Tongan Remittances: Channels, Costs, and the Potential Gains from Switching*

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Abstract

We combine new survey data with a market audit of remittance costs to examine the inward remittance market in Tonga, where remittances are almost equal to half of the country's GDP. We find that, contrary to popular belief, there are plenty of low-cost options for remitting to Tonga and other Pacific countries, and that cost rankings are generally stable over time. Households' remittance channel choices lead to higher realized costs due to the large gaps between high and low-cost service remittance service providers (RSPs). People choose high-cost providers mainly for their perceived ease of use but can gain more than 2 percent by switching to the lowest-cost provider. A recent shift from cash to online transfers and mobile money is mostly explained by exposure and information: migration experience, regular remittances, and being from the more developed main island. Together, the gains from switching and malleability of RSP choice highlight the large unrealized gains from interventions to help people more quickly shift to lower-cost RSPs.

Keywords: remittances, remittance cost, migration, Tonga, household finance, consumer protection

JEL codes: F24, O15

1   Introduction

Remittance inflows to low- and middle-income countries recorded 605 billion US dollars in 2021, overtaking foreign direct investment as the large international capital flow and contributing to poverty reduction, food security, human capital investment, among other outcomes (World Bank 2023c). According to the Remittance Prices Worldwide (RPW), international migrants pay on average 6.25 percent of costs when they send 200 US dollars to their home countries (World Bank 2023b). Global remittance costs were roughly equal to all foreign aid from the United States, the world's largest bilateral donor, in 2020.

In Australia, the Pacific-Australia Labour Mobility Scheme is the priority program to address labour market challenges in regional Australia and a central focus of Australia's development and foreign policy under the government's "Pacific Step-up". Recent survey evidence suggests that workers save or send home, on average, almost 60 percent of their post-tax earnings (Dung et al 2023). Remittances back to the Pacific are a primary indicator in the Department of Foreign Affairs and Trade's performance reporting, but remittance costs directly undercut this performance and any potential benefits flowing back to the region. In Pacific Island Countries (PICs), average remittance costs reach 8 to 10 percent (World Bank 2023a; Raithatha et al. 2021:19), five percentage points higher than the global target of three percent by 2030 (World Bank 2023a; Raithatha et al. 2021, 19; United Nations n.d.). Despite consistent interest from policymakers, unprecedented growth in remittance flows, and emergence of exciting new transfer technologies, there remains relatively little work unpacking high remittance costs and tractable ways to get them down (PACER Plus 2023; NRBT 2016, 26). This paper examines the actual state of the remittance market in a country where they are incredibly important, and household behavior in that market.

We ask three fundamental sets of descriptive questions. First, what are the main RSPs and transfer methods available to and used by Tongan households and temporary migrants in Australia and New Zealand? Does the cheapest provider change often, and do people tend to use high or low-cost providers? Second, we examine which types of households tend to already use cheaper and easier options. More specifically, what explains adoption and cost saving behavior when it comes to remittance products? Third, how large are the potential gains from a concerted switch to the cheapest RSPs?

Tonga provides the ideal case study to study these questions, as one of the largest participants in labor mobility schemes in Australia and New Zealand. Tonga has a large emigrant share and diaspora, with one of the highest remittances-to-GDP ratios in the world at 43.9 percent in 2021 (Doan et al. 2023). These economically substantive flows tend to increase household income and consumption, create wealth, and lift subjective well-being (Gibson and McKenzie 2014; World Bank 2017; Brown et al. 2014). Tonga's remittance market is also relatively mature, consisting of low-and high-cost remittance service providers (RSPs).[1] According to RPW, the average remittance cost is over eight percent in the Australia- and New Zealand-Tonga in the 4th quarter of 2022, but some channels cost less than five percent. If there were only a few providers and little cost difference, there would be limited gains from switching providers. Policymakers in Australia and Tonga are keenly aware of and keen to reduce high remittance costs.[2]

We use two types of remittance cost data to uncover households' choices of remittance modalities and analyse the economic gain of switching to low-cost transfer options. Our first dataset is a market audit that we manually collected from Send Money Pacific (SMP) and Saver Pacific (SP), two online regional remittance cost comparison platforms.[3] The audit yields a new

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[1]These include commercial banks, international and localized money transfer operators (MTOs), and mobile money. MTOs are include Western Union and Moneygram but not commercial banks or mobile money. When we include either a commercial bank or mobile money, we refer to them remittance service providers (RSPs) for simplicity.

[2]For example, the National Reserve Bank of Tonga asks why Western Union remains in a dominant position, even though its costs are higher than other services (NRBT 2016: 26), and the Ministry of Finance is expressly keen to identify how they can reduce remittance costs (PACER Plus 2023, 24).

[3]Send Money Pacific (www.sendmoneypacific.com) is a remittances comparison website that provides information for Pacific migrants and communities, principally in Australia, funded by the Australian Government

high-frequency dataset of actual remittance costs over time across many different providers, including fixed fees, exchange rate margins, total cost in percentage, transfer methods, and the speed of transfers. We then combine our new audit data with data from the first wave of the Pacific Labor Mobility Survey (PLMS), a new household and worker survey spanning three different temporary migration schemes, three labor-sending countries, and two labor-receiving countries (Doan, Dornan, and Edwards 2023). The PLMS data allows us to see whether people use low-cost providers, how much is paid in costs, and which factors help explain remittance channel choices.

Our main results are fourfold. First, the audit data show that there are enormous differences in remittance costs between high-cost and low-cost RSPs. Ria provides the lowest-cost services at an average cost of 1.76 percent in the Australia-Tonga corridor, and Ave Pa'anga Pau provides the lowest-cost services at an average cost of 3.33 percent in the New Zealand-Tonga corridor. These figures are more than 20 percentage points lower than the highest-cost RSPs in the same two corridors. Contrary to popular opinion, remittance costs are clearly not uniformly high in the Pacific or higher than the rest of the world. Clearly, caution should be taken when making inferences about the overall cost environment based on the averages across providers.

Second, both workers and households tend to face a higher remittance cost than they need to because they tend to choose higher cost options, like Western Union or Moneygram. Audit data shows that these channels do not have any cost advantage, except the online transfers through Moneygram in the Australia-Tonga corridor which cost a few percentage points less than their cash equivalent. The PLMS reveals that ease of use is the most important stated consideration when choosing RSPs, and that users of these two popular RSPs do not appear to be particularly cost-sensitive relative to those who already use low-cost RSPs.

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and administered by managing contractors. Saver Pacific (www.saverpacific.com) is a remittances comparison and financial education website that provides information for Pacific migrants in Australia, New Zealand, and the United States.

Third, digitization appears to be feasible and widespread. Three key factors appear associated with a natural voluntary shift from cash to online transfers. We formally model remittance channel choice among PLMS respondents with a simple multinomial regression and find that online transfer use is largely a function of exposure: having a temporary migrant in the household, or experience abroad yourself. Regular remittances are also negatively associated with cash transfers through MTOs and positively associated with online transfers. Living on the main island of Tongatapu is also positively related to the uptake of online transfer services and mobile money. Even though access to branch networks for cash transfers is better on Tongatapu, we cautiously interpret this as its higher rate of mobile phone ownership, better internet access, and more urbanized population being more important (Tonga Statistics Department 2022a, 10-18).

Fourth, we perform a simple back-of-the-envelope calculation of the benefits from changing from the two popular RSPs to the lowest-cost RSPs. Specifically, we simulate the gains that would accrue if households receiving remittances from temporary migrants through Moneygram and Western Union switch to Ria in the Australia-Tonga corridor and Ave Pa'anga Pau in the New Zealand-Tonga corridor. For six months, Tongan households receive about 46,872,654 pa'anga from SWP and PLS workers in total and would gain an additional 1,103,809 pa'anga, or 2.4 percent of remittances sent by SWP and PLS workers, in the Australia-Tonga corridor. In the New Zealand-Tonga corridor, they received about 18,586,592 pa'anga from RSE workers and would gain 424,596 pa'anga, or 2.3 percent of the total remittances sent by RSE workers. This is approximately a 2.3 percent increase in total remittances into the Tongan economy from participants of these temporary migration programs, amounting to 1,528,405 pa'anga. With large potential benefits from switching and evidence suggesting it may be feasible, attention should now turn to effective and cost-effective ways to facilitate this shift, bring realized costs down, and recoup this low-hanging fruit. Although Tonga makes a helpful case study, several key stylized facts emphasized in this paper also appear to hold throughout the Pacific region, and the potential gains are likely much larger in countries where higher-cost providers have a larger market share.

This paper contributes to two large bodies of economics research. The first is the large body of work on migration and development. Economists generally agree that helping someone move to where they can earn more is one of the most effective poverty alleviation interventions (Bryan, Chowdhury, and Mobarak, 2014; Clemens, 2011; Clemens, Montenegro, and Pritchett, 2019; Mobarak, Sharif, and Shrestha, 2023). McKenzie, Stillman, and Gibson (2010) and Gibson and McKenzie (2014) show that these gains are about three-fold for people coming from Tonga to New Zealand. Dung, Dornan, and Edwards (2023) show a similar pattern for temporary workers in Australia and New Zealand's, with Tongans earning three to four times their pre-departure earnings. More than half of these earnings are saved or remitted home and a large body of work documents the impacts of such remittances on recipient households and communities.

Two recent survey articles suggest a different direction of inquiry. Clemens and Ogden (2019) highlight some of the limitations of conceiving remittances as windfall income rather than a return on investment, instead exploring ways to maximise the returns on that investment. McKenzie and Yang (2015) take the positive development impacts of migration as a starting point and review the evidence on policies to increase them. They find the evidence base weak, but that lowering remittance costs is one area with potential. Here we ask whether more money can reach households in sending countries—holding migration levels and money sent constant—just how much money, and how, in the spirit of the microeconomics of remittance decision-making outlined in Yang (2011). These issues are not well studied in Pacific economies, where prior work tends to rely descriptive statistics and more qualitative approaches (Raithatha et al. 2021; NRBT 2017; Dayrit et al. 2016; World Bank, 2017). Here, we combine price and cost information in an important and informative market with survey data on take-up and preferences to perform several important fact-checks to help chart a path forward for researchers and policymakers.

The second stream of work our paper relates to is that on behavior around different financial tools and digital technologies. Many studies examine the impacts of using different financial tools and barriers to adoption, for example in the context of financial inclusion, microfinance, and

mobile money (Jack and Suri, 2011; Lal and Sachdev, 2015; Khan and Blumenstock, 2016; Batista and Vincente, 2023). Lee, Mordoch, Ravindran, Shonchoy, and Zaman (2021) study the impact of experimentally introducing mobile banking to migrant households, finding large short-term impacts on remittance volume, rural consumption, and poverty. Yet, the marginal gains from adopting lower cost or better tools in these contexts may pale in comparison to those for across borders when the income differentials are so much larger, not just on the static gains but potential behavioral responses and second-round effects, for example on remittance sending behavior and migration behavior itself (Batista and Vincente 2023).[4] We consider our analysis a step in this direction to understand and quantify the static gains in one important remittance corridor. In doing so, we offer a simple framework and chart opportunities for follow-up work experimentally testing take-up, impact, and cost-effectiveness questions.

The paper proceeds as follows. The next section provides a brief introduction to remittances in the Pacific and Tonga. Section 3 explains our two datasets: the first wave of the Pacific Labour Mobility Survey, and new market audit data. Section 4 presents three sets of results: the actual remittance costs and peoples' choices of RSPs, evidence on which households choose which channels, and the estimated gains from switching to the lowest cost RSPs. Section 5 lays out a conceptual framework for thinking about and testing barriers to switching and offers some concluding remarks.

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[4]Much consumer protection practice is dedicated to reducing the incidence of hidden fees, such as those on overdrafts. Like high-cost remittance products, the persistent use of such products has proven an intractable challenge for regulators around the world.

2   Background

2.1   Remittance costs

The stock of international migrants increased from 152 million to 280 million over the last three decades (UNDESA 2020). One driver is the large income gap between developed and developing countries (World Bank 2023c, 2-4), as people from developing countries migrate to secure better and more stable economic opportunities. Remittance inflows to low- and middle-income countries have grown from less than 50 billion dollars in 1990 to 605 billion dollars in 2021, in the same year overtaking foreign direct investment as the largest international financial flow to developing countries and many times the size of all foreign aid. Remittancess can help contribute to, among other things, poverty reduction through increased income and consumption, the improvement of food security, human capital development, and narrowing the gender gap (World Bank 2023c, 127-143; Adams Jr and Cuecuecha 2010, 2013; Bouoiyour and Miftah 2016; Gibson and McKenzie 2014; Mansuri 2006; Mobarak et al. 2020; Edwards 2023).

One persistent challenge constraining the development impacts of migration is high remittance costs. The Sustainable Development Goal (SDG) related to remittances aims to reduce remittance costs to less than three percent and eliminate remittance corridors with costs higher than five percent (United Nations n.d.). Remittance Prices Worldwide (RPW) is a website about remittance costs managed by the World Bank, providing remittance cost data in 367 corridors (effectively, between country pairs) as well as reports about remittance costs across the world. According RPW, the global average remittance cost was 6.25 percent in the first quarter of 2023, with only 39 percent of major remittance corridors meeting the global target of five percent (World Bank 2023b). A simple back of the envelope calculation based on these figures puts global remittance costs at 38 billion USD in 2021. For comparison, this is equal to approximately 20 percent of total global official development assistance in the same year, and more all US foreign aid the year before (the US increased ODA from 37 to 47 billion USD from 2020 to 2021).

Remittances are uniquely important to Tonga and other Pacific countries due to their history of migration, the relative importance of remittances in their economies, and their widely perceived higher remittance costs. The characteristics of small island developing states, such as geographical constraints and small domestic markets, give these countries unique challenges in promoting economic development and creating employment (World Bank 2017). Migration, mainly to Australia, New Zealand, and the United States, has provided much needed employment opportunities to people from PICs for many decades (Brown et al. 2006, 49-52; Doan et al. 2023).

Modern temporary migration programs in Australia and New Zealand have rapidly expanded opportunities to low- and middle-skilled workers (Doan et al. 2023, 3-7). New Zealand launched Recognized Seasonal Employment (RSE) in 2007 while Australia established Seasonal Worker Program (SWP) in 2012 and the Pacific Labour Scheme (PLS) in 2019. Migration from PICs to Australia and New Zealand is expected to continue to grow with the success of these schemes and the introduction of the Pacific Engagement Visa (a permanent migration lottery) and the Falepili Treaty (a special mobility pathway for Tuvaluans) in Australia (Sharman 2022; Bedford 2023; Minister's Media Centre 2023).

Higher remittance costs, by construction, dampen the development impacts of migration and remittances. According to RPW, the average remittance cost in the four PICs covered in the database (Fiji, Samoa, Tonga, and Vanuatu) is 9.10 percent in the fourth quarter of 2022 (Figure 1). If we include other PICs, using data from Send Money Pacific, the average cost increases to 10.4 percent as of February 2021 (Raithatha et al. 2021).[5] However, this does not mean that migrants from the PICs can choose only high-cost money transfer options. Smart Remitter Target (SmaRT), the average of the three lowest-cost RSPs for sending USD 200, shows that Fijian and Tongan migrants can send money at a cost of less than five percent if they instead choose low-cost RSPs (Figure 1).[6] Clearly, how one defines remittance costs and how these averages are taken can

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[5]Send Money Pacific is a regional online remittance cost comparison platform established through a joint initiative by the Australian and New Zealand government. The program aims to promote a better engagement of migrants with remittance service providers and enable migrants to choose the best-suited remittance service providers to their needs. Data section describes the information provided on the website in detail.

[6]Smart Remitter Target (SmaRT) is one of the indicators to measure remittance costs in remittance corridors.

radically change the interpretation of these numbers, and more importantly, an obvious limitation of these approaches is that just because a high-cost option exists, and thus pushes the average up, does not mean it is used or particularly relevant. If we just look at the low- cost options, even in the Pacific, we see that most countries are well within striking range of the UN SDG target of 3 percent. Some countries and corridors are already below.

2.2   The Tongan remittance market

One potential reason low-cost transfer services operate in Tonga is its mature remittance market amongst PICs. More than 28 RSPs including global MTOs, small local MTOs, mobile money (e,g., KlickEx), and commercial banks currently operate in Tonga (PACER Plus 2023, 13-5). This figure is close to the number of RSPs operating in Fiji (25) and Samoa (23), but much higher than in PNG (13), Solomon Islands (11), Vanuatu (13), and Kiribati (8) (PACER Plus 2023, 13-6; Raithatha et al. 2021, 57-8). Low-cost transfer services also launched in Tonga before many other PICs. Tonga is the second country (after Fiji) that Digicel launched a mobile money service in 2011 (Raithatha et al. 2021, 31). The Tonga Development Bank introduced a local low-cost money transfer service, Ave Pa'anga Pau, in cooperation with the International Finance Corporation, with the aim of reducing remittance costs in the New Zealand-Tonga corridor in 2017 and Australia-Tonga corridor in 2020. Despite lower-cost options existing, realized remittance costs remain high. The Reserve Bank of Tonga, for example, reports 83 percent of remittances going through Western Union in 2016, losing 12 percent in fixed fees and exchange rate losses (NRBT 2016, 22-3).

This indicator accounts not only for costs, but also other user perspectives such as accessibility and the speed of transaction. This is achieved by dropping RSPs that do not satisfy four criteria. To get more information about SmaRT, go to the methodology paper at this link.

3   Data

3.1   The Pacific Labour Mobility Survey Wave One

We use two types of remittance data: (i) individual and household surveys of migrant senders and receivers, and (ii) a new market audit dataset we collected by regularly monitoring remittance costs of RSPs for a short time. The survey data are the first round of the Pacific Labor Mobility Survey (PLMS), a multi-country survey of migrant workers in Australia and New Zealand and migrant and non-migrant households in Tonga, Vanuatu, and Kiribati. Here, we use the face-to-face Tongan individual and household surveys collected from November 2021 to January 2022 and phone-based (due to the COVID-19 pandemic) worker survey collected from December 2022 to March 2023. Both surveys ask questions about remittance channels, MTOs, and the reasons people use certain channels.

The face-to-face household survey consists of 1,160 households and 7,359 individuals, including 543 households with temporary migrants and 617 households without. The sampling area includes the four main residential islands, Tongatapu, ʻEua, Haʻapai, and Vavaʻu. The non-migrant component is designed to be representative (with probability proportional to size sampling) and the survey is omnibus in nature, covering household demography, education, children, employment, income, expenditure, housing, remittances, and more.

The phone-based worker survey covers 762 temporary migrants participating in the temporary migration programs or recently returned home. 360 are SWP workers, 193 are PLS workers, and 209 are RSE workers. The worker survey is similarly broad, covering sociodemographics, health, employment and income, expenditure, remittances, migration history and networks, and more.

Table 1 presents some descriptive statistics on remittance channels. MTOs, such as Moneygram and Western Union, have dominant market shares: more than 80 percent of households mainly use MTOs to receive remittances. As for transfer methods, cash transfers

remain the most popular methods with 47.6 percent of the surveyed households receiving remittances by cash, while 33.8 percent of them using online services. 12.4 percent use online bank (c.f., MTO) transfers and 5.7 percent use mobile money. Pandemic travel restrictions likely reduce the prevalence of informal channels, reported by only one household.

A similar question in the worker survey presents a slightly different picture where online transfers are more common. Table 2 shows that 69.9 percent of migrants sent remittances through online transfers, while only 25.6 percent of them used over-the-counter transfers. Mobile money remained unpopular at 1.74 percent and 19 migrants reported informal transfers through friends, potentially reflecting the easing of travel restrictions after December 2022.

The different shares reported in the household and worker surveys are easily explained. First, the household survey includes remittances from anyone, not just through the temporary migration programs (e.g., Table A1 shows that after restricting the sample to households with the participants of temporary migration programs, the share of remittance channels becomes similar, an important pattern in its own right which we explore more formally shortly). Second, workers are not all from the same households in the face-to-face household survey, and vice versa. Third, the two surveys collected data at different times with slightly different methods.

The two left columns of Figure 2 show the main RSPs used by Tongan households with temporary migrants in Australia and New Zealand, respectively. The most popular RSP in both corridors is Moneygram, accounting for 54.3 percent in the Australia-Tonga corridor and 33.3 percent in the New Zealand-Tonga corridor. Western Union is also popular, accounting for 19.9 percent and 21.3 percent. Ave Pa'anga Pau has gained much more popularity in the New Zealand-Tonga corridor, where it was first introduced, at 30.7 percent, compared to the Australia-Tonga corridor at only 7.8 percent. Digicel is less popular than these three RSPs with only 4.2 percent and 9.3 percent of households in each respective corridor.

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The two right columns of Figure 2 shows the worker survey shares for comparison. In Australia, Moneygram is the most popular RSP with 52.5 percent of migrants using it, followed by Western Union (13.8 percent). Ave Pa'anga Pau is the most popular avenue in New Zealand, accounting for 32.4 percent, compared to under ten percent in Australia. Western Union and Moneygram remain quite popular in New Zealand at 15.2 percent and 12.3 percent.

3.2   New remittance market audit data

Our second data source is a new market audit dataset, which we manually collected by regularly monitoring the remittance costs of many different RSPs for a brief time. We monitored and collected data from the two main regional (i.e., covering only Pacific countries) remittance cost comparison platforms, Send Money Pacific (SMP) and Saver Pacific (SP).

Our data collection had two phases. The first phase was a pilot to help us decide the design of the final audit dataset, in terms of which RSPs, for how long, which variables, and so forth. We collected data for the five lowest-cost RSPs and the highest-cost RSP in Australia- and New Zealand-Tonga corridors every day from the 28th of March 2023 to the 25th of April 2023. This pilot sampling reveals important similarities and differences between the two platforms, and different characteristics of remittance costs.

SMP provides remittance cost data for different RSPs with different transfer methods, including the remittances received in local currency, fixed fee, exchange rate, total costs in percentage, and transfer speed. The platform covers the remittance corridors from Australia and New Zealand to 10 Pacific Island countries (Fiji, Kiribati, PNG, Samoa, Solomon Islands, Tonga, Vanuatu, Tuvalu, Cook Islands, Niue) and Timor-Leste. The data is updated every Thursday afternoon and we can easily compare the costs of sending 200 and 500 AUD/NZD to the 11 countries.

SP provides similar data but not the total remittance cost in percentages, which we calculate ourselves.[7] SP also updates data irregularly: some RSPs (e.g., ANZ, KlickEX, and OFX) are updated every day (in real time), while others are updated weekly. Exchange rate fluctuations can thus lead to slight differences in costs reported for the same RSPs between the two websites.[8]

Most importantly, the lowest- and highest-cost transfer options within the platform are stable over time: for the 29 days of pilot data, in the final data, and between the two datasets. In the Australia-Tonga corridor, SMP shows that ANZ was the lowest-cost option for 23 days out of 29 days and NAB was the highest-cost one for all 29 days. Similarly, Ria and OFX were the lowest- and highest-cost options in SP for the entire period. In New-Zealand corridor, KlickEx was the lowest-cost option in both platforms while the highest-cost RSP was ASB in SMP and Kiwi Bank in SP for most of the sampling period.

For our final audit dataset, we collected the following variables when migrants send remittances of 200 AUD/NZD each day for 14 days from the 25th of July 2023 to the 7th of August 2023: (1) remittances received in local currency, (2) fixed fee, (3) exchange rate, (4) total remittance costs in percentage, (5) transfer method, and (6) transaction speed. Given that we were collecting this by hand (c.f., by an automated process or scraping) and the large number of RSPs, we collected the data for the five-lowest and highest-cost RSPs, and for both online and cash transfers with Moneygram and Western Union in each corridor.[9] This allows us to examine the differences in cost across providers and calculate the potential gains from switching from the two most popular RSPs, Moneygram and Western Union, to the lowest-cost RSPs.

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[7]SP reports via personal communication that percentage costs and FX margins, along with other data, are available for regulatory authorities, remittance industry, and other stakeholders to receive. It is not yet possible for all RSPs to facilitate real time provision of exchange rates to SP, and necessary to collect some RSP data via mystery shopping, while other RSPs' data is available in real time.

[8]Taking Ave Pa'anga Pau in the New Zealand-Tonga corridor as an example, on the 6th of April 2023, SMP showed that migrants could send 282.76 pa'anga with zero fixed fees and an exchange rate where 1 NZD equals 1.41 pa'anga. SP showed 280.4 pa'anga and an exchange rate where 1 NZD equals 1.40 pa'anga (variation in the exchange rates reported may be due to data collection timing, as exchange rates sometimes fluctuate during the day).

[9]On 3 August 2023, SMP presented 35 options, with 14 RSPs depending on different transfer methods such as online account to mobile phone, bank account to bank account, and cash to cash in the Australia-Tonga corridor. For the New Zealand-Tonga corridor, SMP showed 29 options with 14 RSPs. SP shows 21 options with 15 RSPs in the Australia-Tonga corridor and 16 options with 12 RSPs in the New Zealand-Tonga corridor.

Our audit data reveal that the coverage of RSPs is changing over time and different between the two platforms, but both cover popular and low-cost RSPs like Ria, Western Union, Moneygram, and Ave Pa'anga Pau in the final data collection. For example, data for Ria was not available in SMP during our pilot data collection, but at some point, SMP started to include it.

4 Results

4.1 Low-cost options exist but take-up is limited

The audit data shows that Tongan households face large differences in remittance costs across RSPs, and, in fact, have low-cost services available (some of the lowest cost in the world, contrary to widespread belief). Figure 3 shows that, in the Australia-Tonga corridor, Ria provides the lowest-cost remittance services with average costs of 1.76 (SMP) and 1.21 (SP) percent when they send money from bank accounts to mobile money. The gap between Ria and the highest-cost RSPs is large: NAB (SMP) and OFX (SP) have a higher cost than Ria by 23.4 percentage points and by 15.73 percentage points respectively. In addition to Ria, migrants can send money with a cost of less than five percent by using three other RSPs, so it is not just one lower-cost option. The average remittance costs of online transfers of Moneygram are 2.64 percent (SMP) and 2.51 percent (SP). Ave Pa'anga Pau has the cost advantages with the remittance costs at 2.85 percent (SMP) and 2.63 percent (SP). Surprisingly, a commercial bank also offers cost advantages: ANZ records average remittance costs of 3.47 percent (SMP) and 3.63 percent (SP) if customers send money online. Contrast this with another of Australia's "Big Four" banks, the National Australia Bank (NAB), being one of the highest cost service providers.

In the New Zealand-Tonga corridor, Figure 4 shows that Ave Pa'anga Pau, the new service from the Tongan Development Bank, provides the cheapest service with average costs of 3.33 percent (SMP) and 3.53 percent (SP). According to SP data, iMEX, which is another local RSP, also operates low-cost remittance services, with an average cost of 3.85 percent. However, SMP does not provide information about iMEX. The two comparison platforms also reveal some

inconsistencies. For example, SMP data shows that the average cost of ANZ is 4.52 percent but SP reports 5.74 percent. The variance in costs is partially attributable to the different RSPs on each platform (e.g., SP does not cover banks rarely used to send remittances to the Pacific).

Combining the actual cost data from the audit with the revealed preferences in the surveys (i.e., the actual remittance channels people use), we see that most Tongan households pay higher remittance costs than they need to because they opt to use higher-cost RSPs. In the Australia-Tonga corridor, both household and worker surveys show that Moneygram is the most popular RSP. Although Moneygram offers a lower-cost online transfer service (Figure 2), 44.39 percent of households using Moneygram receive money in cash (see appendix Table A5), which is considerably more expensive. The second most popular service, Western Union, costs 5.6 to 6.5 percentage points more than Ria, the lowest cost option. These new data do however point to a positive shift: nearly 98 percent of SWP workers from PICs, including Tonga, sent remittances through Western Union from 2015 to 2017 (World Bank 2017) but our new data suggest that this share is in decline.

The shift is starker in the New Zealand-Tonga corridor. 30.7 percent of households and 32.4 percent of temporary migrant workers reported they used the lowest-cost RSP, Ave Pa'anga Pau (Figure 2). Amongst the broader population, the household survey shows that 54.7 percent of households still receive money through popular higher-cost RSPs (Moneygram and Western Union), paying between 5.8 to 9.7 percent in costs.

Given the relatively higher market share of the higher-cost RSPs, a natural next question is: what makes Tongan households choose high-cost RSPs rather than low-cost RSPs? The worker survey asked binary questions about why they chose particular remittance channels (online transfers, over-the-counter transfers, mobile money, through friends, and others) and migrants answered yes or no regarding cost, speed, ease of use, awareness, word of mouth, availability at home countries, availability at host countries, safety, and bank account ownership.[10]

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[10]The questions and labelling are listed in the appendix.

Figure 5 suggests that temporary Tongan migrants say they choose remittance channels because of three main factors: ease of use (72.6 percent), cost (43.5 percent), and speed (33.7 percent). The users of Western Union and cash transfers of Moneygram have similar characteristics. Figure 6 shows that 79.9 percent choose remittance channels because of ease of use, followed by cost (38.0 percent) and speed (34.2 percent). Many households may not use Ria because Ria only had one agent in Tongatapu at the time and is relatively new. On the other hand, the users of Ave Pa'anga Pau appear to pay more attention to cost (60.9 percent), although ease of use is the most popular reason at 67 percent (Figure 7). Such a gap in those who care about cost across different groups suggests that those who keep using high-cost RSPs might not get incentivized by cost advantages but for now prioritize ease of use.

4.2 Exposure is associated with digitization and lower-cost channels

To examine remittance channel choice more formally, we estimate a simple multinomial logit regression model. We depart from prior studies looking at formal and informal channels in two ways (Karafolas and Konteos 2010; Siegel and Lücke 2013; Kosse and Vermeulen 2014; Amuedo-Dorantes and Pozo 2005b Amuedo-Dorantes et al. 2005a; MacIsaac 2023). First, while some prior studies look at three stages of channel choice—remitter in the destination countries, MTOs, and households in the destination countries (Hernandez-Coss 2005) —we focus only on the so-called last mile of decision-making by households in Tonga, principally due to data availability.[11] Second, we look at average marginal effects, rather than relative risk ratios, because we want to independently understand the factors associated with different channels, including the baseline outcome.

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[11]In Africa, interviews with recipients of remittances reveal that the recipients of remittances play a major role in deciding remittance channels (FSD2018: 29).

The outcome variable is a polychotomous variable for four remittance channels: (a) online transfer through a bank; (b) online transfer through MTOs; (c) over-the-counter transfer through MTOs; and (d) mobile money. The PLMS question contains six categories, but we drop "through friends" and "others" because few use these. The baseline is the over-the-counter transfers through MTOs. Like Amuedo-Dorantes and Pozo (2005), we assume households decide MTO to maximize utility:

$$U_{ij} = \beta' x_{ij} + \epsilon_{ij} \tag{1}$$

where U_{ij} represents the utility of households i when they choose remittance channel j and x_{ij} is a vector of explanatory variables. The probability that the household i uses the *j-th* remittance channel is given by:

$$P_i\left(Y_i = j\right) = \frac{\exp\left(\beta'_j x_i\right)}{1 + \sum_{k=1, k \neq j}^{J} \exp\left(\beta'_k x_i\right)} \tag{2}$$

where β'_j is the coefficient of interest estimated by maximum likelihood.

We model household decision making as a function of eight factors from theory and prior literature. The first is the chance of getting or searching for information about remittance costs. Across seven African countries, recommendations from friends and family encouraged people to switch from cash to online (FSD 2018, 30-1). Amuedo-Dorantes and Pozo (2005) similarly show that Mexican migrants with Mexican friends in the USA are more likely to choose formal channels. We capture this with two proxies. The first is a categorical variable for participation status in current temporary migration programs in Australia and New Zealand, where workers are more exposed to new information through migrants' communities and scheme outreach and support services. The variable equals 0 if households do not have temporary migrants, 1 if households have temporary migrants participating in the program for the first time, and 2 if households have repeated migrants who have participated in the program multiple times. The second is a binary variable equal to one if someone in the household has spent more than one month living in Australia and New Zealand.

The second factor is education. Migrants who completed secondary education are generally more likely to choose formal channels due to better comprehension of the risks of informal channels and the remittance markets (Amuedo-Dorantes and Pozo 2005; Kosse and Vermeulen 2014; Siegel and Lücke 2013). We capture education level with the share of individuals 18 and older who completed secondary schooling.

Better access to certain remittance channels may make them more attractive, whether formal channels at large or more specific facilities like ATMs and agents (Hernandez-Coss, 2005; Kosse and Vermeulen, 2014; FSD 2018, 37-41). A dummy variable takes the value of 1 if the household resides on the main, more urban island of Tongatapu, where there are many more access points for MTOs and banks (NRBT 201, 40-1).

Remittance tools are obviously related to the role remittances play in household finances, but this is context dependent. For example, Kosse and Vermeulen (2014) find that bank transfers are preferred for a larger amount of remittances among migrants in the Netherlands, while Amuedo-Dorantes and Pozo (2005) found the opposite for Mexican migrants in the USA. We include monthly remittances received here. In Tonga, households use remittances mainly for three purposes: daily needs including church donations (Bedford et al. 2020, 68-70; Maeda and Edwards 2023), education and dwelling improvements (Bedford et al. 2020; World Bank 2017: 47-9), as well as special events like funerals (Fifita 2021; Connell and Brown 2005, 30-7). Migrants from households who use remittances for daily expenditures remit smaller amounts more frequently; those who tend to remit for emergencies or festive expenditures send lump sums. The PLMS has five categories for remittance frequency: monthly or more frequent; every two months; every three months; every four to six months; and only on special occasions. We collapse these into "Monthly or more frequent" which accounts for daily needs remitters, "Every two to six months" which accounts for households who spend remittances on large, but less frequent spending like housing or education; and "Only on special occasions", which accounts for households who receive remittances only for emergencies and festive occasions.

Our other two explanatory variables are household monthly savings per head, and the number of adults 18 and over. Monthly savings per head proxies the use of bank transfers because the recipient households do not necessarily deposit remittances in their bank account if people send and receive remittances by cash. The number of adults proxies the cost of receiving remittances by cash: more adults reduce the costs of queuing at the agent with easier redistribution of housework within the household.

Table 3 presents summary statistics previewing the regression results. Households using online transfers or mobile money tend to receive more remittances than those using cash transfers. Households receiving money through online bank transfers tend to have more savings and more migration experience than other groups. Mobile money users receive remittances most frequently, on average, and households receiving money by cash transfers are more likely to live in the outer islands and have less migration experience.

Figure 8 plots the results. Three household-level factors appear most important for explaining remittance modalities: exposure to information about remittance costs, MTO accessibility, and transfer frequency are associated with more online transfers. Participation in contemporary temporary migration schemes is associated with a lower probability of using cash transfers and a higher probability of using online transfers through banks. Households with a temporary migrant who participated in the temporary migration programs for the first time have an 8.9 percentage points lower probability of using the over-the-counter transfers compared to those households without, all else equal. When households have repeat participants, this more than doubles to them being 18.2 percentage points less likely to use the over-the-counter transfers. For online transfers, households with a participant for the first time have a 5.2 percentage points higher probability of using online transfers through banks and for those with repeated migrants it is 15.5 percentage points. We interpret these patterns as these younger, working-age migrants learning through exposure and by doing, being aware of the cost differences, or just being more open to new technologies.

Relatedly, households with experience in Australia and New Zealand for more than one month have a lower probability of using cash transfers by 15.6 percentage points, and a higher probability of receiving remittances with online transfers through MTOs by 20.6 percentage points, again pointing to experience and exposure being important.

The coefficient on residential islands gives a mixed picture. We expected that living in Tongatapu would be associated with a higher probability of using over-the-counter transfers through MTOs compared to other islands because of a wider coverage of financial access points of MTOs (NRBT 2016, 40-1; FSD 2018, 37-41). However, the result is the opposite, showing that households living in Tongatapu have a lower probability of using over-the-counter transfers through MTOs by 17.8 percentage points while having a higher probability of using online transfers through MTOs by 11.0 percentage points. Living in Tongatapu is also associated with higher take-up of mobile money by 5.2 percentage points compared to other islands. This is probably because of a higher rate of mobile phone ownership and mobile data usage in Tongatapu than in the other three islands (Tonga Statistics Department 2022a, 10; Tonga Statistics Department 2022b, 137-8), and the generally more urban population. Regular remittances also appear to be associated with a shift from cash transfers to online transfers within MTOs: households who send remittances at least every month and two-six months have a lower probability of using over-the-counter transfers through MTOs by 7.0 and 23.4 percentage points. They also have a higher probability of using online transfers through MTOs by 8.8 percentage points for the monthly receiver and by 21.8 percentage points for those receiving remittances every two-six months. The amount of remittances does not appear to be statistically associated with remittance channel choice.

We find no evidence that education level is particularly important in explaining remittance channel choice. As for the other two covariates, households with a greater number of adults tend to have a lower probability of using mobile money by 1.6 percentage points and the coefficients on savings are statistically insignificant at conventional levels and small.

4.3 How large are the gains from switching to lower-cost RSPs?

When considering potential policy interventions around remittance channel choice, one important question is how much people would gain from changing channels relative to the costs of such an intervention. We calculate the potential gain by switching from the two popular RSPs, Moneygram and Western Union, to the lowest cost RSP, Ria in the Australia-Tonga corridor and to Ave Pa'anga Pau in the New Zealand-Tonga corridor. Data for households with temporary migrants is used to calculate the gain because for these households we know the primary remittance corridor.

Our simple simulation exercise consists of three steps. First, we derive the gain per transaction of 200 AUD/NZD by calculating the difference between the cost of the lowest-cost RSP and the two popular RSPs in local currency and the percentage of remittance costs. We use data for both cash and online transfers for Moneygram and Western Union. Second, we derive the average remittances sent in six months by Tongan temporary migrants in Australia and New Zealand from the worker survey. Tongan migrants in Australia send 8,116.5 AUD (12695.7 Pa'anga) on average and RSE workers in New Zealand send 9,265.3 NZD (13410.2 Pa'anga). We obtain the multiplier, 40.58 for Australia and 46.33 for New Zealand, by dividing the average remittances by 200 AUD/NZD. These multipliers are then used to calculate the gain by switching per household in six months. Third, we calculate the gain for the Tongan economy by multiplying the gain per household by the number of temporary migrants in these schemes in Australia and New Zealand on 30 April 2023, which is 3,692 and 1,386, respectively.

Table 4 shows results based on SMP data. Similar SP results are provided in the appendix for completeness. Households who use online Moneygram transfers gain 0.88 percent if they switch to Ria. If households switch from cash transfers of Moneygram to Ria, they gain 3.64 percent. Households using Western Union gain more, saving 5.62 percent for online transfers and 6.47 percent for cash transfers. If all households who use Moneygram and Western Union switched to Ria, the Tongan economy would receive 1,103,809 Pa'anga more in a six-month period, amounting

to 2.4 percent of the remittances sent by Tongan temporary migrants in Australia. With personal remittances accounting for more than 40 percent of Tongan GDP, these are non-trivial gains.

In the New Zealand-Tonga corridor, households who send and receive money through Moneygram would save most by switching to Ave Pa'anga Pau, which is already growing in popularity. Households using online transfers could save 6.4 percent when they send 200 NZD, while those who use cash transfers would gain 2.51 percent. Those using Western Union could save 4.07 percent for online transfers and 4.20 percent for cash transfers. If all these households switched to Ave Pa'anga Pau, the Tongan economy would receive an additional 424,596 Pa'anga, which is an increase in 2.3 percent of the remittances sent by RSE workers. In total, the gain of the Tongan economy would equal 1,528,405 Pa'anga which is 2.3 percent of the estimated total remittances sent by temporary migrants in the two destination countries.

5 Discussion and Conclusion

5.1 Barriers to switching: a simple conceptual framework

We show large potential benefits from inward remittance senders switching from higher to lower-cost RSPs. If policymakers were to try and shift behavior, what prevents people from switching RSPs, if they are not behaving optimally? This section offers a simple conceptual framework for thinking about and testing the existence of barriers based on three chronological stages: awareness, preferences, and capability. Awareness is where you are not aware of the price advantages and savings from low-cost transfers.[12] In Tonga, most adults had heard of mobile money in 2016 (NRBT 2017, 24) but it is not clear whether they are also aware of its cost advantages. Less than half of the Tongan migrants surveyed in the PLMS choose remittance channels because of cost advantages. For these people, cost advantages may be a second-order concern, or they may simply be unaware.

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[12]FSD (2018, 35) offers examples. In the Democratic Republic of Congo, only one in ten of their respondents had even heard of online remittance services, and in Kenya, a Western Union user did not know that they offered online services, even with price incentives.

Preferences explain when you know the price advantages but still choose a high-cost channel. Often, this is thought to be due to the digital infrastructure, trust, or habit. According to FSD (2018, 29-30), households in countries with developed digital payment infrastructure tend to use online transfers, especially mobile money, due to convenience, but preferences for paying cash can hinder take-up (FSD 2018, 37).

A closer customer and service relationship gives more assurance and convenience in money transfer services. For example, RSP agents are sometimes seen as more trustworthy because customers know who to talk to resolve issues or ask questions (FSD, 37-8). People who do not use online services also sometimes raise security concerns, for example about identity theft and fraud (FSD, 39-40; Dayrit et al. 2016; Raithatha et al. 2021). However, Figure 5 shows that safety is not a decisive consideration for most Tongans, or that this is a concern across all channels so not a point of differentiation. While there has been a gradual shift from Western Union to other RSPs, Western Union remains one of the most popular RSPs because of its ease of use. People could also find it difficult to change habits away from familiar and user-friendly RSPs.

Capability refers to where you want to use online transfers or mobile money but lack the tools or confidence to do so. This was a key barrier preventing people from adopting branchless banking and mobile wallets in the Philippines (Cohen 2014, 16-7). Low capability can also amplify any fear about new online services and stymie the transition away from traditional financial services. Age can sometimes be a barrier when older individuals who are not technologically savvy play a significant role in household decision-making. In Africa, nine out of 11 participants aged over 56 used cash transfers partly because of the lack of comfort in using online services (FSD 2018, 40). In Tonga, household decision making is consensus-based, but the relationships are bounded by tradition, which can give more respect to the decision by elder members (Bennett et al. 2017). Thus, households might find it hard to convince the elder members to switch from cash to online transfers or mobile money.

5.2 Concluding remarks

We combined new market audit data with information from new household and worker surveys to examine the state of the Tongan remittance market and household behavior in that market. We focused on building a systematic understanding of the variation in costs, households' remittance channel choices, and the magnitude of potential gains from a concerted shift to lower-cost RSPs.

Four findings together reveal a major opportunity to increase the development benefits of Pacific-Australia migration and migration more generally, one that could benefit from more rigorous research and thoughtful policy, for example at the pre-departure stage or through migrant support services. First, we found that many low-cost options do in fact exist, and that the differences in remittance costs between the lowest- and highest-cost RSPs are large. The remittance costs of Ria and Ave Pa'anga Pau are more than 20 percentage points lower than the highest cost RSP in both Australia- and New Zealand-Tonga corridors. Remittance costs aren't necessarily higher in the Pacific: it depends on how costs are defined, with no clear best approach.

Second, people currently tend to use the higher cost options, unnecessarily reducing the money received by their families and communities in Tonga. For example, Moneygram and Western Union are popular because of their perceived ease of use, which may of course be due to their established customer base and brand awareness. It appears to be more household choices rather than the macro environment that keeps realised remittance costs in the region higher than they need to be.

Third, our choice modelling points towards a natural and voluntary shift from cash transfers to online transfers as people become more familiar with them. People with more exposure migration experiences, especially recently through the modern temporary labor mobility schemes, with regular remittance transfers (which may be due to the transaction costs of this modality being lower), and who live on Tongatapu, Tonga's main island, were less likely to use cash but digital services. These patterns together point towards a malleability of remittance

channel choice, and that there is not an intractable digital divide. Rather, people tend to be willing to try when exposed, suggesting that there may be easy and low-cost ways to increase remittances received by families.

Fourth, our simple simulation shows that Tongan households can indeed save a significant amount of money just by switching to the lowest-cost RSP. For six months, the cost saved amounts to 1,528,405 Pa'anga which is 2.3 percent of the total remittances sent by the Tongan temporary migrants. If this higher amount is consumed or invested in the local economy, the multiplier effect could potentially be quite large.

That the potential gains are large and that they are potentially easily realized relative to other development interventions, including those to increase the development impacts of migration, represents, in our view, a major opportunity for research and policy. This is not just an opportunity for Tonga, but for many other countries as low-cost transfer options have become ubiquitous (see appendix Table A14). Most policies around the perceived high remittance costs in the PICs tend to focus on removing institutional constraints (Raithatha et al. 2021), including the introduction of Send Money Pacific by the Australian Government almost 15 years ago. However, our findings suggest that micro-level interventions around migrant and household RSP choice may be more promising, especially if further work is done to understand and manage potential hurdles like as awareness, ease of use, and trust.

We stress two limitations of this descriptive paper. First, our choice modelling only includes household characteristics rather than additional migrant and MTO characteristics. With these decisions endogenous, estimates obviously cannot be interpreted as causal effects of these characteristics on remittance channel choices. Second, the results of the simulation analysis would change over time as prices and choices change. Our calculations also do not account for any second-round general equilibrium effects, which may be important but are well beyond our scope in this paper.

Looking forward, it remains unclear why households continue to use high-cost RSPs but is some combination of awareness, preferences, or capabilities. Future research could experimentally test, in the lab or field, the importance of these constraints, and, more importantly, pilot cost-effective interventions to allow migrants to better take advantage of the now rich choices and lower-cost options now available to them in this dynamic market.

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Figures and Tables

FIGURE 1: REMITTANCE COSTS LOOK VERY DIFFERENT DEPENDING ON HOW YOU MEASURE THEM
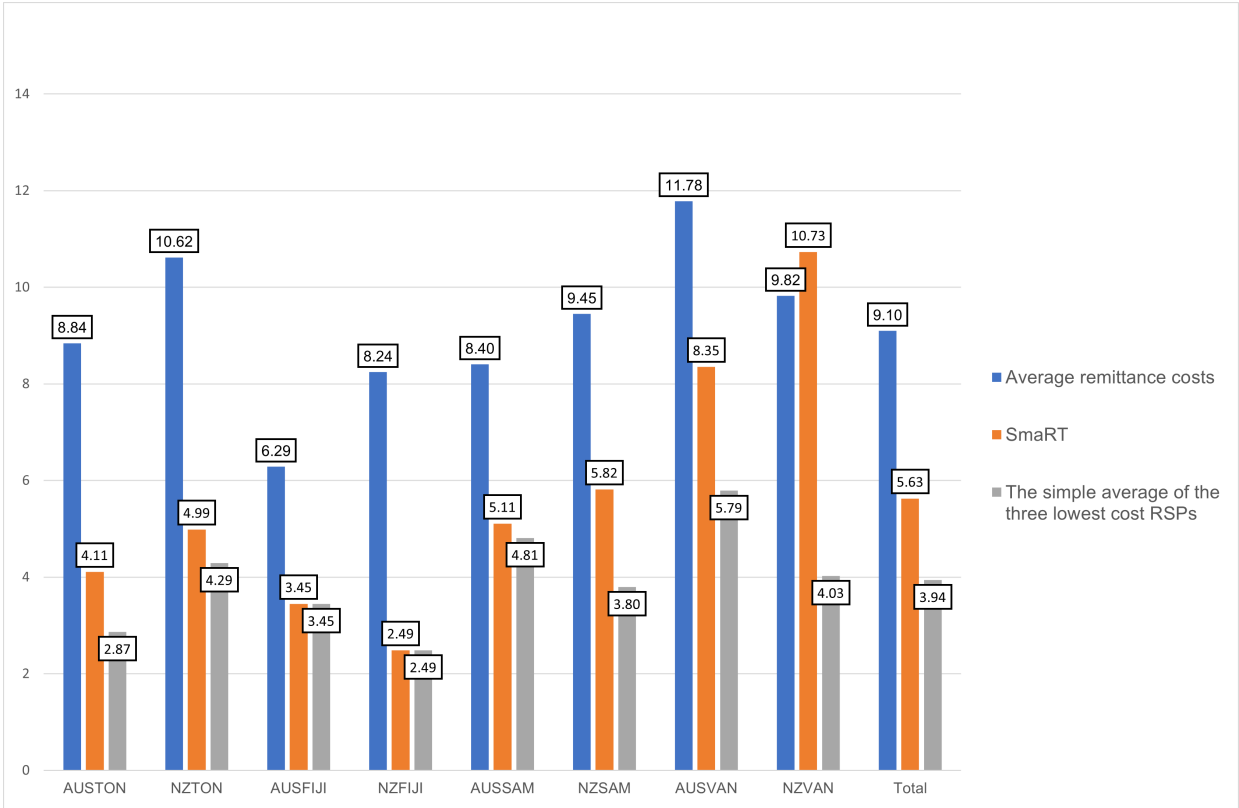
Notes: The figure shows Average remittance costs (blue bar), SmaRT (orange bar), and the simple average of the three lowest-cost RSPs (grey bar) in the eight remittance corridors and the PICs as a whole. The data is available from Remittance Price Worldwide (World Bank 2023b).
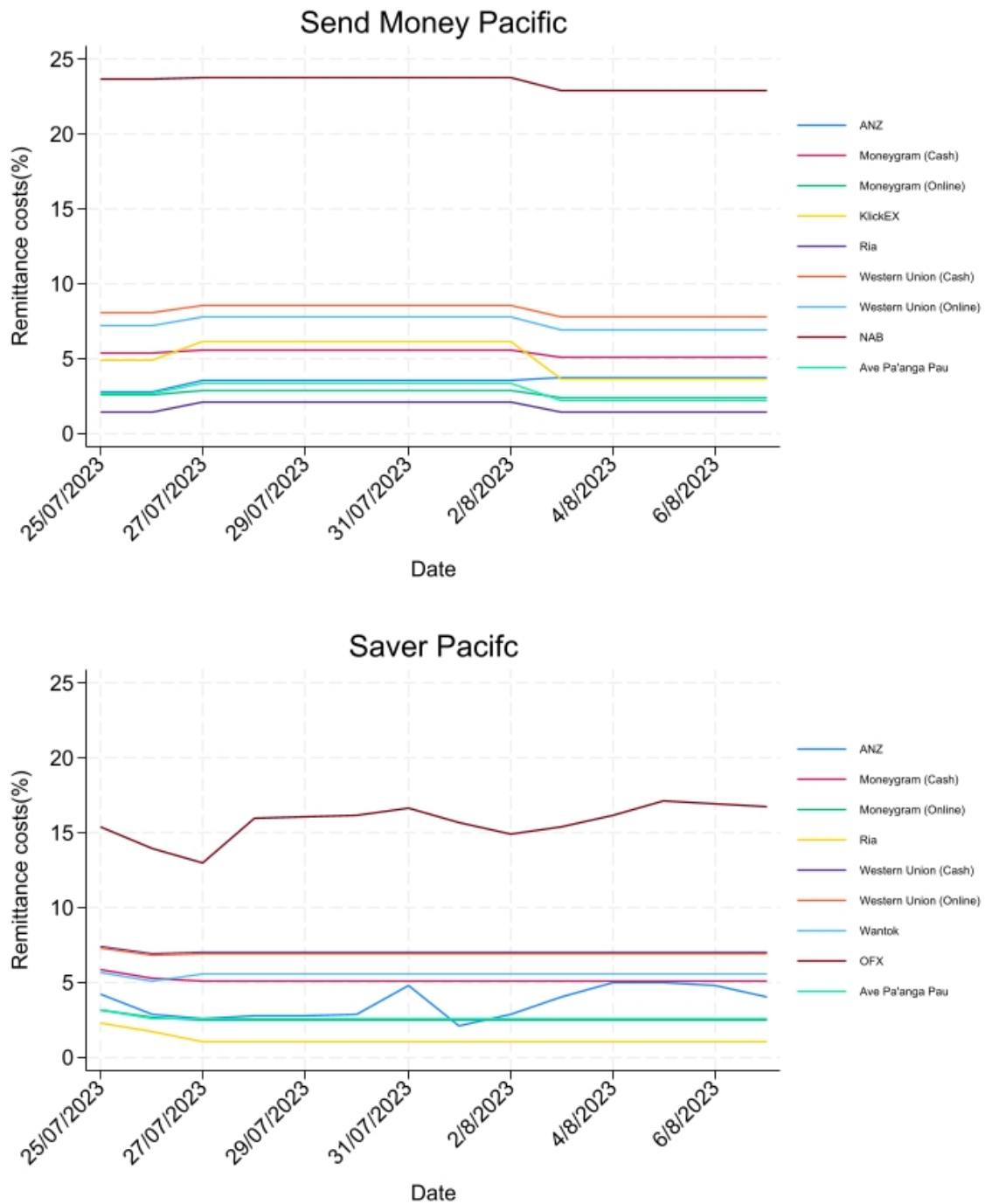
FIGURE 2: THE USE OF RSPS BY TONGAN HOUSEHOLDS AND WORKERS (%)
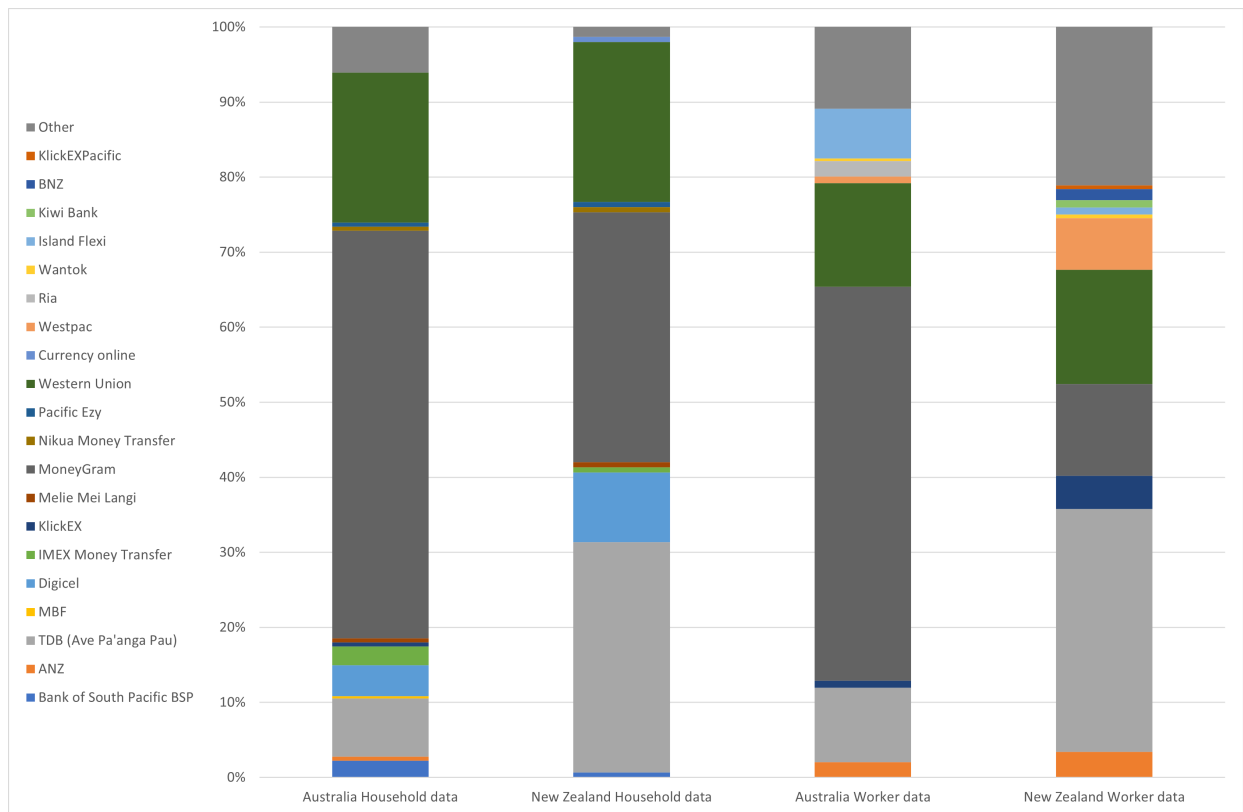
Notes: This figure shows the share of the RSPs used by Tongan households and workers, calculated from the PLMS.

FIGURE 3: REMITTANCE COSTS IN THE AUSTRALIA-TONGA CORRIDOR (%)

Notes: This figure shows remittance cost fluctuations for the five lowest-cost RSPs, the highest-cost RSP, Moneygram, and Western Union in the Australia-Tonga corridor in our final market audit data. The top panel uses data extracted from Send Money Pacific and the bottom panel uses data extracted from Saver Pacific.

FIGURE 4: REMITTANCE COSTS IN THE NEW ZEALAND-TONGA CORRIDOR (%)
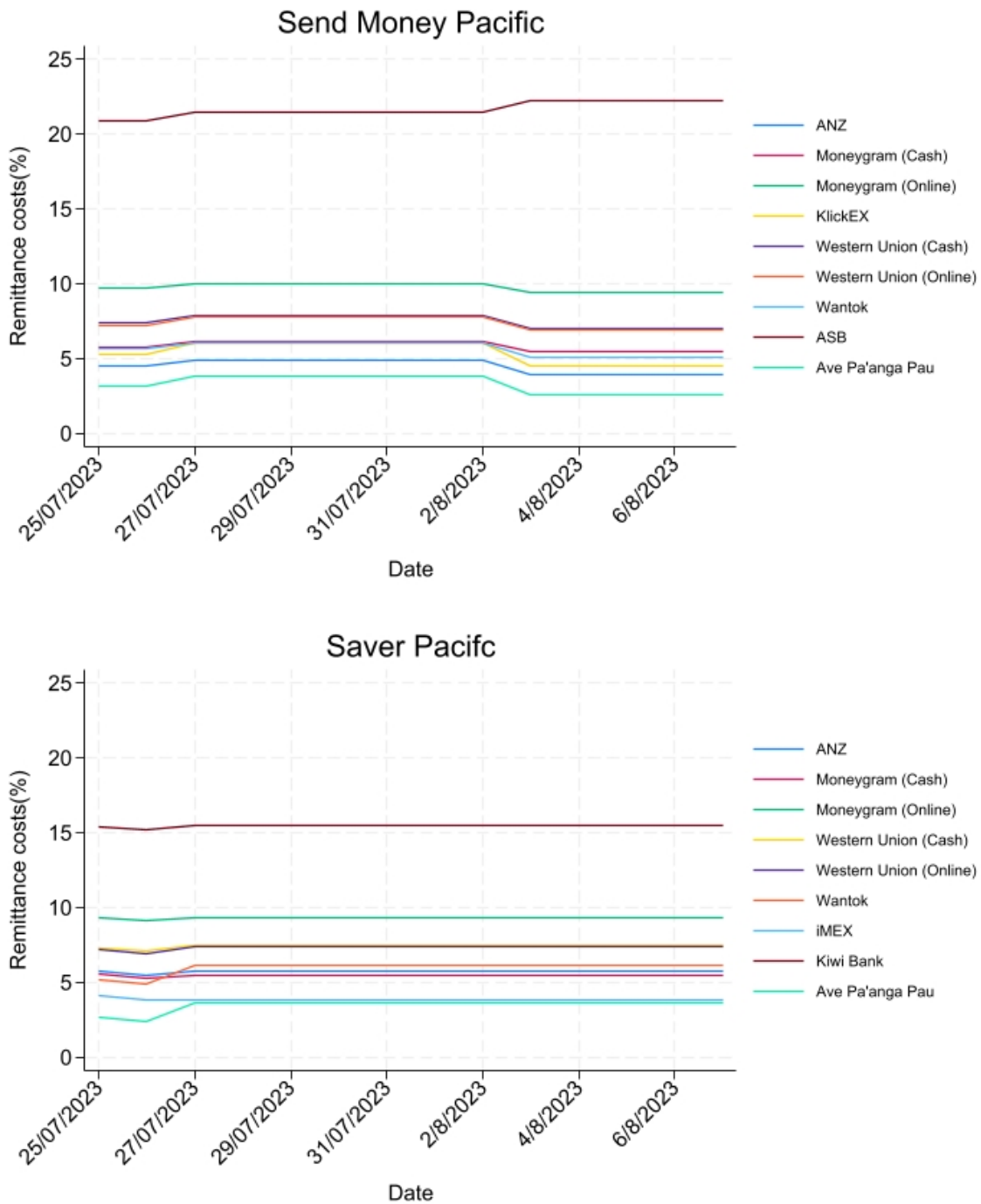
Notes: This figure shows remittance cost fluctuations for the five lowest-cost RSPs, the highest-cost RSP, Moneygram, and Western Union in the Australia-Tonga corridor in our final market audit data. The top panel uses data extracted from Send Money Pacific and the bottom panel uses data extracted from Saver Pacific.

FIGURE 5: STATED REASONS FOR USING PARTICULAR REMITTANCE CHANNELS (%)
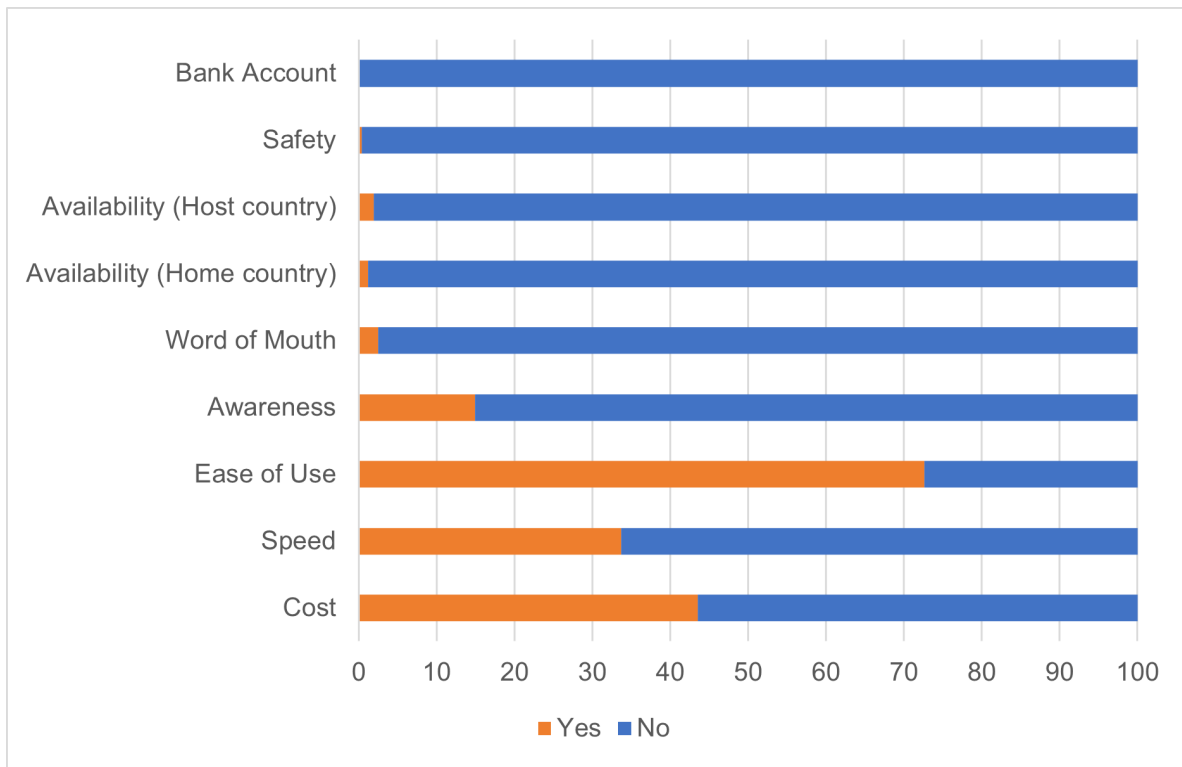
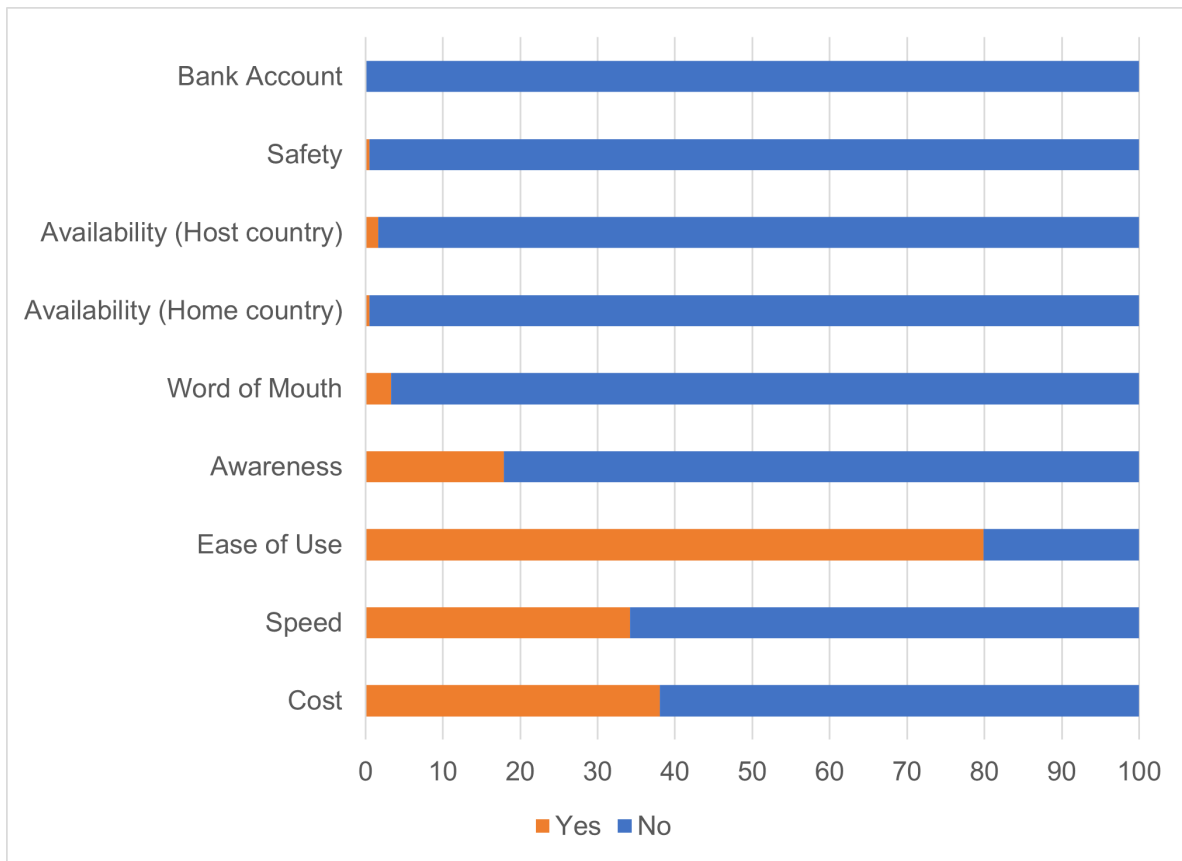*Notes:* This figure shows the proportion of the binary answer for the reason why Tongan migrants choose remittance channels in the PLMS worker dataset.

FIGURE 6: STATED REASONS FOR USING MONEYGRAM AND WESTERN UNION (%)
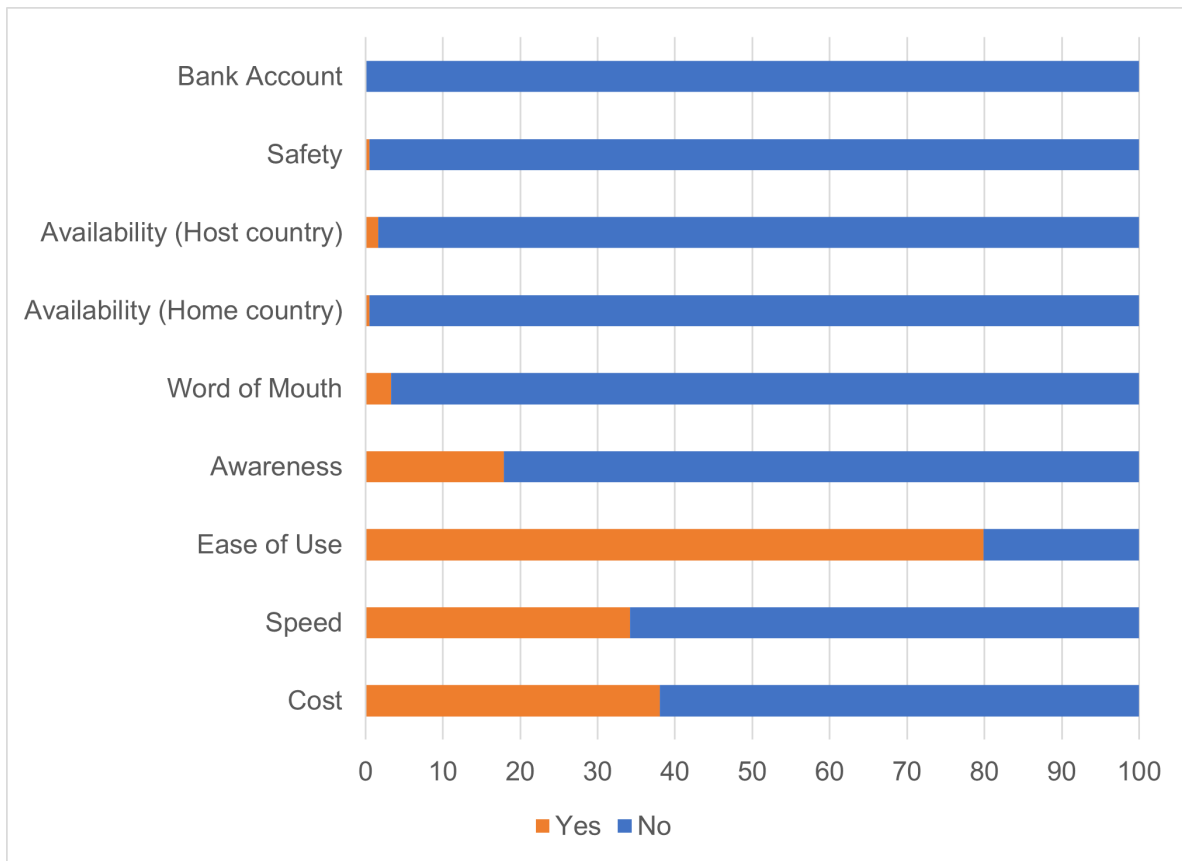
*Notes:* The figure shows the proportion of the binary answer for the reason whyTongan migrants who use Western Union and Moneygram choose remittance channels in the PLMS worker data.

FIGURE 7: STATED REASONS FOR USING AVE PA'ANGA PAU (%)

Notes: The figure shows the proportion of the binary answer for the reason why Tongan migrants who use Ave Pa'anga Pau choose remittance channels in the PLMS worker data.

FIGURE 8: REMITTANCE CHANNEL CHOICE, AVERAGE MARGINAL EFFECTS
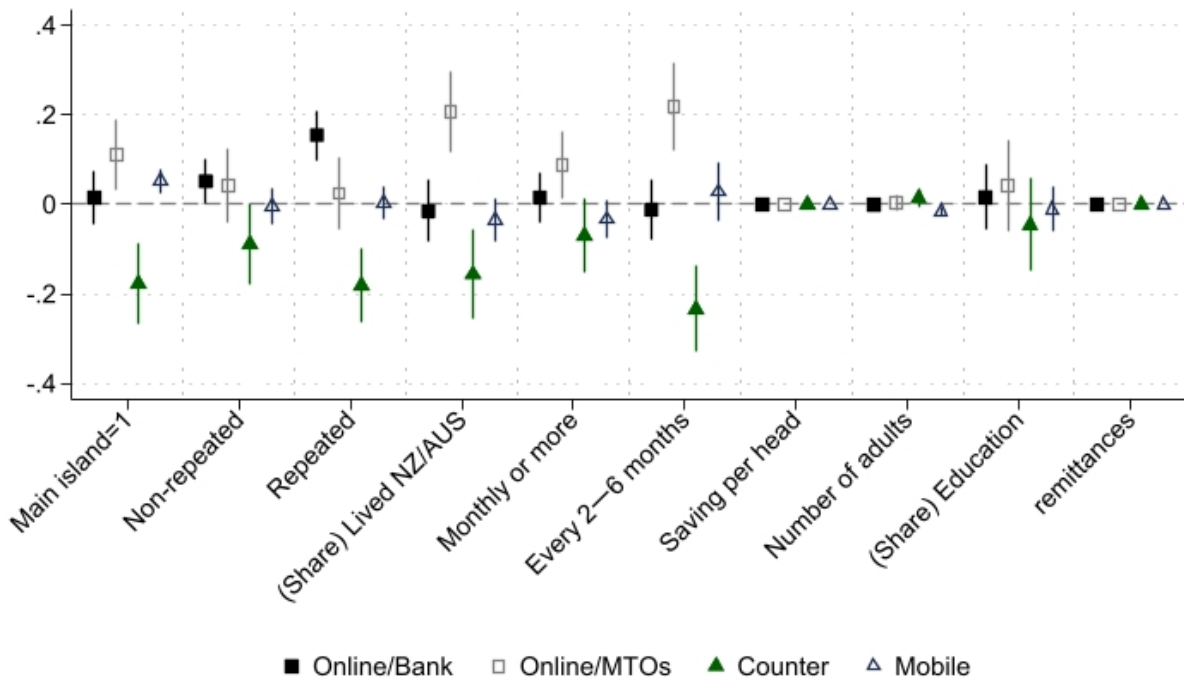
Notes: This figure shows the average marginal effects of household characteristics on the choice of remittance channels. The vertical axis represents the magnitude of the effects in percentage points. For example, .2 represents 20 percentage points increase while -.2 is a 20 percentage points decrease. The vertical line on each point estimate shows the 95 percent confidence intervals, with robust standard errors.

TABLE 1: THE MAIN REMITTANCE CHANNELS REPORTED BY RESPONDENTS IN THE HOUSEHOLD SURVEY

Main channel	Frequency	Percent
Online transfer through banks	119	12.41
Online transfer through MTOs	324	33.79
Over-the-counter transfer through MTOs	456	47.55
Mobile wallet (eg KlickEx Pacific)	55	5.74
Through friends	1	0.10
Other	4	0.42
Total	959	100.00

Notes: This table shows the frequency and percentage share of five main remittance channels and "other" in the PLMS household survey data.

TABLE 2: THE MAIN REMITTANCE CHANNELS REPORTED BY TEMPORARY MIGRANTS IN THE WORKER SURVEY

Main channel	Frequency	Percent
Online transfer	522	69.88
Over-the-counter transfer (MTO or bank)	191	25.57
Mobile wallet	13	1.74
Through friends	19	2.54
Other	2	0.27
Total	747	100.00

Notes: Authors' tabulation using data on remittance channels from PLMS worker dataset. The table shows the frequency and percentage share of 4 main remittance channels and "other". Compared to PLMS household dataset, "Online transfers through banks" and "Online transfer through money transfer operators, such as Western Union, MoneyGram, etc" are combined to "Online transfer."

TABLE 3: SUMMARY STATISTICS OF EXPLANATORY VARIABLES

	Online/Bank	Online/MTOs	Cash	Mobile Money
Living in Tongatapu (Yes = 1)	.862	.873	.748	.926
	(.346)	(.334)	(.434)	(.264)
Temporary migration status				
No migrants (Yes = 1)	.198	.339	.510	.407
	(.400)	(.474)	(.500)	(.496)
First time (Yes = 1)	.190	.248	.209	.204
	(.394)	(.433)	(.407)	(.407)
Repeated (Yes =1)	.612	.413	.281	.389
	'.198)	(.339)	(.510)	(.407)
Past migration (Yes = 1)	.605	.652	.551	.551
	(.276)	(.268)	(.354)	(.333)
Frequency of remittances				
Monthly (Yes = 1)	.698	.640	.581	.500
	(.461)	(.481)	(.494)	(.505)
2-6 months (Yes = 1)	.138	.214	.140	.278
	(.346)	(.411)	(.348)	(.452)
On request (Yes = 1)	.164	.146	.278	.222
	(.372)	(.354)	(.449)	(.420)
Monthly remittances (Pa'anga)	876.121	900.642	566.577	740.340
	(1031.385)	(1252.912)	(1021.680)	(1099.312)
Monthly saving per head (Pa'anga)	174.828	71.600	79.196	73.229
	(844.35)	(228.183)	(278.038)	(243.497)
Number of adults	3.259	3.295	3.339	2.685
	(1.818)	(1.677)	(1.739)	(1.412)
Share adults completed secondary educ	.322	.344	.317	.303
	(.311)	(.293)	(.299)	(.305)

Notes: The table shows sample averages with standard deviations in parenthesis separately by four main remittance channels used as the choice outcome a simple multinominal regression analysis. Data are from the PLMS household dataset.

TABLE 4: THE GAIN BY SWITCHING BASED ON SEND MONEY PACIFIC DATA

	WU (Online)	WU (Cash)	MG (Online)	MG (Cash)
Australia-Tonga				
Remittance costs	7.38	8.23	2.64	5.4
Gain by switching	5.62	6.47	0.88	3.64
Gain in 6 months	1,103,809 TOP			
	2.40%			
New Zealand-Tonga				
Remittance costs	7.39	7.53	9.73	5.84
Gain by switching	4.07	4.2	6.4	2.51
Gain in 6 months	424,596 TOP			
	2.30%			

Notes: WU: Western Union, MG: Moneygram. Authors' calculation using the new market audit data and PLMS worker and household dataset. The third and fourth rows of the table show remittance costs and gain by switching to the cheapest RSP for both online and cash transfers by Western Union and Moneygram. The bottom row shows the total gain in a respective remittance corridor and the total gain in the Tongan economy.