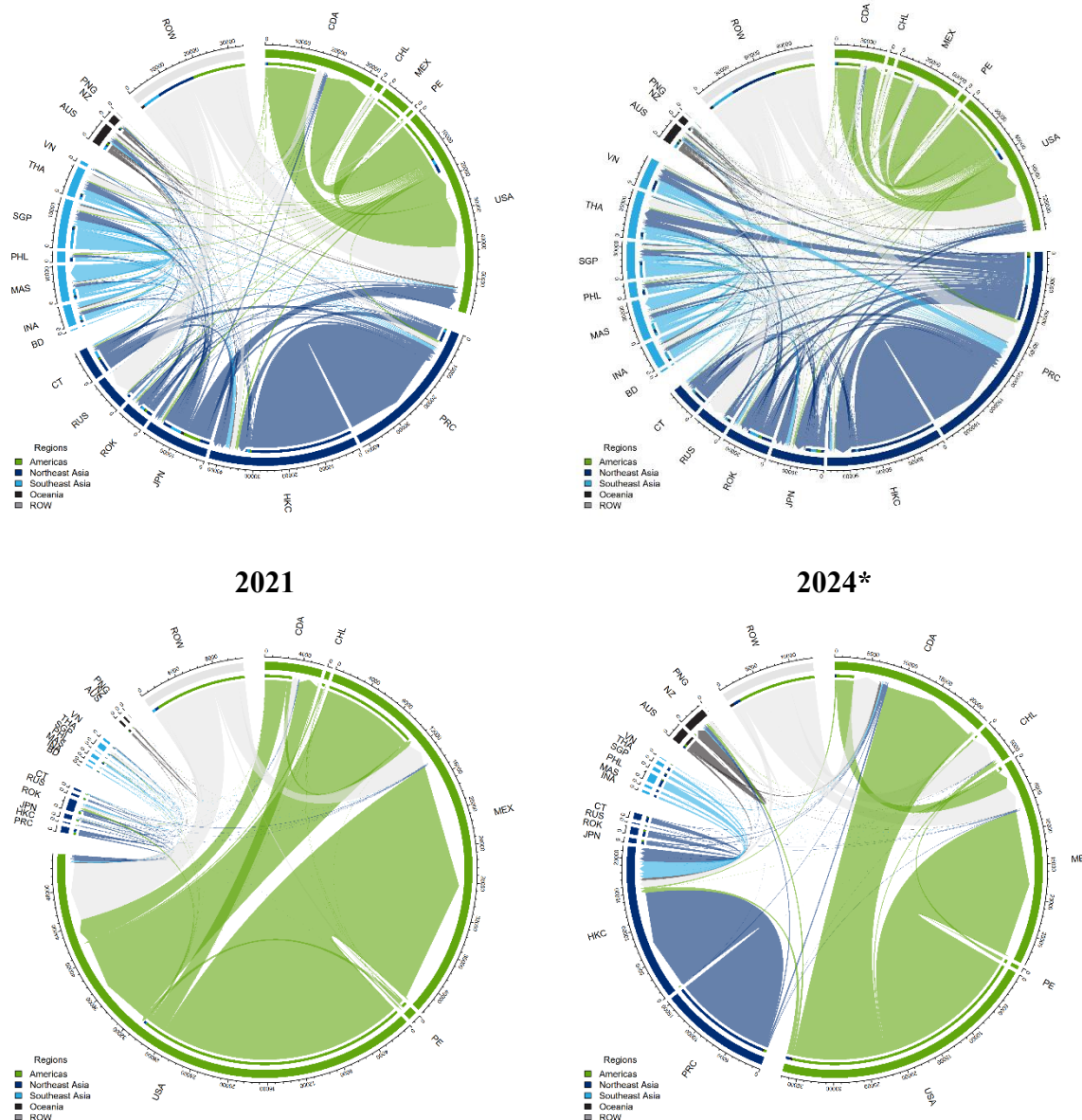
Note: Data for 1995-2022 are aggregates of available data. Data for 2023-2024 are estimates based on aggregate reported tourist arrival growth rates. Total tourist arrivals include both same-day excursionists and overnight visitors.

Source: UNWTO data and APEC Policy Support Unit (PSU) staff estimates.

On average, intra-APEC tourist arrivals account for 73.1% of total tourist arrivals in APEC economies, ranging between 69.9% to 79.2% during the last three decades. In 2024, APEC economies received an estimated 359 million tourists from other APEC economies, which is 68% of the intra-regional travel recorded in 2019.

Figure 3.2 provides a visual representation of the changes in bilateral visitor flows in the APEC region. Changes in flows from 1995 to 2019 show busier tourism flows in the region as well as the significant increase in outbound tourism flows from Northeast and Southeast Asia. The 2021 panel, on the other hand, reflects the COVID-19 border closures implemented by many APEC economies, with travel mostly only happening in the Americas. The panel for 2024 shows the limitations of more recent data, as only five economies have reported their inbound visitor flows at a bilateral level.

Figure 3.2. Bilateral visitor flows in APEC, 1995-2024



Note: Bilateral visitor arrivals data are provided from the point of view of the destination economy. In 2024, only five APEC economies have bilateral data on visitor arrivals in the UNWTO database.
 Source: UNWTO data and PSU staff estimates.

STATUS OF TRAVEL FACILITATION IN APEC: SURVEY RESPONSES

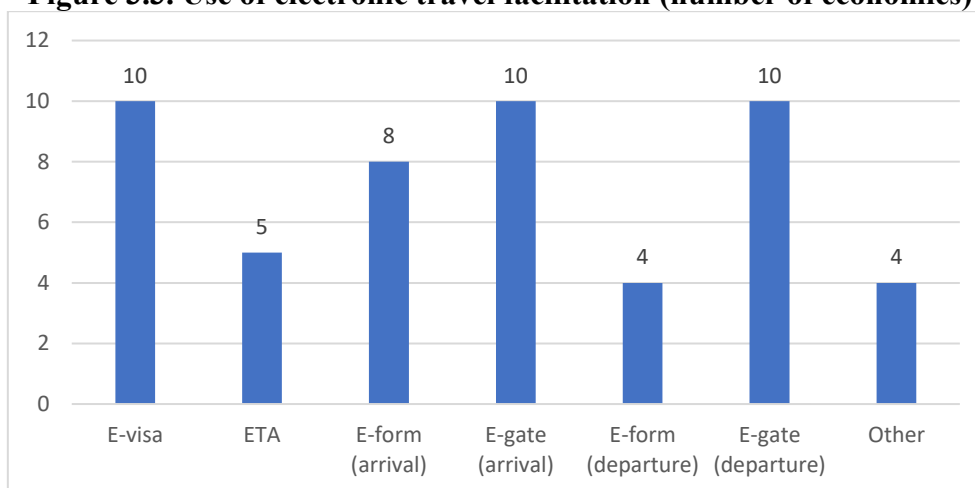
In December 2025, a Request for Information (RFI) was circulated to TWG members to help gauge the utilisation and application of digital travel facilitation technologies before and at the border. Technologies queried in the survey include e-visas, ETAs, e-gates and e-forms. A facsimile of the RFI survey questionnaire is attached as Appendix 2.

As of February 2026, 12 out of 21 APEC economies have provided responses to the survey. These responding economies are Australia; China; Hong Kong, China; Indonesia; Korea; New

Zealand; Peru; the Philippines; Russia; Singapore; Thailand; and the United States. As some of the RFI questions are based on bilateral policies (e.g., visas, use of e-gates), the responses received represent up to 240 bilateral pairs (i.e., 12 destination economies x 20 origin economies), or 57.1% of the total 420 bilateral pairs within the APEC region.

As can be seen in Figure 3.3, most of the respondent economies utilise e-visas, e-forms and e-gates among their travel facilitation measures. ETAs, on the other hand, are only used by five out of 12 respondents.

Figure 3.3. Use of electronic travel facilitation (number of economies)



Source: RFI responses

Survey respondents were also asked if there were other digital travel facilitation being implemented, and four economies responded in the affirmative. Cited examples included variations on e-forms and e-gates, such as the use of digital passenger declarations, electronic health declarations, mobile-based travel declaration, and the digital APEC Business Travel Card (ABTC).

APEC economies have been tracking progress in visa facilitation for more than 10 years. In 2014, APEC Leaders endorsed the APEC Connectivity Blueprint,⁴⁰ which, among other initiatives, encourages economies “to implement measures to ease visa restrictions for tourists as well as initiate programs to facilitate immigration processing.”

The *Report to Implement the APEC Connectivity Blueprint*⁴¹ provided a two-way mapping of visa requirements as of 2014, differentiating only between traditional visas (i.e., those that require a physical submission or presence in a specific entity) versus e-visas, visas-on-arrival, and no visa requirements altogether. In 2014, 135 out of 420 possible bilateral pairs (32.1%) required a traditional visa or similar entry requirement. By the *APEC Connectivity Blueprint Mid-term Review* in 2020⁴² this number had gone down to 106 or 25.2% of 420 bilateral pairs (Figure 3.4). The number of bilateral pairs requiring traditional visas of similar entry

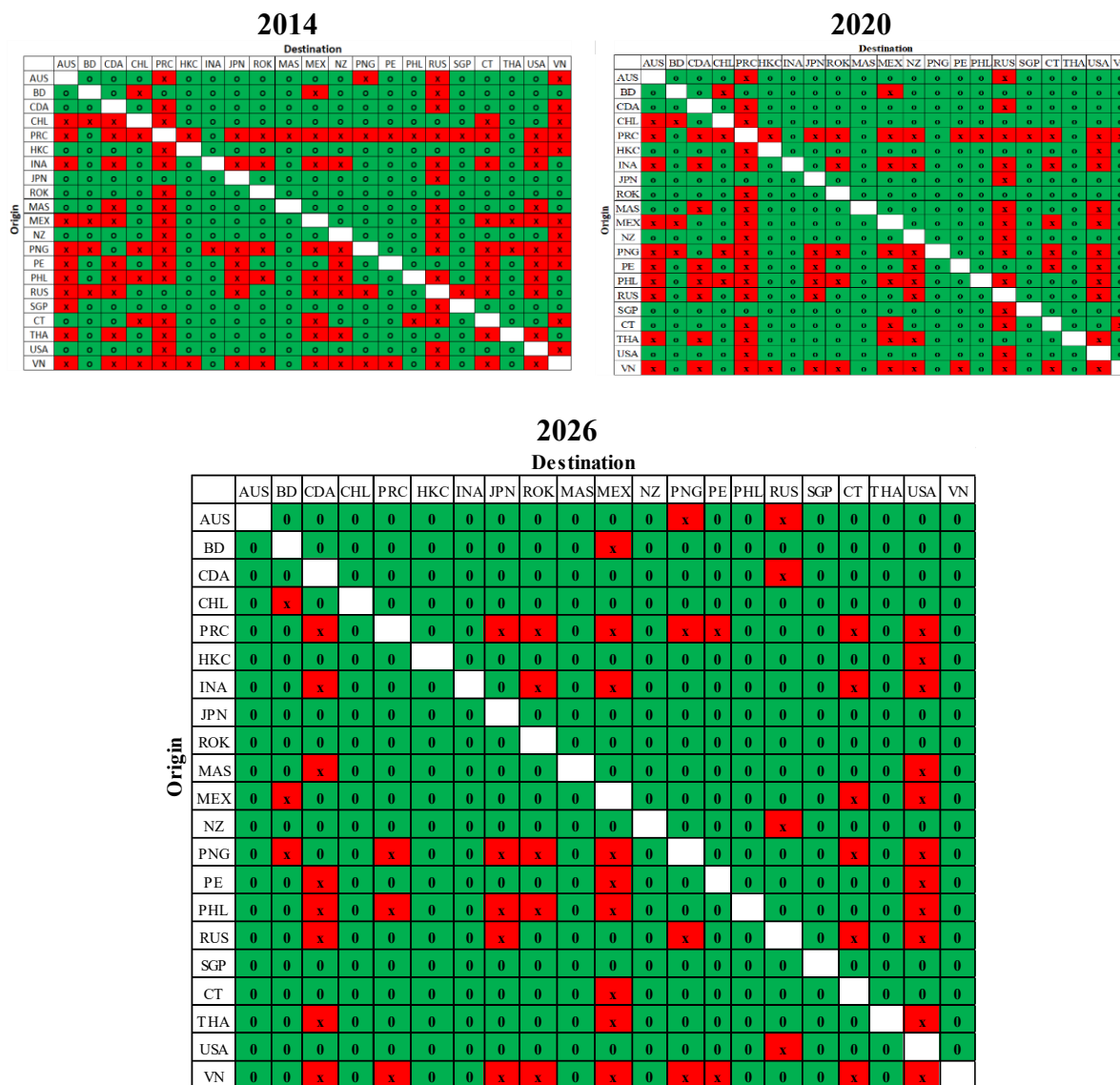
⁴⁰ APEC, “APEC Connectivity Blueprint 2015-2025,” APEC Economic Leaders’ Declaration 2014, 2014, https://www.apec.org/meeting-papers/leaders-declarations/2014/2014_aelm/2014_aelm_annexd.

⁴¹ APEC Policy Support Unit, “The Report to Implement the APEC Connectivity Blueprint,” 2015, <https://www.apec.org/publications/2015/01/apec-connectivity-blueprint>.

⁴² APEC Policy Support Unit, “APEC Connectivity Blueprint: The 2020 Mid-Term Review,” 2025, <https://www.apec.org/publications/2020/11/apec-connectivity-blueprint---the-2020-mid-term-review>.

requirements further eased in 2026, with only 60 bilateral pairs (14.3%) still having this requirement.

Figure 3.4. Visa or similar entry requirements in APEC economies, 2014-2026



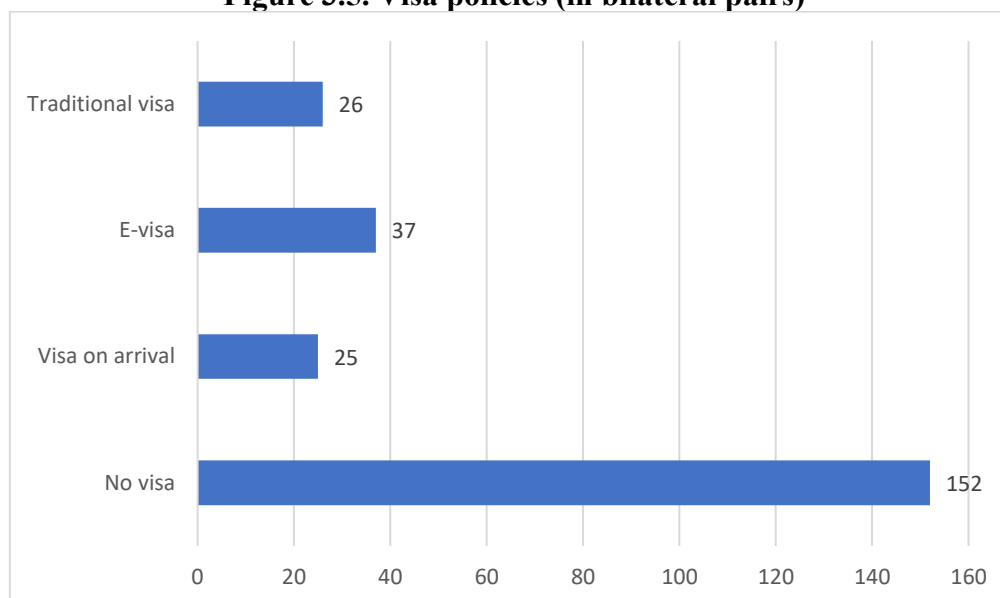
Note: Rows indicate the origin of the traveller as indicated in his/her travel document and columns indicate the destination. An O means there are no visa or similar entry restrictions, and an X means visa or similar entry restrictions exist. For the purposes of this table and in consistency with previous APEC Connectivity Blueprint reports, visa or similar restrictions in this figure are defined as a requirement of ordinary travellers to physically obtain a visa or other documentary equivalent from an authorised entity to visit an economy prior to arrival. Hence, visas on arrival or online electronic visas are not considered a form of visa restriction.

Source: Data for 2014 and 2020 are from the *APEC Connectivity Blueprint Report (2014)* and *APEC Connectivity Blueprint Mid-Term Review (2020)*, respectively. Data for 2026 are from economy sources and RFI responses.

The change in bilateral pairs needing visas or similar entry requirements for travel between 2014, 2020 and 2026 shows the APEC region’s efforts at promoting people-to-people connectivity, particularly through concrete policies to ease travel facilitation.

Based on the RFI responses of 12 economies, out of the 240 bilateral pairs represented in the data, 88 pairs or 36% required a visa or similar entry requirements from certain origin economies, while 152 bilateral pairs required no visas or similar entry requirements for travel. Among the destination-origin bilateral pairs that require visas or similar entry requirements, 44% utilised e-visas, 29% utilised visas on arrival, and 27% utilised traditional paper visas (Figure 3.5).

Figure 3.5. Visa policies (in bilateral pairs)



Source: RFI responses

On the other hand, among the 152 destination-origin bilateral pairs that do not require visas or similar entry requirements, 46 pairs (30%) required the completion of an electronic travel authorisation prior to travel.

Ten out of 12 respondent economies reported the use of e-gates in their ports of entry or exit for visitors, with the initial use of e-gates among respondents ranging from 2007-2024. However, use of e-gates is not applicable to all travellers and in some cases are only open to the destination economy's own passport holders. Of the 240 bilateral pairs among the respondents, 117 pairs (49%) allowed the use of e-gates for arriving APEC visitors while 151 pairs (63%) allowed its use for departing visitors.

Introduction of e-gates varied widely among the economies that implement them, with the earliest adoption reported in 2005 for arrivals into China from Hong Kong, China. However, the majority (51.6%) of bilateral pairs that allow e-gate usage only implemented it in 2020 or later.

Among the RFI respondents, eight economies reported the use of paper or e-forms at their main points of entry. All of the respondents using e-forms reported its use for arriving visitors, but only 4 required forms from departing visitors as well. Of the eight economies that require forms for visitors, 5 economies have completely dropped paper forms and only use e-forms for visitors. On the other hand, 3 economies allow visitors to use either e-forms or paper forms, and 1 economy only uses paper forms for most visitors but is trialling e-forms with selected bilateral partners.

IMPACT OF TRAVEL FACILITATION ON TOURIST ARRIVALS

Travel facilitation measures, including the use of digital technologies, are often implemented with the aim of promoting the economy as a tourism destination. To empirically estimate the impacts of these measures, we gather available data on APEC bilateral tourist arrivals from UNWTO covering the period 1995-2024. This data is then linked with data on travel facilitation measures including visa policies, e-visas, visa on arrival, e-gates and e-forms. Data on travel facilitation is obtained from the responses gathered from TWG members during the RFI process, and is supplemented by publicly available data as well as bilateral visa policy data utilised by UNWTO in their *Tourism Visa Openness Report 2023*. Appendix 1 provides a description of the data used for this analysis and their sources, the detailed methodology, econometric results, and interpretation of policy variables.

To analyse the large volume of data, the study employs a method of multivariate analysis called gravity modelling. Gravity models are a type of structural models that are commonly used to explain bilateral trade flows. As the name implies, these models are analogous to physical models of gravitational attraction: two bodies are more attracted to each other depending on their mass, distance, and gravitational factors (i.e., the gravitational constant in physics). Gravitational pull is analogous to trade linkages, with mass denoting factors such as GDP size and population (indicator of demand and productive capacity), distance is the geographical distance between trading partners (indicator of transportation and transaction costs), while gravitational factors are those that either attract or repel trade between economies such as having a common language or historical ties (i.e., push and pull factors). As tourism is a form of trade in services, analysing tourism performance lends itself to gravity modelling, and has been done by trade economists looking into the tourism industry.⁴³

To ensure the robustness of our estimates, we utilise two estimation methodologies to calculate the impacts. As our dataset has a bilateral panel structure—i.e., we observe each bilateral pair over several years—we first use fixed effects panel Ordinary Least Squares (OLS-FE) to estimate impacts while controlling for various factors including bilateral pair, economy and year idiosyncrasies, as well as other factors that affect tourism such as economic performance, distance, and other bilateral linkages. Moreover, given that policy decisions are not random events but are implemented in response to observed data such as bilateral flows, we do another estimation that accounts for reverse causality, i.e., the Generalised Method of Moments with Arellano-Bond estimator (GMM-AB). The GMM-AB controls for reverse causality by using lags of the dependent variable (in this case, bilateral tourist flows) as an instrument in the estimation process. However, the first-differencing method also tends to remove longer-run effects, so impacts from GMM-AB estimates need to be interpreted as shorter-term, immediate impacts of policy implementation.

Plugging in policy variables such as visa restrictions or visa types into the gravity structural equation provides an estimate of the impact of implementing or removing these policies on bilateral tourist arrivals.

⁴³ Clive Morley, Jaume Rossello and Maria Santana-Gallego, “Gravity models for tourism demand: theory and use,” *Annals of Tourism Research* 48: 1-10, 2014, <https://doi.org/10.1016/j.annals.2014.05.008>.

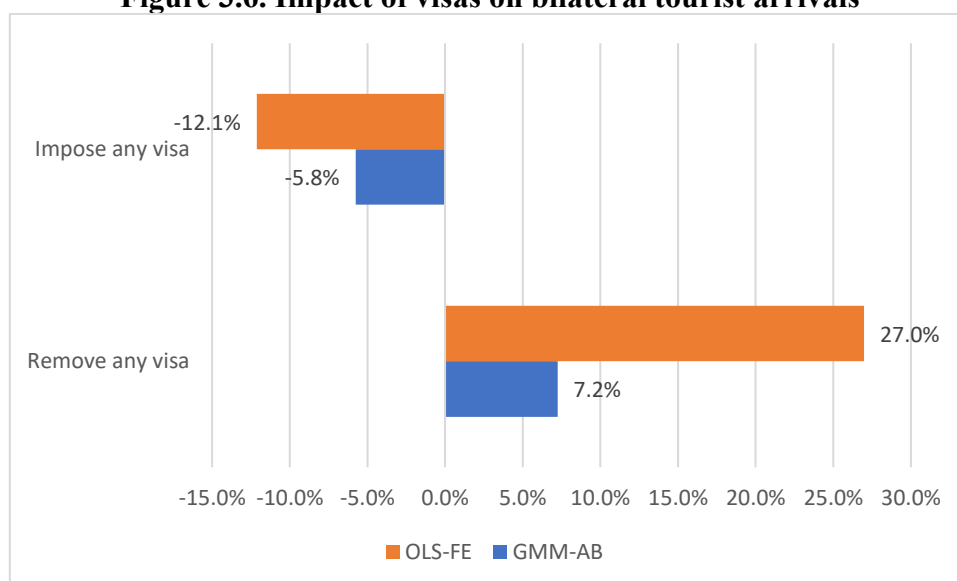
Visa Types, E-Visa and ETA

To understand how various entry requirements affect bilateral visitor arrivals, we consider the impacts of three types of visas: traditional paper visas, visas-on-arrival, and e-visas as well as ETAs. Operationally, we analyse the four following scenarios:

1. Any type of visa versus no visa;
2. Traditional, VOA and e-visa versus no visa;
3. Traditional visa versus electronic visa; and
4. ETA versus no ETA for no-visa travel.

Figure 3.6 shows estimates of the impact of imposing any visa requirement on bilateral tourist arrivals. It shows that, on average, imposing any kind of visa requirement, whether it is a visa-on-arrival, e-visa or traditional visa, results in 5.8% to 12.1% lower bilateral tourist arrivals compared to the no-visa comparator, with the larger reduction happening over the longer term. On the other hand, if visas are already being implemented, a destination economy could expect an increase in bilateral flows of 7.2% and 27.0% more arrivals from the origin economy in terms of longer-term trends. These effects of visa requirements are observed even after controlling for other factors that affect bilateral tourist flows.

Figure 3.6. Impact of visas on bilateral tourist arrivals



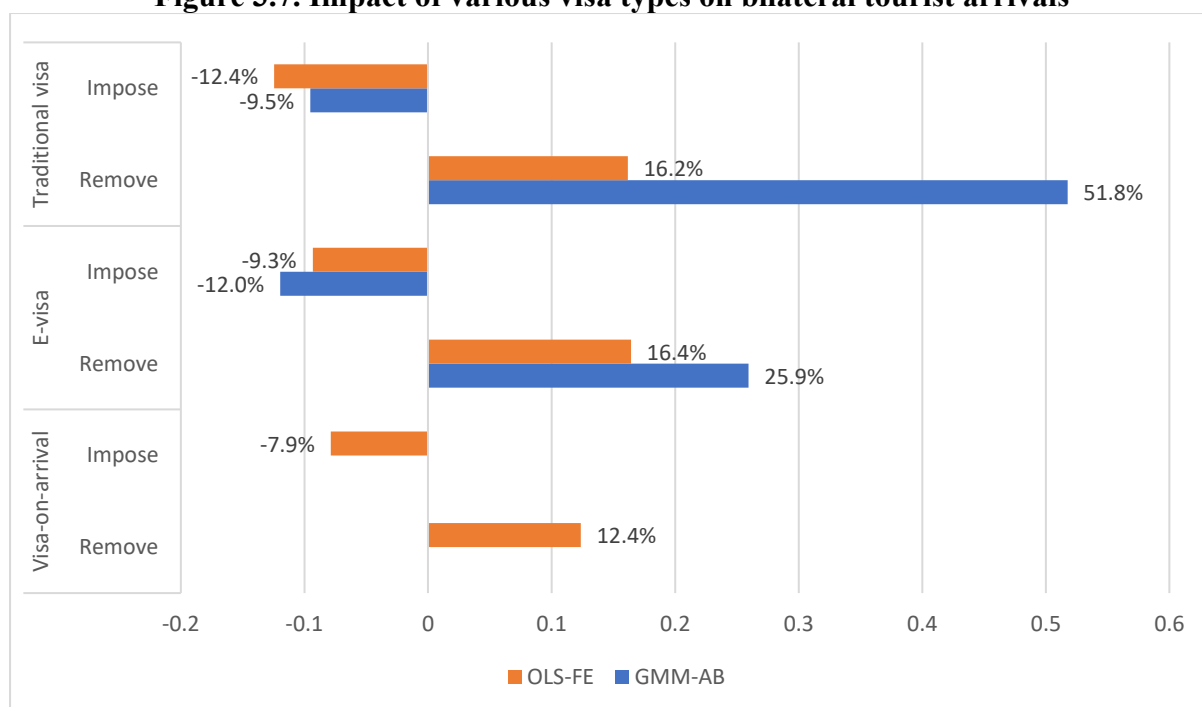
Note: OLS-FE = fixed-effects panel Ordinary Least Squares; GMM-AB = Generalised Method of Moments using the Arellano-Bond estimator. All estimates use Huber-White robust standard errors. Estimated impacts are significant at 90% confidence level or higher. Source: PSU staff estimates.

Figure 3.7 shows the impact of imposing or removing the various visa types relative to the no-visa situation. As may be expected, imposing any of the visa types results in lower bilateral tourist flows, while removing any of them is associated with higher bilateral flows. The differential impact of the various visa types, however, deserves closer scrutiny. As may be expected, removing traditional visa requirements results in the highest expected increase in bilateral flows, reaching up to 51.8% additional arrivals in the short-term compared to the with-visa baseline before settling on a 16.2% increase in trend. Likewise, removing e-visa

requirements are estimated to result in 25.9% higher arrivals from the origin economy and 16.4% in the longer term.

However, the estimates for imposing traditional versus e-visas seems to be more nuanced. In the GMM-AB estimates, imposing e-visas (-12.0%) seems to have a stronger negative impact than imposing traditional visas (-9.5%) in the short-term, but in the longer-term e-visas reduce arrival flows to a lesser degree (-9.3%) compared to e-visas (-12.4%). This merits further analysis, but it could be reflecting some of the results of Rosello and Gallego (2024) showing that the user experience with e-visas influence their impact. In the immediate period when e-visas are implemented, adjustments to the digital portal as well as digital skills gaps could be hindering the lodgement of electronic applications, making the use of traditional visas relatively more appealing. However, as travellers from the origin economy get used to the use of digital visa portals and become more tech savvy, the convenience of e-visas take precedence over the familiarity with traditional visas.

Figure 3.7. Impact of various visa types on bilateral tourist arrivals



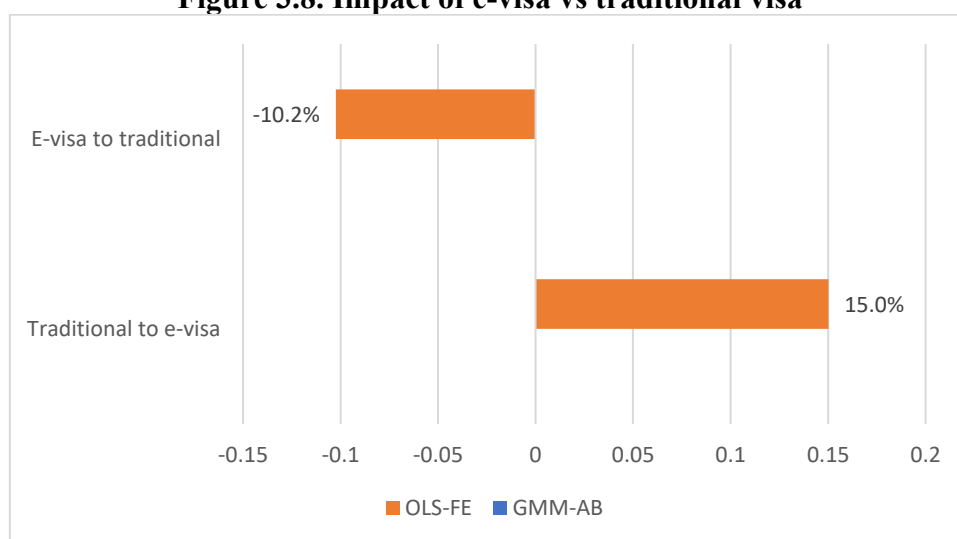
Note: OLS-FE = fixed-effects panel Ordinary Least Squares; GMM-AB = Generalised Method of Moments using the Arellano-Bond estimator. All estimates use Huber-White robust standard errors. Estimated impacts are significant at 90% confidence level or higher; statistically insignificant estimates are not reported in this figure. Source: PSU staff estimates.

Regarding visas-on arrival, on the other hand, GMM-AB estimates show that VOAs have insignificant short-term impacts on tourist arrivals relative to the no-visa scenario. As VOAs do not need to be applied for or obtained prior to departure, it seems they do not have the effect of imposing restrictions on bilateral arrival flows; i.e., they do not greatly hinder travel to the destination economy imposing them, at least in the short-term. That said, the OLS-FE estimates still yield statistically significant impacts of VOA on tourist arrivals, which could imply that prolonged implementation of VOA result in lower bilateral arrivals due to the added costs associated with them.

E-visa vs. traditional visa

Comparing the impact of e-visas versus traditional visas also shows some benefits from digitalisation, albeit with nuances. As can be seen in Figure 3.8, bilateral pairs utilising e-visas see 15.0% higher bilateral arrivals compared to those using traditional visas. Conversely, destinations using traditional visas see 10.2% lower arrivals compared to those using e-visas. However, impact estimates using GMM-AB are statistically insignificant from zero, implying little or no difference between the two in the shorter-term. Reconciling these findings will require deeper understanding of the relative complexities of obtaining an e-visa and traditional visa, as well as the learning curve for using electronic portals among travellers from the origin economy. That said, there is still ample empirical evidence pointing to the benefits of digitalisation in visa policies especially in the longer term as processes become more efficient and travellers become more familiar with the technology.

Figure 3.8. Impact of e-visa vs traditional visa



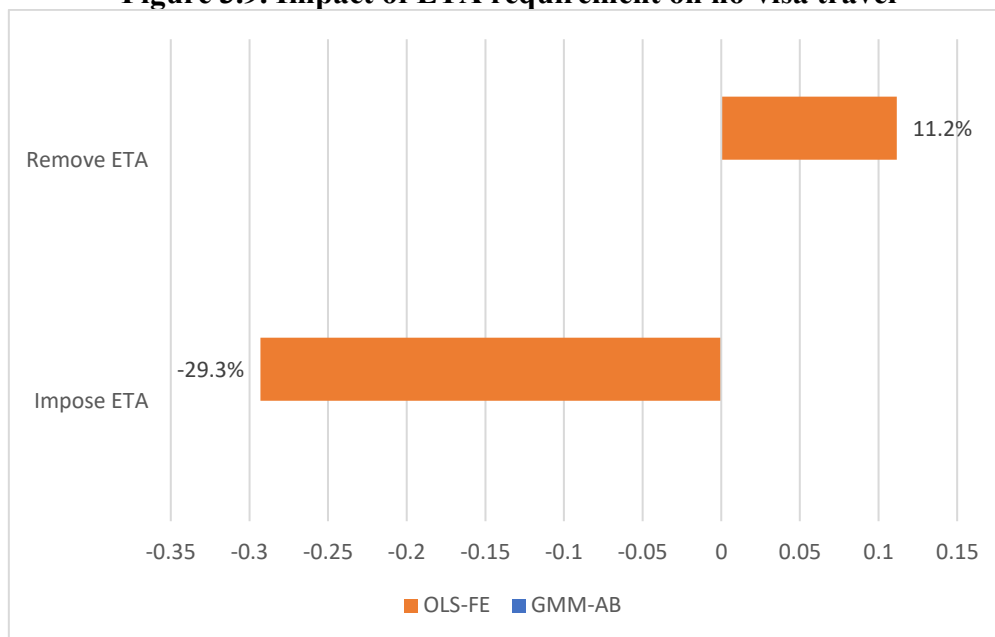
Note: OLS-FE = fixed-effects panel Ordinary Least Squares; GMM-AB = Generalised Method of Moments using the Arellano-Bond estimator. All estimates use Huber-White robust standard errors. Estimated impacts are significant at 90% confidence level or higher; statistically insignificant estimates are not reported in this figure.

Source: PSU staff estimates.

Electronic travel authorisation

The estimated impact of electronic travel authorisations (ETAs) on visa-free travel can be seen in Figure 3.9. In this analysis, we only consider bilateral pairs that do not have any visa requirements and compare situations where ETAs are required before departure and where they are not. The results show that while ETAs are not a visa requirement, they are functionally the same as an e-visa in that they are an additional requirement needed before boarding for departure. Considering the insignificance of GMM-AB versus the OLS-FE estimates, it seems there is no immediate impact from implementing ETAs in the short-term, but in the longer term this additional requirement could affect bilateral flows. OLS-FE estimates associate the imposition of ETAs with 29.3% lower bilateral visitor flows even after controlling for other factors. On the other hand, removing ETAs could result in 11.2% higher flows. Other factors affecting the implementation of ETAs, such as related costs, processes, wait times, or uncertainty would also need to be considered to have a more complete picture of its impact on visitor arrivals.

Figure 3.9. Impact of ETA requirement on no-visa travel

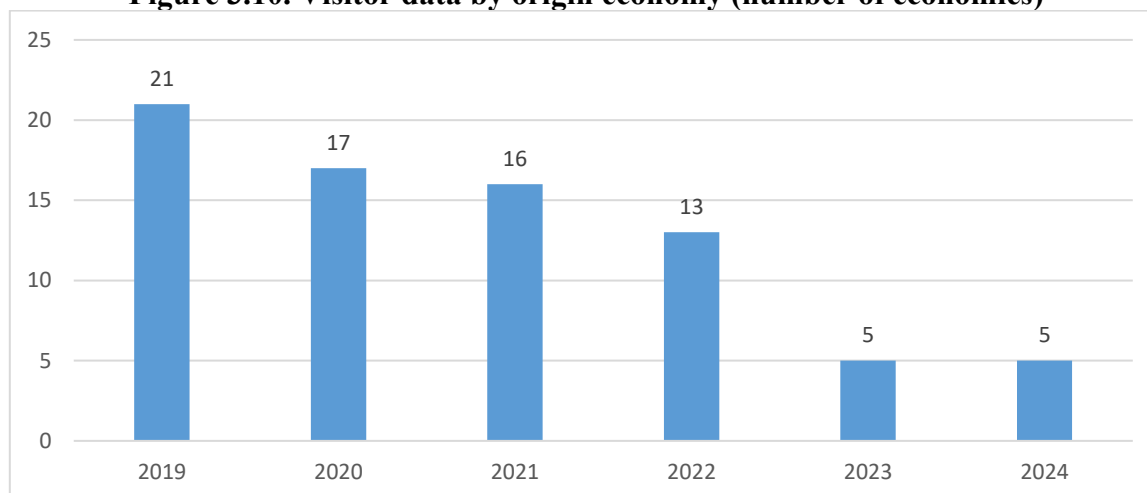


Note: OLS-FE = fixed-effects panel Ordinary Least Squares; GMM-AB = Generalised Method of Moments using the Arellano-Bond estimator. All estimates use Huber-White robust standard errors. Estimated impacts are significant at 90% confidence level or higher; statistically insignificant estimates are not reported in this figure.
 Source: PSU staff estimates.

E-Gates and E-Forms

While studies on the impacts of different types of visas are available, studies on the impact of e-gates and e-forms are relatively scarcer. Of the 12 economy respondents to the RFI, only four economies have ever conducted customer or visitor satisfaction surveys on e-gates or e-forms. One economy reported that the use of e-gates did not have any impact on observed visitor arrivals, while two economies reported that e-gates resulted in positive or very positive impacts on visitor experience.

Figure 3.10. Visitor data by origin economy (number of economies)



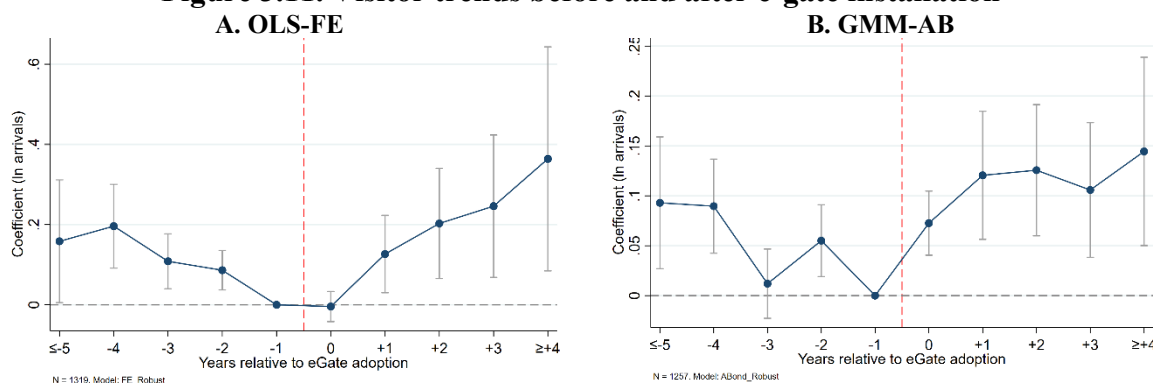
Source: UNWTO data.

Moreover, the implementation of e-gates and e-forms became more prevalent after the 2020 COVID-19 pandemic, which presented both the need to reduce physical touchpoints as well as the opportunity to implement technological upgrades at the border. RFI responses show that the majority of bilateral pairs (51.6%) that allow e-gate use introduced e-gates during or immediately after the pandemic period. The post-2020 period is also incomplete in terms of bilateral visitor data (Figure 3.10), which constrains the impact analysis of visas and visa types.

E-gates installation

Figure 3.11 shows visitor arrival trends before and after the installation of e-gates in destination economies that implement this technology. While the point estimates of coefficients in Figure 3.11.A show an upward trend after e-gate installation, estimates in Figure 3.11.B show a more muted and varied pattern. However, in both models, the 95% confidence intervals before and after e-gate installation show a large degree of overlap, which indicate that the point estimates may not be significantly different from each other. Indeed, conducting a pairwise Wald test on all the estimated coefficients—i.e., statistically checking if the pre-installation trend is significantly different from the post-installation trend—shows that the post-installation upward trend indicated by the point estimates is statistically insignificant.

Figure 3.11. Visitor trends before and after e-gate installation



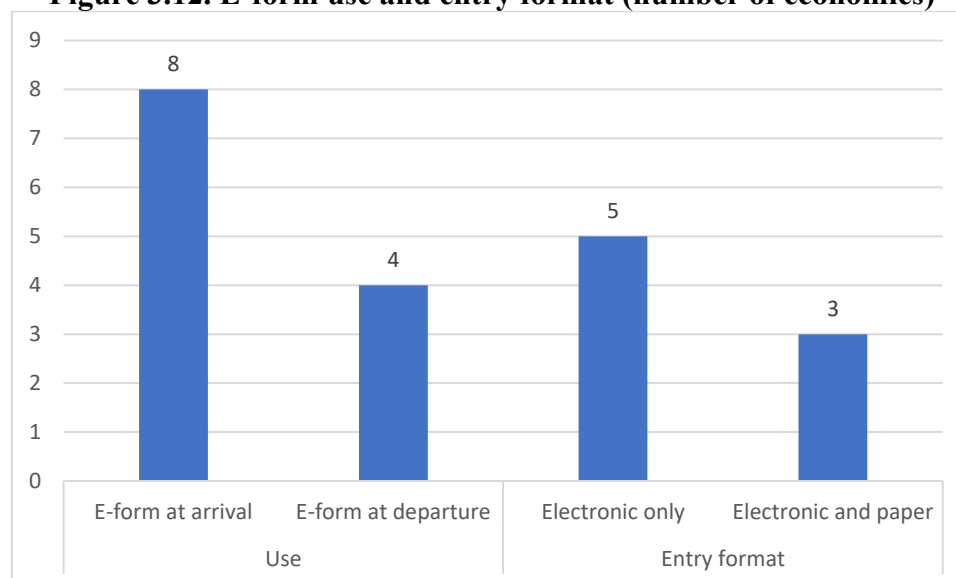
Note: Dots indicate coefficient point estimates and bars indicate their 95% confidence intervals. Source: PSU staff estimates.

Combining these nuanced findings yields some potential insights on the impact of e-gates. First, the installation of e-gates does not seem to be a significant factor in tourist arrivals. This is to be expected as e-gate use at entry points is associated more with convenience and a friendly airport experience rather than introducing significant uncertainties in the travel experience. In other words, unlike visas or other entry requirements, there is no clear indication that travellers consider the use of e-gates as a determining or major factor whether to choose or forego a leisure destination. On the other hand, the upward-trending point estimates do exist and could point to some effects even on an indicative basis. The added convenience of e-gates could point to an additional, albeit marginal, pull factor for visitors to consider a destination. While not having as much of an impact as removing visa requirements, installing e-gates could be particularly important for transport hubs hoping to attract in-the-moment or opportunity-based transit tourism: smooth and quick passport control can spell the difference between staying the night or hopping on the next available onward flight.

E-forms

Among the RFI respondents, eight economies reported the use of e-forms at their main points of entry for some or all APEC visitors (Figure 3.12). All of the respondents reported its use for arriving visitors, but only four used e-gates for departing visitors as well.

Figure 3.12. E-form use and entry format (number of economies)



Source: RFI responses.

Accounting for restricted pilot programs, seven APEC economies currently operate general-access e-forms for arrival or departure of visitors. The nature of these systems reflects different economic strategies for managing the transition from paper-based forms.

Five respondent economies have fully digitalised forms and operate electronic-only systems. By shifting data collection into pre-arrival web portals or mobile applications and not allowing a paper option, these economies effectively shift the processing burden away from the passport control line. This reallocation of time reduces physical bottlenecks, freeing up both traveller time and border agency resources.

On the other hand, three respondent economies maintain a dual system, allowing travellers to choose between submitting a digital form or completing a traditional paper form upon arrival. This can act as a transitional mechanism that allows the continued use of legacy systems while testing and integrating electronic forms. It can also help facilitate the form submission of travellers who have difficulty navigating digital technology. However, having a paper form option could introduce inefficiencies at passport control especially if this would require manual entry by an officer for data interoperability with digital systems.

Only one respondent economy reported testing for the impact of e-forms, finding that the use of e-forms has no impact on visitor arrivals but positive impact on visitor experience. Indeed, an analysis by Siregar et al. (2024)⁴⁴ shows that the e-arrival card system in Singapore and its integration with MyICA, an official mobile app for e-gov services, “significantly enhances

⁴⁴ Siregar, P.J., A.J.S. Runturambi and S. Riyanta. 2024. “Improving E-Arrival Card System Performance for Indonesia: A Review of Singapore's Implementation.” *Asian Journal of Engineering, Social and Health*, Vol 3 No 7: 1529-1535.

immigration efficiency and security while providing a positive user experience.” The study further notes that the testing of an e-arrival system in Indonesia has had positive responses from travellers and enhanced efficiency at the border.

4. POLICY DISCUSSION

In many APEC economies, tourism is a key peg of economic growth. Prior to the COVID-19 pandemic, inbound tourist expenditures alone accounted for more than 5% of GDP in five APEC economies based on UNWTO data, while the World Travel & Tourism Council (WTTC) estimated that the tourism sector contributed 10.4% of GDP and 334 million jobs in the APEC region in 2019. Six years after the pandemic, international travel into APEC is still recovering towards its pre-2020 levels and in 2024 is only about 60% of where arrivals stood in 2019.

The benefits from tourism in terms of economic growth, output, and jobs come with visitor volume. While overtourism and congestion need to be managed at the local destination level, much can still be done to support visitor arrivals growth at the economy level. This is where travel facilitation, including the use of digital technologies, can play a key role. If calibrated properly, travel facilitation and the application of technology could help the tourism sector to recover its pre-pandemic volumes and vibrancy.

Consider tourism in formulating visitor entry policies. Policies related to the border—the entry point for all international tourists—need to consider their impact on international tourist arrivals alongside other considerations. While visas or similar travel requirements may serve important functions related to border control, security, or risk mitigation, studies have repeatedly shown that the policy choice to impose visas is not without its costs. From a tourist's point of view, these requirements are an additional cost in terms of time, effort, and money as well as a potential source of uncertainty. Especially in cases where they are costly or cumbersome to obtain, these requirements can spell the difference between visiting, revisiting, or skipping a destination. As borne out in the study's estimates, all forms of visas or similar travel requirements result in a significant reduction of bilateral visitor arrivals while removing them is associated with a significant increase in arrivals in the short- or long-term. The benefits of these policies in terms of risk management, security and border control need to be weighed against their costs terms of lost tourism output and foregone economic opportunity. Alternative policies that can achieve the same benefits while minimising costs could also be considered as appropriate.

Likewise, the decision to use e-gates and e-forms implies tomes of other decisions and considerations, from the security and integrity of data systems and administrative capacity to adopt new technologies to potentials for interoperability with other data sources and streams. While not necessarily a determinant of visitor arrival volumes, the use of e-gates and e-forms could be considered to improve the traveller experience and customer satisfaction, and investments in a traveller-friendly experience could result in longer-term payoffs.

Digitalisation does not automatically mean facilitation. The use of digital technology and online platforms—including the application of AI—presents many opportunities for automation and seamless entry while enhancing data interoperability and risk profiling capacity. While there could be significant upfront costs related to technological change and process modification, payoffs in terms of data entry efficiency and transparency could make it worth the investment. However, what previous studies and the data show is that digitalisation

does not automatically translate to travel facilitation. How digitalisation is done and how travellers are expected to interact with digital tools and platforms, as well as trust and confidence in digital systems, are just as important as the application of technology itself.

The analysis on e-visas shows the importance of ensuring that digital alternatives are easy to use and understand. In the long-term, the benefits of e-visas over traditional paper visas are clear, but difficulties in the transition process could dampen the benefits of digitalisation. Digital literacy gaps and accessibility issues could restrict certain individuals from obtaining an e-visa or ETA by themselves. Other studies have also noted that e-visas could be so cumbersome and difficult to use that traditional alternatives could outperform them. Similar consideration should be given to e-gates and e-forms: the applications of these systems should facilitate travel and not be their own source of bottlenecks. Likewise, experience in early adaptor airports show the importance of communication as well as assistance for travellers who may have difficulties navigating digital technologies.

Travel facilitation digitalisation is not just technological but institutional. Technology does not exist in a vacuum: it requires user trust, a network of rules and connection, and the technical and administrative capacity to work with them. The benefits of adopting digital technology may not be fully realised if the underlying institutional and governance processes are not similarly updated to build interoperability, resilience, and trust. Additionally, the use of technologies that utilise large amounts of personal data such as biometrics and big data analytics can raise legitimate concerns about privacy and misuse.

Building trust and acceptance for these digital technologies requires transparency and accountability mechanisms to address potential mishandling and misuse during implementation. Institutional frameworks are needed to support advanced technologies, with clear rules for data governance, privacy protection, and data interoperability and use. Likewise, agencies tasked to implement these technologies before and at the border need to be equipped with both technical expertise and an understanding of governance implications in their use, with continued professional development and capacity building. The implementation of digital technologies should also take a long-term view: it needs to be adaptable and scalable over time. Economies that are considering digitalisation measures may look into strategies for gradual technological integration in their border processes, ensuring that systems and capacities can evolve to address challenges and adapt to innovations.

Monitor and evaluate impacts of travel facilitation policies. Economies have been trialling, implementing, and integrating digital technologies into their travel facilitation measures for decades. Based on RFI responses, e-visas and ETAs have been in use in some economies since the late 1990s, while e-gates started being used in the late 2000s. However, relatively few systematic studies and reviews have been done to test their impacts in terms of visitor arrivals, traveller experience, or destination decisions. Indeed, a key constraint for this study was the lack of systematic panel data on the roll-out of these technologies and their impacts, necessitating the primary gathering of data through the RFI.

As can be seen in the results of this study, travel facilitation policies including the use of digital technologies can have a significant impact on visitor arrivals especially in terms of longer-term flows. It is thus important to regularly monitor and evaluate the impacts of these policies and technologies not only on doing their border functions (i.e., visitor data gathering and

verification; interoperability with other databases; information analysis and risk assessment), but also on their traveller-facing functionalities and operation. Only through monitoring and impact assessment could policymakers assess whether these measures are effective in doing their objective, aligned with economic objectives, or need to be reconsidered. Data, monitoring and impact assessments are a key ingredient in having an objective and evidence-based discussion on travel facilitation policies and the use of technologies.

APPENDIX 1: DATA, METHODOLOGY AND RESULTS

VARIABLES AND DATA SOURCES

Table A.1. Variable definitions and sources

Variable	Description	Source
Bilateral visitor flows	Number of non-resident visitor arrivals into destination economy from an origin economy in a calendar year	UNWTO Stat
Any visa	Binary variable on whether the destination economy requires visas (or other similar entry requirement) from visitors of origin economy in a given year; = 1 if visa is imposed, = 0 otherwise	APEC TWG RFI, UNWTO Visa
Traditional visa	Binary variable on whether the destination economy requires traditional visas (or other similar entry requirement) from visitors of origin economy in a given year; = 1 if traditional visa is imposed, = 0 otherwise	APEC TWG RFI, UNWTO Visa
Visa-on-Arrival	Binary variable on whether the destination economy requires visas-on-arrival (or other similar entry requirement) from visitors of origin economy in a given year; = 1 if visa-on-arrival is imposed, = 0 otherwise	APEC TWG RFI, UNWTO Visa
E-visa	Binary variable on whether the destination economy requires e-visas (or other similar entry requirement) from visitors of origin economy in a given year; = 1 if e-visa is imposed, = 0 otherwise	APEC TWG RFI, UNWTO Visa
Electronic Travel Authorisation	Binary variable on whether the destination economy requires ETAs from visitors of origin economy in a given year, conditional that this binary pair does not require visas; = 1 if ETA is imposed, = 0 otherwise	APEC TWG RFI, UNWTO Visa
E-gates at arrival	Binary variable on whether the destination economy allows visitors from origin economy to use e-gates at arrival at main points of entry in a given year; = 1 if e-gate use on arrival is allowed, = 0 otherwise	APEC TWG RFI
E-gates at departure	Binary variable on whether the destination economy allows visitors from origin economy to use e-gates at departure at main points of entry in a given year; = 1 if e-gate use at departure is allowed, = 0 otherwise	APEC TWG RFI
GDP	Economy gross domestic product in a given year in current USD	CEPII Gravity
Population	Economy population in a given year	CEPII Gravity
Geographic distance	Distance in kilometres calculated through the great circle formula using the latitudes and longitudes of the most important city (by population) or the capital city	CEPII Gravity
Trade	Value of international trade between destination and origin economies in a given year in current USD	CEPII BACI

Table A.2. Data sources

Source	Full Reference	Coverage
UNWTO Stat	UN World Tourism Organization. Bilateral Inbound Tourism Statistics by Origin Economy.	21 APEC destinations, global origins, 1995–2024
UNWTO Visa	UN World Tourism Organization. 2023. Tourism Visa Openness Report 2023. Madrid: UNWTO.	Bilateral visa/entry requirement policies, APEC bilateral pairs, 2008-2023
APEC TWG RFI	APEC Tourism Working Group. Request for Information Survey on Digital Travel Facilitation Policies.	12 respondent APEC economies, 2026
CEPII BACI	Gaulier, G. and Zignago, S. (2010) BACI: International Trade Database at the Product-Level. The 1994-2007 Version. CEPII Working Paper, N°2010-23. Available: www.cepii.fr	Bilateral trade flows for 200 economies at the product level (5,000 HS6 products), 1995-2024
CEPII Gravity	Conte M., Head K., Mayer T. & Ries J. (2022). The CEPII Gravity Database. CEPII Working Paper 2022-05. Version V202211. Available: www.cepii.fr	Global bilateral pairs, 1948–2021

GRAVITY MODEL EQUATIONS

The fixed effects panel Ordinary Least Squares (OLS-FE) gravity model for this analysis has a reduced form equation of

$$\ln(T_{ijt}) = c + \mathbf{b}_3 \mathbf{D}_{ijt} + \mathbf{b}_2 \ln(\mathbf{G}_{ijt}) + \mathbf{b}_1 \mathbf{H}_{ijt} + \tau_t + \alpha_{ij} + u_{ijt}$$

where T_{ijt} = bilateral visitor flows between destination i , origin j and year t ; \mathbf{D}_{ijt} = vector of binary policy variables (e.g., use of visa, e-visa, e-gates, etc.) with one or more elements; \mathbf{G}_{ijt} = vector of continuous gravity control variables including origin and destination GDP, population, geographic distance, and trade flows; and \mathbf{H}_{ijt} = vector of binary control variables such as being in a free trade area and year-level idiosyncrasies. The vectors \mathbf{b} = the estimated coefficients; c = estimated coefficient; τ_t = year fixed effects; α_{ij} = fixed effects for bilateral pairs of destination-origin economies; and u_{ijt} is the idiosyncratic error term.

On the other hand, the reduced form equation for Arellano-Bond Generalised method of Moments (GMM-AB) is

$$\ln(T_{ijt}) = c + b_0 \ln(T_{ijt-1}) + \mathbf{b}_3 \mathbf{D}_{ijt} + \mathbf{b}_2 \ln(\mathbf{G}_{ijt}) + \mathbf{b}_1 \mathbf{H}_{ijt} + \tau_t + \Delta \varepsilon_{ijt}$$

where scalar and vector terms are as previously defined and $\Delta \varepsilon_{ijt} = \varepsilon_{ijt} - \varepsilon_{ijt-1}$ is the error term. Whereas the OLS-FE explicitly controls for bilateral fixed effects (i.e., unobserved characteristics of bilateral pair ij), the GMM-AB estimation eliminates fixed effects through first-differencing and the generation of lagged instruments. Both models control for temporal fixed effects.

ESTIMATION RESULTS AND INTERPRETATION

Table A.3. Econometric regression results: impact of visas on arrivals

Dependent variable: log of visitor arrivals	(1)	(2)	(3)	(4)	(5)	(6)
	OLS-FE	GMM-AB	OLS-FE	GMM-AB	OLS-FE	GMM-AB
	Any visa vs no visa		Visa types vs no visa		E-visa vs traditional visa	
Any visa	-0.184*** (0.0469)	-0.0646* (0.0389)				
Visa-on-arrival			-0.0992* (0.0512)	0.0631 (0.0399)		
E-visa			-0.125** (0.0502)	-0.179*** (0.0491)	0.124** (0.0499)	-0.0282 (0.0447)
Traditional visa			-0.275*** (0.0544)	-0.125** (0.0485)		
Log of visitor arrivals (previous year)		0.106 (0.0814)		0.0960 (0.0797)		-0.0398 (0.123)
Log of origin economy GDP	0.655*** (0.0932)	0.452*** (0.109)	0.648*** (0.0936)	0.441*** (0.108)	0.852*** (0.155)	0.686*** (0.171)

Log of destination economy GDP	0.0311 (0.0994)	0.168 (0.117)	0.0701 (0.102)	0.203* (0.116)	0.135 (0.156)	0.309 (0.202)
Log of origin economy population	-2.355*** (0.521)	-0.147 (0.723)	-2.310*** (0.520)	-0.109 (0.726)	-3.321*** (0.900)	0.0681 (1.419)
Log of destination economy population	-0.748 (0.520)	2.717*** (0.676)	-0.829 (0.526)	2.870*** (0.684)	0.757 (1.383)	3.518** (1.744)
Log of geographic distance	1.620* (0.849)	-0.270 (1.098)	1.942** (0.756)	-0.269 (1.093)	-0.825 (0.854)	-0.172 (1.315)
Log of bilateral trade value	0.0296 (0.0255)	0.00964 (0.0289)	0.0293 (0.0256)	0.00915 (0.0288)	-0.00871 (0.0516)	-0.0181 (0.0532)
Economies are in a free trade area	-0.0199 (0.0435)	-0.0297 (0.0271)	-0.0237 (0.0431)	-0.0337 (0.0268)	-0.0245 (0.0642)	-0.0156 (0.0540)
Constant	7.375 (8.975)	-35.50** (13.99)	4.297 (8.394)	-37.96*** (14.11)	18.01 (18.16)	-56.53** (28.62)
Observations	4,775	4,320	4,775	4,320	1,723	1,554
R-squared	0.609		0.612		0.630	
Number of bilateral pairs	392	392	392	392	179	179

Notes: OLS-FE = fixed effects panel Ordinary Least Squares. GMM-AB = Generalised Method of Moments Arellano Bond estimator. Controls for spatial and temporal idiosyncrasies are suppressed for brevity. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Source: PSU staff estimates.

Table A.4. Econometric regression results: impact of ETA and e-gate installation

Dependent variable: log of visitor arrivals	(1)	(2)	(3)	(4)
	OLS-FE ETA for visa-free travel	GMM-AB	OLS-FE E-gate installation	GMM-AB
Electronic Travel Authorisation	-0.226** (0.0996)	-0.0687 (0.0796)		
T ≤ 5			0.158** (0.0781)	0.0930*** (0.0337)
T - 4			0.196*** (0.0533)	0.0896*** (0.0240)
T - 3			0.108*** (0.0349)	0.0120 (0.0177)
T - 2			0.0863*** (0.0251)	0.0551*** (0.0183)
T = 0, year e-gate is installed ^(a)			-0.00428 (0.0192)	0.0726*** (0.0164)
T + 1			0.127** (0.0492)	0.121*** (0.0327)
T + 2			0.203*** (0.0701)	0.126*** (0.0335)
T + 3			0.246*** (0.0906)	0.106*** (0.0344)
T ≥ 4			0.364** (0.143)	0.144*** (0.0481)
Log of visitor arrivals (previous year)		0.491** (0.214)		0.759*** (0.0442)
Log of origin economy GDP	0.885***	0.546**	1.089***	0.430***

	(0.139)	(0.218)	(0.304)	(0.119)
Log of destination economy GDP	0.186	0.0810	-0.369	0.394
	(0.120)	(0.134)	(0.452)	(0.332)
Log of origin economy GDP	-1.735**	0.854	-0.986	0.534
	(0.718)	(0.736)	(1.177)	(0.342)
Log of destination economy GDP	1.318	4.479***	-4.343***	-0.817
	(1.027)	(1.693)	(1.353)	(0.525)
Log of geographic distance	1.729**	2.051**		-1.577*
	(0.685)	(0.859)		(0.908)
Log of bilateral trade value	0.0770**	0.0740**	0.0855	-0.000986
	(0.0383)	(0.0345)	(0.0567)	(0.0279)
Economies are in a free trade area	0.0334	-0.00240	-0.0127	0.0584
	(0.0670)	(0.0470)	(0.0911)	(0.0369)
Constant	-30.98***	-83.80***	41.77*	0
	(10.37)	(22.52)	(21.08)	(0)
Observations	2,234	2,132	1,319	1,257
R-squared	0.696		0.680	
Number of bilateral pairs	103	103	61	61

^(a) T – 1 is the base year.

Notes: OLS-FE = fixed effects panel Ordinary Least Squares. GMM-AB = Generalised Method of Moments Arellano Bond estimator. Controls for spatial and temporal idiosyncrasies are suppressed for brevity. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Source: PSU staff estimates.

Interpretation of policy coefficients

Interpreting the binary policy variables follows the steps prescribed by Kennedy (1981).⁴⁵ As the form of the structural equation is that of

$$\ln(y) = a + \mathbf{b}_1\mathbf{x}_1 + \mathbf{b}_2\ln(\mathbf{x}_2) + \mathbf{bd} + \varepsilon$$

where the vector of policy variables \mathbf{d} contains variables with binary values of zero and one, interpreting the estimated vector of coefficients \mathbf{b}_3 requires an extra step. The percentage change, defined as $g(\cdot)$, in y of any $d \in \mathbf{d}$ binary variable switching from 0 to 1 is given by

$$g_{0 \rightarrow 1} = 100\% \left[\exp \left(b^* - \frac{1}{2} \sigma(b^*)^2 \right) - 1 \right]$$

where σ = standard deviation of the estimated coefficient b . On the other hand, the percentage change $g(\cdot)$ in y of d switching from 1 to 0 is

$$g_{1 \rightarrow 0} = 100\% \left[\exp \left(-b^* - \frac{1}{2} \sigma(b^*)^2 \right) - 1 \right]$$

Note that the estimated value of $g(\cdot)$ acts on the intercept of $y(\cdot)$ rather than its slope. What happens is that the switching of d results in two fitted equations:

⁴⁵ Peter E. Kennedy, "Estimation with correctly interpreted dummy variables in semilogarithmic equations," *American Economic Review*, 71: 801, 1981.

$$(1) \ln(y) = a^* + b_1^*x_1 + b_2^*\ln(x_2) \text{ if } d = 0$$

$$(2) \ln(y) = (a^* + b_3^*) + b_1^*x_1 + b_2^*\ln(x_2) \text{ if } d = 1$$

So, essentially, $g_{0 \rightarrow 1}$ compares the difference in fitted values of y (not $\ln(y)$) between (1) and (2)—equation (1) being the base value—with values of x_i being equal. Conversely, $g_{1 \rightarrow 0}$ compares the difference in fitted values of y between (2) and (1)—equation (2) being the base value—with values of x_i being equal. For example, suppose $d = 1$ is the case with visas and $d = 0$ is the case with no visas, then $g_{0 \rightarrow 1}$ is the percentage impact on y of imposing visa requirements while $g_{1 \rightarrow 0}$ is the impact on y of removing visa requirements, all other factors held equal. The impact estimates in percentages reported in Figures 3.6 to 3.9 in the main report are derived using the above equations.

APPENDIX 2: RFI QUESTIONNAIRE

Tourism Working Group (TWG) Enhancing the Effectiveness of Travel Facilitation Measures in the APEC Region Request for Information

Greetings from the TWG Chair and the APEC Policy Support Unit (PSU)! In August 2025, the TWG and the PSU initiated the study on “Enhancing the Effectiveness of Travel Facilitation Measures in the APEC Region.” The study aims to provide evidence-based policy recommendations on facilitating tourist flows among APEC economies and contribute to discussions regarding people-to-people connectivity, digitalisation, and travel facilitation in the region. As part of the data collection activities under the study, this Request for Information (RFI) questionnaire is sent to TWG members.

This questionnaire is designed to help us gain an understanding of your economy’s evolving application and utilisation of digital travel facilitation technologies before and at the border. Your economy’s responses will be crucial to the success of this study.

Who should answer this questionnaire? The ideal respondent for this RFI is someone who works directly on issues of travel facilitation, entry requirements, and at-the-border policy.

Who is a visitor? For the purposes of this questionnaire, a “**visitor**” is a traveller taking a trip to a main destination outside their usual environment, for less than a year, for any main purpose (business, leisure or other personal purpose) other than to be employed by a resident entity in the destination. The economy of a visitor is based on which economy issued the visitor’s passport or travel document and not on their port of embarkation or residence. Hence, a visitor from economy X is assumed to be holding an ordinary passport or other travel document issued by economy X and is not holding or presenting a visa or travel document from another economy.

What is a point of entry? For the purposes of this questionnaire, terms such as “**point of entry**” or “**border**” refer to a location where visitors to the economy must pass through for official inspection and verification before being allowed entry. These may include airports, seaports, or land crossings.

Privacy of responses. All raw information provided will be confidential and visible only to the Secretariat and PSU. Professional contact information is requested to enable follow-up or clarification, if needed.

Response submission. One consolidated response is needed and expected per economy, submitted through the economy’s TWG representative. Please send the economy’s response to the Secretariat at TWG@apec.org and PSU at eas14@apec.org. We would appreciate receiving your response by **23 January 2026**.

For any questions or clarifications on the study or this questionnaire, please contact Emmanuel A. San Andres (eas14@apec.org). Thank you.

Respondent Information	
Economy:	
Ministry/Office/Bureau:	
Name(s):	1. 2.
Position(s)/Designation(s):	1. 2.
Email(s): <i>for follow-up questions or clarifications</i>	1. 2.

Q1. Which of the following digital travel facilitation measures does your economy implement? Please tick (X) for all that apply.

Pre-arrival	Tick X
Electronic visas (eVisa) eVisas are visas applied for and issued through electronic means and need to be obtained prior to departure	
Electronic travel authorisation (ETA) ETAs are a form of electronic pre-travel authorisation that a visa-free or visa-waiver eligible visitor must obtain prior to departure	
At arrival	
Electronic forms (e-Form) e-Forms are forms electronically submitted by the visitor through a data collection platform prior to or upon arrival in the economy for the purposes of border control, health surveillance and economic data analysis	
Electronic gates (eGate) eGates are automated border control systems that utilise biometric or other method to identify visitors and verify travel documents, usually without the need for border officers	
At departure	
Electronic forms (e-Form) e-Forms are forms electronically submitted by the visitor through a data collection platform prior to departure from the economy for the purposes of border control, health surveillance and economic data analysis	
Electronic gates (eGate) eGates are automated border control systems that utilise biometric or other method to identify visitors and verify travel documents, usually without the need for border officers' intervention	

Other digital travel facilitation measures (please specify)

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Q2. Visa Facilitation

Q2.1. Does your economy require visas from visitors from the following economies? Please tick (X) if a visa is required.

Q2.2. If visa is required, please tick (X) on the type of visa required from visitors from each economy and indicate when this was initiated. **Traditional visas** are paper visas affixed in the passport or other types of non-electronic visas that must be obtained prior to departure. **eVisas** are visas applied for and issued through electronic means and need to be obtained prior to departure. **Visas-on-arrival (VoA)** are visas acquired upon arrival at the destination’s point of entry without the need for any application or pre-approval prior to departure.

Visitor’s Economy	Q2.1	Q2.2		
	Visa is required	Traditional Visa	eVisa	Visa-on-Arrival
Australia				
Brunei Darussalam				
Canada				
Chile				
China				
Hong Kong, China				
Indonesia				
Japan				
Korea				
Malaysia				
Mexico				
New Zealand				
Papua New Guinea				
Peru				
The Philippines				
Russia				
Singapore				
Chinese Taipei				
Thailand				
United States				
Viet Nam				

Notes (if any):

Q3. Electronic Travel Authorisation (ETA)

Q3.1. Does your economy allow visa-free travel or waive visa requirements for visitors from these economies? Please tick (X) if a visa is not required. If visa is not required, please indicate when visa requirements were lifted or waived (please put “N/A” if visas have never been required from visitors from this economy).

Q3.2. Does your economy require visitors from visa-free or visa-waiver economies to apply for an **electronic travel authorisation (ETA)** prior to arrival? Please tick (X) if an ETA is required from visitors from each economy and indicate the year when this ETA requirement was initiated.

Visitor's Economy	Q3.1		Q3.2	
	Visa is <u>not</u> required	Year when visa was waived	ETA	Year when ETA was required
Australia				
Brunei Darussalam				
Canada				
Chile				
China				
Hong Kong, China				
Indonesia				
Japan				
Korea				
Malaysia				
Mexico				
New Zealand				
Papua New Guinea				
Peru				
The Philippines				
Russia				
Singapore				
Chinese Taipei				
Thailand				
United States				
Viet Nam				

Notes (if any):

Q4. Electronic Gates (eGates)

Q4.1. Does your economy utilise eGates at your main points of entry (i.e., airport or other border crossing that is utilised by most visitors)? Yes ___ No ___ (skip to Q5)

Q4.2. If Yes in Q4.1, please tick whether visitors from the following economies are eligible to use eGates during arrival and/or departure. Please also indicate the year when eGates were installed and when visitors from these economies were allowed to use them.

Visitor's Economy	Arrival	Departure	Year of eGate use
Australia			
Brunei Darussalam			
Canada			
Chile			
China			
Hong Kong, China			
Indonesia			
Japan			
Korea			
Malaysia			
Mexico			
New Zealand			
Papua New Guinea			
Peru			
The Philippines			
Russia			
Singapore			
Chinese Taipei			
Thailand			
United States			
Viet Nam			

Notes (if any):

Q5. Arrival and Departure Forms

Q5.1. Does your economy require visitors to fill out and submit any kind of form (e.g., for passport control or customs) at arrival? Yes ___ (go to Q5.2) No ___ (skip to Q5.3)

Q5.2. What kind of form do you require from visitors at arrival? Please tick (X) only one.

Type	Tick X
Paper form only (no electronic option)	
Electronic <i>and</i> paper form (both types required)	
Electronic <i>or</i> paper form (visitor can choose)	
Electronic form only (no paper option)	

Q5.3. Does your economy require visitors to fill out and submit any kind of form (e.g., for passport control or customs) at departure? Yes ___ (go to Q5.4) No ___ (skip to Q6)

Q5.4. What kind of form do you require from visitors at departure? Please tick (X) only one.

Type	Tick X
Paper form only (no electronic option)	
Electronic <i>and</i> paper form (both types required)	
Electronic <i>or</i> paper form (visitor can choose)	
Electronic form only (no paper option)	

Notes (if any):

Q6. Visitor satisfaction and experience

Q6.1. Has your economy conducted customer or visitor satisfaction studies or surveys related to travel facilitation measures such as eGates, e-Forms, eVisas or other similar measures? These studies or surveys may be qualitative or quantitative in methodology.

Yes ___ (go to Q6.2) No ___ (skip to End)

Q6.2. Based on your expert opinion and knowledge of the results of these surveys and studies, how would you rate the impact of the following travel facilitation measures on the number of visitor arrivals to your economy? Please tick (X) one rating for each measure.

	Very much increased	Increased	No impact	Decreased	Very much decreased	Don't know, N/A
eVisa						
ETA						
eGate						
e-Forms						

Q6.3. Based on your expert opinion and knowledge of the results of these surveys and studies, how would you rate the impact of the following travel facilitation measures on the experience and satisfaction of visitors at the point(s) of entry? Please tick (X) one rating for each measure.

	Very positive	Positive	No impact	Negative	Very negative	Don't know, N/A
eVisa						
ETA						
eGate						
e-Forms						

Q6.4. Please discuss below some of these findings with emphasis on measurable impacts of these measures. Please share relevant links if these studies are available online.

– END –

Thank you very much for your support and cooperation. Your answers will contribute significantly to the study on enhancing the effectiveness of travel facilitation measures in the APEC region.