Unlocking Insights: Harnessing Card Data to Measure Namibia's Cross-Border Digital Purchases

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UNLOCKING INSIGHTS: HARNESSING CARD DATA TO MEASURE NAMIBIA'S CROSS-BORDER DIGITAL PURCHASES

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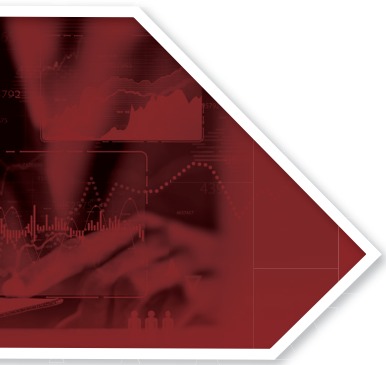
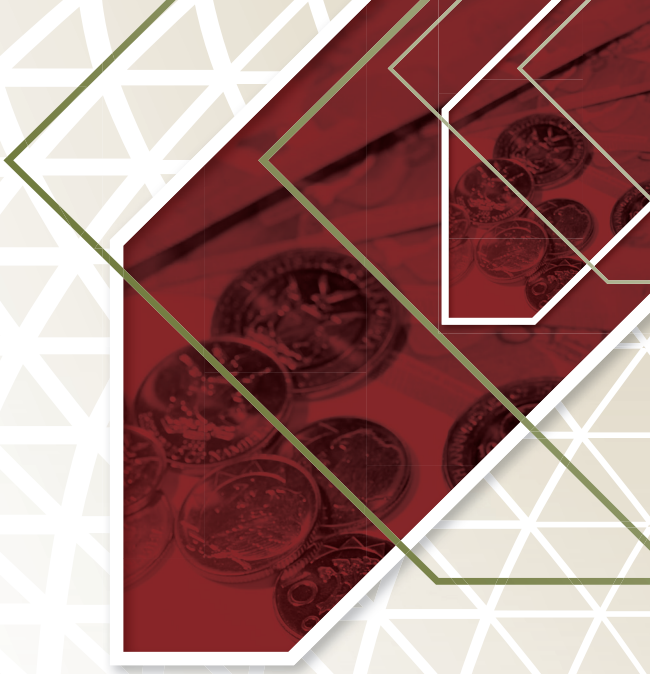
Cross-border digital trade has increased exponentially, but data gaps prevail. This note explores monthly credit and debit card data for Namibia, following the OECD handbook on digital trade, to derive estimates of cross-border digital purchases of services by residents to improve coverage and data quality in line with the ongoing updates of BPM6. Moreover, the paper points out the limitations of card data in measuring digital trade and suggests ways to improve data quality. Namibia's digitally ordered and delivered services from abroad have grown in value since COVID-19, increasing from N$438 million recorded in 2020 to N$1,3 billion in 2023, reflecting the growing popularity of streaming services, cloud computing, the use of digital intermediation platforms, and e-learning.

Keywords: digital trade, Namibia, card payments, BPM6, digital intermediation platforms, merchant category code

1 The views expressed in this paper are those of the authors and do not necessarily reflect those of the Bank of Namibia. The authors thank Dr. Johan van den Heever and Ms. Abigail Nainda for their helpful comments and suggestions.





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1. Introduction

In an era where digital trade has increased exponentially, data gaps in external sector statistics regarding cross-border digital purchases remain a pressing issue for balance of payments (BoP) compilers. More households and businesses can now transact with non-residents over computer networks due to the emergence of new and disruptive online platforms. However, the traditional data sources and methods of compilation, which focus on large firms and high-value goods and services, may only partially cover digital trade, which generally involves numerous low-value transactions sourced from small firms and households.

Digital trade, which is defined as "all international trade transactions that are digitally ordered[1] and/or digitally delivered,[2]" was estimated to account for 54.0 percent of global services exports and 12.0 percent of total global goods and services exports during 2022 (WTO, OECD, IMF, WB and UNCTAD, 2023). The rise in digital trade raises important statistical needs with serious policy implications. From a statistical perspective, and more so for a developing country like Namibia, understanding trends in the digital economy is imperative, both for domestic and international trade policy, as it affects competition, tax policy, development, and economic growth. Moreover, these digital flows have implications for the accurate compilation of external sector statistics, with the potential to result in errors and omissions due to measurement difficulties to sufficiently capture all relevant transactions.

Even though it is widely accepted that digital trade provides significant new opportunities, there is limited data on digital trade, particularly for developing economies which are viewed as lagging in terms of infrastructure, skills and the regulatory environment needed to take advantage of these opportunities (WTO, OECD, IMF, WB and UNCTAD, 2023). Market openness is a prerequisite to enable benefits from digital trade, but more is needed. Therefore, comprehensive policy and targeted action are needed to avoid a growing digital divide between developed and developing countries (WTO, OECD, IMF, WB and UNCTAD, 2023). To shape these policies will require the compilation of accurate and internationally comparable data on cross-border digital trade.

Since its independence in 1990, Namibia has invested heavily in the modernisation and expansion of its telecommunication networks, resulting in improved broadband access to the internet and a more robust overall information and communication technology (ICT) sector. The number of internet users has increased over the last ten years, rising from 0.8 million in 2013 to 1.8 million in 2023. As digitalisation progresses, micro-digital trade has become significant. More Namibians are buying goods and services digitally from abroad, e.g., online shopping and studying online, purchasing applications and software, subscriptions and ordering transportation and travel services abroad via digital intermediation platforms including UBER, Airbnb, Takealot, Amazon and Grab.

Meanwhile, there is currently an omission of cross-border digital services data in the official External Sector Statistics (ESS) produced by the Bank of Namibia. This is because data from debit and credit card transactions was previously unavailable as commercial banks only started providing the central bank with data on all international card transactions in 2019. Presently, the services data in the current account are sourced from the International Transaction Reporting System (ITRS) which covers cross-border wire transfers settled through SWIFT (Society for Worldwide Interbank Financial Telecommunication).

Against this background, this note presents estimates of Namibian households' and businesses' digital purchases of services from non-residents based on card transaction data from the ITRS. Specifically, the transactions covered include the import of cross-border digital services and estimates for digitally ordered goods using the same data source. The note thereby provides the building blocks needed to enhance the data on the current account by including digital cross-border transactions in goods and services paid for using debit and credit cards.

1 This refers to international e-commerce i.e. the international sale or purchase of a good or service, conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders.

2 This refers to all international trade transactions that are delivered remotely over computer networks.

The rest of the note is organised as follows: Section 2 briefly reviews the related literature. Sections 3 and 4 cover the data source as well as the data transformation undertaken to clean up and convert the "raw" data into orderly categories. Section 5 details the estimation approach. An analysis of key statistical findings is covered in Section 6 and the challenges of using card payments data are contained in Section 7. Section 8 provides the conclusion and suggests further areas of research.

2. Related literature

In terms of balance of payment statistics, greater focus on digital trade has been lacking and will be addressed in the upcoming *seventh edition of the Balance of Payments Manual* (BPM7). There is limited literature on the measurement of cross-border although the newly published *Handbook on Measuring Digital Trade* by the IMF, OECD, WTO and UNCTAD provides the conceptual framework as well as guidance on the various sources and methods for compiling digital trade statistics and this note is closely related to three recent studies, which are highlighted in the following paragraphs.

Meinusch and Hessel (2017) estimated the cross-border digital purchases of German private households using freely available internet data following a bottom-up approach. The approach broke down the market for digitally traded services into five segments, namely video-on-demand, digital audio content, buying and using software, gambling, and cloud services as they were considered the most significant in terms of household demand for digital services. The study focused on services delivered via digital channels by foreign enterprises to resident private households and excluded digitally ordered goods or services provided by German private households to non-residents as data was rather limited. The paper highlighted the limitations of using freely available internet data as it may not be readily available and does not meet all the requirements for use in the compilation of the balance of payments.

Yezekyan (2018) explored various data sources to measure e-commerce transactions in Armenia for balance of payments purposes. The study utilized administrative data from Armenia's payment and settlement organization, Customs Service, along with additional information from the Armenian Processing Centre (ArCa) database. The Customs Service classifies granular data on goods based on the type of receiver; however, it may be biased because it only includes goods received from large e-commerce companies and through parcel delivery services. Data from the payment and settlement systems enables the generation of statistics on cross-border acquisitions of goods and services; however, distinguishing between goods and services is impossible. Conversely, ArCa can accurately identify e-commerce transactions conducted abroad. However, looking at transactions conducted within Armenia, there is a drawback in distinguishing non-residents' e-commerce transactions.

The Central Reserve Bank of El Salvador (2023) has undertaken efforts to measure cross-border digital trade using credit and debit card payment data since 2021. El Salvador used data from financial institutions on online purchases made overseas with cards issued by domestic commercial banks, as well as purchases made domestically using cards issued by foreign commercial banks. The bank employed a Python script designed to consolidate multiple datasets into a single database, while also executing data-cleaning tasks and standardizing business names. Subsequently, data visualization software was employed to create an interactive dashboard that displayed statistics on cross-border digital trade, offering valuable insights into the e-commerce landscape.

At present, data sources for digital trade typically include Information and Communications Technology (ICT) surveys, customs data, household surveys, and business surveys as well as the ITRS as outlined in the Handbook on Measuring Digital Trade. Several other countries adopted the above measurement approaches. For example, China initiated its digital trade measurements in 2014 by utilising its customs records, survey data, and various sources aimed at streamlining the customs clearance process for digitally ordered goods. However, customs records alone could not capture the overall amount of cross-border e-commerce (CBEC) as not all digitally ordered goods are declared to customs especially goods below the customs threshold. Furthermore, the primary challenges identified included effective collaboration with data producers to acquire detailed data from overseas platforms, data granularity, and data accuracy.

Another instance mentioned in the Handbook is the case of Jamaica, which utilised the Tourist Satisfaction Survey (TSS) and Tourist Expenditure Survey (TES), credit card data, customs data and administrative data on tax declarations to measure the export and imports of digital trade services. However, the credit card information does not enable precise identification of products, nor does it distinguish between resident and non-resident transactions. Similarly, the Israeli Central Bureau of Statistics (CBS) collects data on credit card transactions and concentrates primarily on online purchases; however, the data relates exclusively to household transactions. Other countries such as Indonesia used an innovative approach that relied on data analytics to identify the so-called "digital traders" and match their transactions from five separate databases to compile statistics on digital trade.

3. Data source

The ITRS was used as the main data source for this study, supplemented with card payment data[3]. In the case of Namibia and the other Common Monetary Area (CMA) members (Eswatini, Lesotho and South Africa), the ITRS is referred to as the Balance of Payments Customer Reporting System (BOPCUS), which captures all cross-border transactions between Namibia and the rest of the world. The BOPCUS system was initially developed as a foreign exchange system designed to effectively manage capital flow regulation responsibilities; however, over time, it became a crucial data source for the compilation of ESS. The system has undergone several enhancements since its inception, with the latest improvement completed in 2019, aimed at aligning the system to the BPM6. All commercial banks are required to report daily foreign transactions to the central bank via the system irrespective of the value. Commercial banks began providing the central bank with data on all international card transactions since July 2019. Thus, the study covered the annual data from 2020 to 2023.

The ITRS data is based on three payment transfer modules, namely BOPCUS, which contains data on cross-border wire transfers, Bobcard Resident and Bobcard Non-resident, which covers credit and debit card transactions. The Bobcard Resident module covers transactions of debit and credit cards issued by Namibian commercial banks, while the Bobcard non-resident module covers transactions of debit and credit cards issued by foreign commercial banks. Granular information such as merchant names and codes at an individual transaction level are only available on the Bobcard Resident (i.e Namibian-issued cards) and not on Bobcard Non-resident. Nonetheless, for both transfer modules, the reported data is strictly cross-border with no reporting thresholds, resulting in coverage of all microtransactions. Against this background, the note focused on payments of Namibian-issued cards to non-resident merchants.

While the BOPCUS makes provision for including information on whether the card was used at an e-commerce merchant or a point-of-sale device abroad, these fields are, however, not yet mandatory for reporting entities making it difficult to determine whether the card was used physically (card present) or remotely (card absent). To remedy this problem the study used Merchant Category Codes[4] (MCC) and names to identify a merchant's business activity and to indicate whether the good or service was digitally ordered, and/or digitally delivered.

4. Data transformation

The data was cleaned and transformed in the following manner: firstly, "raw" large Microsoft Excel files containing over 600,000 records per month were extracted from the BOPCUS database. After that, data cleaning was done to take care of anomalies resulting from missing currency conversions and text-to-number conversions. The data was loaded into R-studio where it was used to consolidate monthly into annual data and conduct additional checks as well as transforming the data into market segments based on the merchant codes from the VISA merchant data standards manual and merchant names. Subsequently, cross-border digital purchases of goods and services were estimated following the estimation approach that is described in section 5.

3 This is data on Namibian-issued card payments sourced from the Payments and Financial Surveillance Department. However, the limitation of this data is that it does not offer granular details such as type product or service.

4 The MCC is a four-digit number obtained from the Visa Merchant Data Standards Manual used to describe a merchant's primary business according to annual sales volume measured in local currency. MCC codes are also used to identify a specific merchant or type of transaction.

5. The estimation approach

This note measures digital trade based on the second edition of the Handbook on Measuring Digital Trade, which defines it as "all international trade that is digitally ordered and/or digitally delivered." The handbook outlines three criteria for identifying digital trade: the nature of the transaction (how), the product (what), and the partners involved (who), as illustrated in (*Annexure 1*) and explained further below.

The first criterion relates to how the transaction was conducted. For a cross-border transaction to be considered part of digital trade, it must be digitally ordered and/or digitally delivered. Given that the data used was sourced from card payments and having full awareness that the payment for and delivery of the good or service do not have to be online, caution was followed when dealing with the data[5]. The MCC and names were used to identify a merchant's business activity and to provide an indication of whether the good or service was digitally ordered, and/or digitally delivered. Furthermore, MCC codes on acquirers of digital goods and services merchants and online marketplaces were used to identify digitally ordered and digitally delivered goods and services.

The conceptual framework further divides service data into two categories: digitally ordered services and digitally deliverable services. The former covers services that are ordered digitally but not delivered digitally, including travel services ordered through DIPs like UBER, Booking.com and Airbnb, as well as online tickets for sporting and some entertainment events. On the other hand, the latter covers services that are delivered digitally, which include downloadable and streaming products. This note breaks down digitally traded services into ten market segments, including *video downloads and streaming*; *music downloads and streaming; cloud, software and application services*; *online courses, e-books,* and *audiobooks; online gaming*; *online gambling* and *online dating services and adult content*. In addition, it covers digital services and goods ordered through *Digital Intermediation Platforms [6](DIPs);* as well as *e-tailers who* are also included to provide a comprehensive view of digital purchases.

This approach has been adopted by several other countries, including Canada, Argentina, Ireland, and Armenia. However, the comprehensiveness of the market segments largely depends on data availability (WTO, OECD, IMF, WB, and UNCTAD, 2023).

Digitally ordered goods purchases were estimated using online purchases from the top online websites such as Amazon, Alibaba, Taobao, Takealot.com, Pinduoduo, Shein, etc. This estimation serves as a proxy for imports of goods ordered via major DIPS, e-commerce platforms and applications. Online purchases from consumers to businesses tend to be made by using credit cards whereby the consumer enters the details of their cards without physically being in the shop. This approach is not exhaustive because it only considers card transactions; however, if one includes online orders settled via electronic payment systems such as SWIFT or other methods, the estimates will be higher.

6. Digital trade analysis

6.1 Card Payment developments

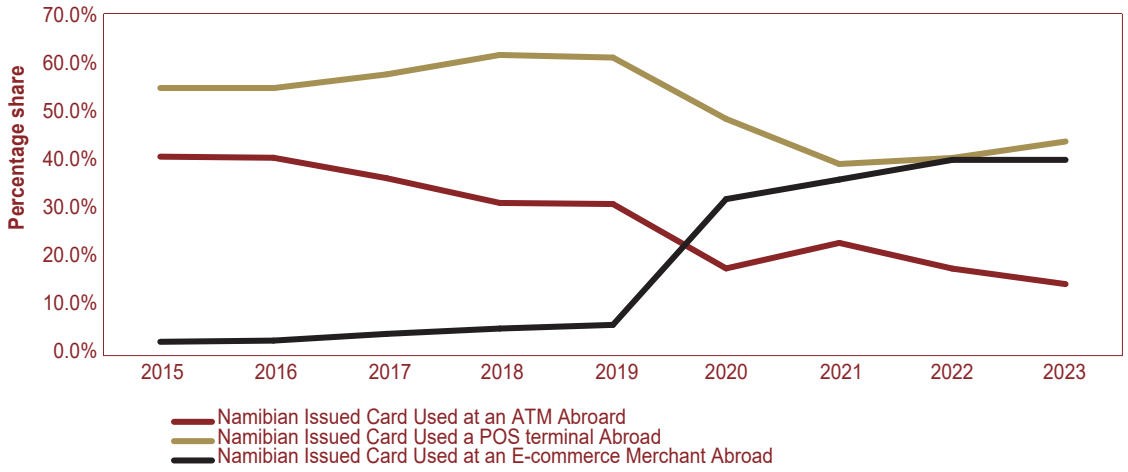
The results show an upward trend in Namibian-issued card payments to non-resident service providers between 2020 to 2023. During 2022, payments from Namibian-issued cards to non-residents rose year-on-year by 48.6 percent to N$2.7 billion and by 25.0 percent to N$3.3 billion during 2023. The increase in card payments was more pronounced in cards used at electronic commerce merchants abroad with the share increasing substantially from a meagre 6.4 percent in 2019 to 40.5 percent in 2023 (Figure 1). Following the social distancing measures imposed during the Covid-19 pandemic, payments to e-commerce merchants abroad accelerated as more Namibians

5 Data from BOPCUS covers both digital and non-digital trade.

6 DIPS are defined as "Online interfaces that facilitate, for a fee, the direct interaction between multiple buyers and multiple sellers, without the platform taking economic ownership of the goods or rendering the services that are being sold (intermediated)."

ordered goods and services from non-residents, such as purchasing applications or software, placing orders for services abroad via digital intermediation platforms (Amazon, Alibaba, UberEATS, Airbnb, etc.), and online learning.

Figure 1: Use of card payment data



The share of card payments used at Point of Sale (POS) devices abroad fell during 2020 and 2021, mainly due to travel restrictions imposed following the domestic lockdowns due to COVID-19. These restrictions were implemented at the end of March 2020 and were only fully lifted by the third quarter of 2022. To this end, data shows the share rebounded slightly in 2023, as more Namibians began traveling abroad. The use of cards for cash withdrawal also continued to decline as individuals and businesses have increasingly embraced digital payment methods, with the percentage share of cash withdrawals dropping from 31.6 percent in 2019 to 14.9 percent in 2023.

The value of card payments is substantial and could impact Namibia's current account and BOP statistics going forward. Outward card payments are equivalent to about 8.9 percent of the total recorded outflows on the services account, which is currently compiled from other sources, including the ITRS, surveys and administrative records. Utilizing card data could help improve estimates for travel services and provide estimates for the import of digital services, specifically the low-value transactions by households and small businesses.

6.2 Digital services

Total digital services[7] ordered and/or delivered digitally rose since 2020, increasing by a cumulative N$887 million to reach N$1.3 billion during 2023 (Table 1), representing about 3.6 percent of total imports of services during 2023. Significant rises were particularly observed in the categories of travel, online courses, eBooks, newspapers and audiobooks, software and cloud services, and video downloads or streaming services. This indicates the increased usage and access to the internet and technology by Namibians to purchase services from non-residents, in turn affecting digital trade.

7 To avoid double counting of trade in goods, total digital services exclude DIPs transactions. This is because transactions intermediated via DIPs are, in principle included in conventional trade statistics.

Table 1: Digital services

Digital Services Total Digital Services				
N$ million	**2020**	**2021**	**2022**	**2023**
Total Digital Services	**438**	**632**	**864**	**1,325**
Video downloads or streaming services	62	78	112	151
Music downloads or streaming services	26	40	55	71
Software and cloud services	88	121	115	165
Online gaming	7	18	21	31
Online gambling	21	23	11	76
Online dating services and adult content	14	11	15	22
Online courses, eBooks, newspapers and audiobooks	94	121	117	197
Transportation services	37	78	172	236
Travel	93	180	373	541
Other services	27	29	35	59

Sources: Author's compilation

The cloud services, software and applications remains the largest category of digitally delivered services expenditure with a value of N$165.1 million (with a share of 27 percent of total digitally delivered services) in 2023. This indicates the use of storage space from major suppliers of cloud services such as Google, Microsoft, Amazon Web Services and Apple, as well as the purchase of applications such as ZOOM that picked up due to the remote working following the pandemic as well as the use of various softwares. Most of these services are consumed mainly by businesses and a limited number of households that pay for extra storage space for sites such as Dropbox, iCloud and OneDrive.

According to the market segments, video streaming accounted for 25 percent of digitally delivered purchases by Namibians as of 2023 (Figure 2). The value of video downloads or streaming services rose exponentially from N$62 million in 2020 to N$151 million in 2023. This reflects the growing popularity of downloadable video and streaming platforms, given the relatively low subscription fees compared to some local and regional cable television services. In this respect, Netflix remained the video streaming platform most used by Namibians, followed by Apple TV and Amazon Prime Video. The reasons for the popularity of these platforms include convenience, flexibility and advert-free content. Furthermore, these platforms also use AI algorithms to filter large content and offer users a personalised experience. A major regional cable television service provider, however, caught up to this development with the introduction of video-on-demand services such as Showmax which gained momentum during 2023.

Looking at the split between digitally delivered and digitally ordered but not digitally delivered, there is a change in dynamics between 2020 and 2023. The growth in the latter outpaced that of the former, explained mainly by the easing of Covid-19 lockdowns; more Namibians are digitally ordering services, but these are not necessarily digitally delivered (Table 2). Examples of this include travel and transportation services that Namibians order online but are not delivered digitally.

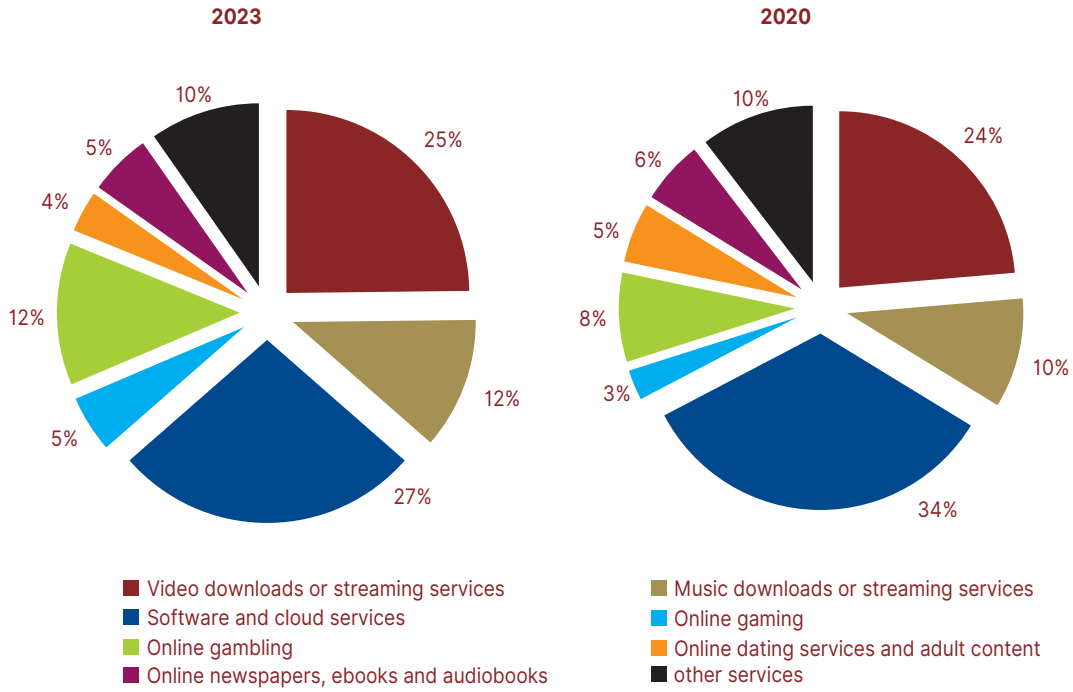
Table 2: Breakdown of digital services

Breakdown of digital services Total Digital Services				
US$ million	**2020**	**2021**	**2022**	**2023**
Digitally delivered services	266	348	396	621
Digitally ordered services, but not digitally delivered [8]	172	284	469	704
Total Digital services	**438**	**632**	**864**	**1,325**

Sources: Authors' computation

8 This category caters for the fact that some digital purchases of services, such as travel and transport services, can be ordered online, but not delivered digitally.

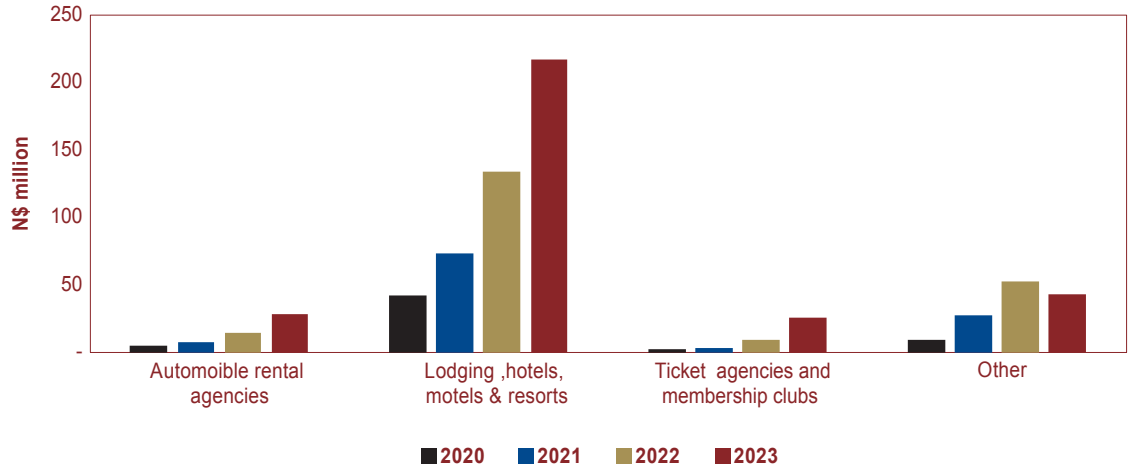
Figure 2: Share of digitally deliverable services



Other key categories include music downloads and streaming, with a share of 12 percent in 2023, followed by online gaming and gambling, with a combined share of 17 percent. In 2023, Namibians spent about N$71 million on music downloads and streaming from sites such as iTunes, Spotify, and Deezer. Payments for online games have also picked up from N$7 million in 2020 to N$31 million in 2023. Interestingly, online gambling increased rapidly during 2023, more specifically the use of betting online platforms such as South Africa's Lottostar. The rest of the cross-border payments for digitally delivered services were for online learning, suggesting the importance of digital tools in connecting Namibians to the rest of the world and greater learning opportunities without the need to travel. Cross-border digital payments for online newspapers, eBooks, and audiobooks reached N$33 million in 2023, given the increased demand.

Digitally ordered services that are not digitally delivered were more prevalent in transportation and travel services. Digitally ordered services rose from N$172 million in 2020 to N$704 million in 2023. About 59 percent of these relate to payments for travel services with the payments more pronounced in online booking for lodging, hotels, motels, ride-hailing and automobile rentals abroad (Figure 3). The online booking of tickets of airlines and the use of shipping sites such as Myus.com and Mygermany.com by residents contributed to the import of digital services related to transportation services.

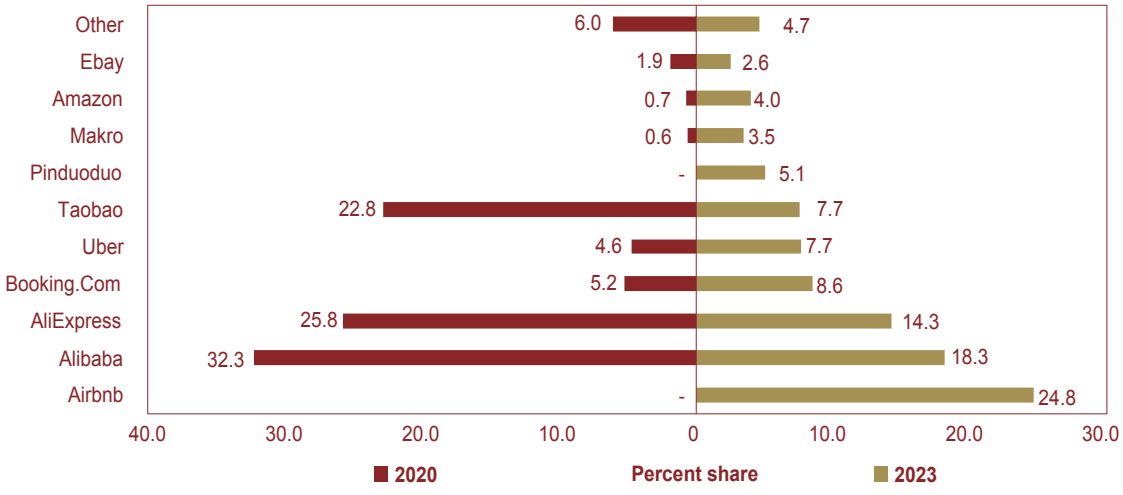
Figure 3: Import of travel services ordered digitally



6.3 Digital Intermediation Platforms (DIPs)

Platform enabled transactions remain one of the largest categories of digital trade by Namibians. DIPs are online platforms that, for a fee, enable direct interactions between various buyers and sellers without the platform taking economic ownership of the goods or services being exchanged. The value of cross-border payments via DIPs increased from N$63 million in 2020 to N$429 million in 2023, reflecting its increased usage by Namibians. Alibaba, Airbnb, AliExpress, Booking.com and Taobao are some of the DIPs whose usage has gained momentum (Figure 4), with Airbnb registering the highest growth as it was not used during 2020 due to travel restrictions but was used from 2021 in line with the recovery in travel. Services like Airbnb, Booking.com, and Uber are digitally ordered but not digitally delivered. Users install an app on their devices, provide their details, such as credit card information and their address, and make payments via the app. Looking at the geographical breakdown, Namibians mainly use DIPs originating from China, the United States, and the Netherlands.

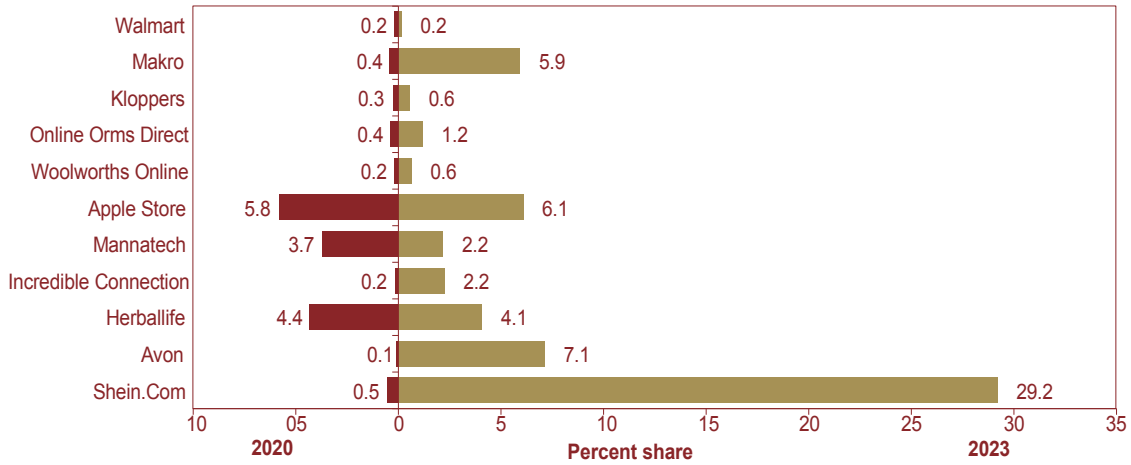
Figure 4: DIPs



6.4 Digitally ordered trade in goods – the case of e-tailers

Electronic retailers or "e-tailers" are defined as "retail and wholesale businesses engaged in purchasing and reselling goods, which receive a majority of their orders digitally" (OECD, 2023). The goods demanded by Namibians from e-tailers were mostly from Shein, Apple store, Herbalife and Avon, which mainly cover fashion, health products, cosmetics and electronic devices. In this regard, the value spent on e-tailers from abroad rose from N$83 million in 2020 to N$162 million in 2023. Digitally ordered goods paid through cards make up less than 1 percent of total imports; however, if one includes online orders settled via wire transfers (SWIFT or other means), the ratio could be higher. Thus, a more precise estimate of the digital ordering of goods would require alterations to the customs declaration documents to include information on how the good was ordered.

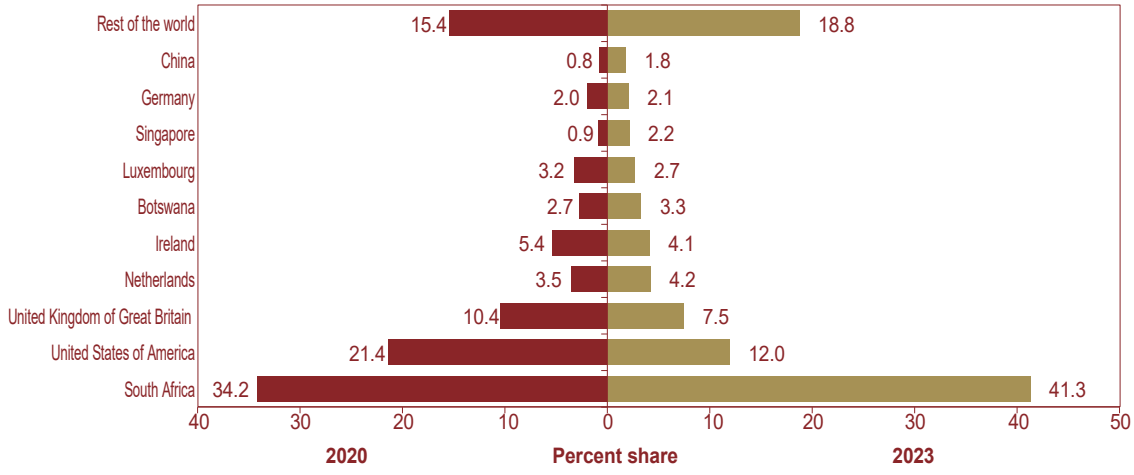
Figure 5: E-tailers



6.5 Digital trade outflows by direction

A larger share of payment was directed to South Africa, with a share of 41.3 percent in 2023, an increase from 34.2 percent recorded in 2020, reflected in the travel, digital intermediation platforms, and e-commerce market segments. The United States of America had the second largest share of 12.0 percent, mainly in the form of software and cloud services, travel and online learning. The United Kingdom came third with a share of 7.5 percent, mainly through intermediation platforms, online learning and travel. The fourth largest share was recorded for the Netherlands, mainly in the category of video streaming. Ireland constituted the fifth share of 4.1 percent partly in the form of software and cloud services.

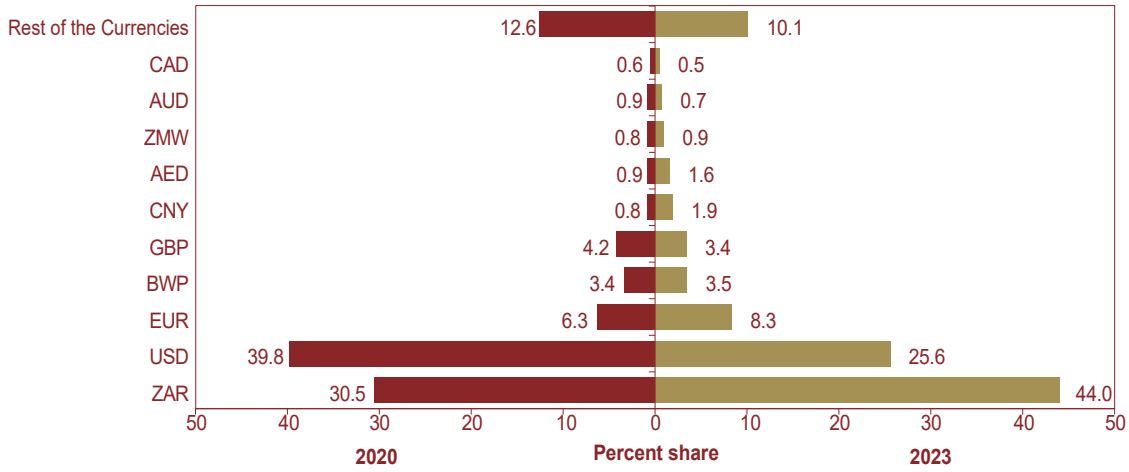
Figure 6: Geographical location of digital purchase



6.6 Digital purchases by currency

In 2023, the largest share of the digital purchases was invoiced in the South African Rand, mainly relating to travel, e-tailers and digital intermediation platforms. The second largest currency for settlement was the US$ with a share of 25.6 percent, mainly payments to DIPs, video streaming, and software and cloud services. The Euro had the third largest share of 8.3 percent, while the Botswana Pula stood at fourth place with a share of 3.5 percent, mainly related to travel services. Meanwhile, the British Pound had a share of 3.4 percent in the form of online learning.

Figure 7: Currency of invoicing of digital purchases



7. Challenges of using card payments data

There are limitations with relying solely on credit and debit card information for measuring cross-border digital trade. The main challenge associated with the estimation approach relates to the cateorisation of multi-service merchants. To remedy this challenge, the merchant codes were used to classify merchants based on transaction type. Additionally, pricing information from various websites assisted in categorising transactions with similar costs. For instance, Microsoft transactions worth of US$9.99 and US$6.99 were classified as computer software and cloud services, aligned with the known cost of standard Microsoft 365 subscriptions.

Secondly, distinguishing between residents and non-residents became a significant challenge, especially given the fluid nature of residency status. This difficulty arises because individuals who make card payments may have recently changed their residency status, such as expatriates who have moved abroad but continue to use their domestic bank accounts and cards. To overcome this challenge, the overall data was adjusted by trimming 2 percent off the total, using the ratio of expatriates abroad to the total population.

Additionally, digital intermediation platforms and payment gateways pose challenges in determining the counterparty's country of residence. Some platforms facilitate domestic transactions, while certain domestic e-tailers utilise computer ordering systems linked to foreign bank accounts. Including resident-to-resident transactions could inflate cross-border digital payment figures. To address this, platforms known to handle domestic transactions and e-tailers or DIPs with foreign-linked ordering systems were excluded to accurately capture cross-border digital trade. For airlines, 80 percent of card transactions were classified as digital trade, while the remaining 20 percent were treated as card present transactions.

Lastly, the challenge of capturing purchases made through online chat platforms (e.g., WeChat, WhatsApp) remains a significant obstacle. Although orders for goods and services from abroad conducted through chat-based methods are not negligible, especially in the Namibian case, such purchases were excluded from the scope of this study due to the inherent ambiguity of chat-based transactions. Therefore, addressing this issue is an important future refinement on the way to comprehensively measure digital payments.

8. Conclusion

This note presents estimates of digital purchases of services from non-residents by Namibian households and businesses. The estimates are based on monthly credit and debit card data from the ITRS for the period 2020 to 2023. Cross-border digital purchases show an upward trend in Namibian-issued card payments to non-resident service providers for the period under review, indicating Namibia's great interest in digital trade. Foreign card transactions are significant and will be included in the compilation of official BOP statistics in Namibia as of 2025. Card payment data is a good proxy to measure cross-border digital trade and should be explored by other countries that have access to such granular datasets. However, some challenges need to be addressed before the incorporation of these data in official BOP Statistics.

Specific caveats are underpinned in drawing the findings in this paper. First, it solely focused on cross-border data from card transactions, i.e., credit and debit card transactions. This is despite recommendations regarding the use of various data sources, as underlined in the Handbook on Measuring Digital Trade, including household surveys, customs data, ITRS, and VAT data, to estimate digital trade or international e-commerce. As a result, this data can be supplemented in the future with other sources such as the ITRS payments settled via SWIFT to obtain more comprehensive data on cross-border digital services and compile the template on digital trade. Second, the note concentrated on outflows of funds arising from cross-border digital purchases – imports - by Namibian households and businesses, primarily small and medium enterprises. Further research can expand this study to include inflows – exports – to the extent that granular data is available.

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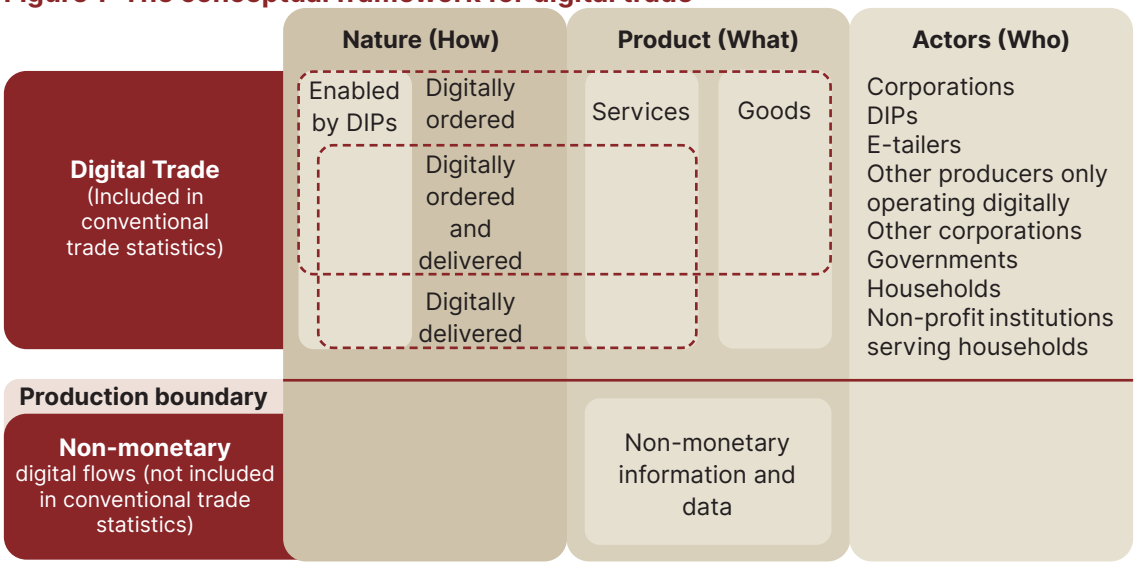
Annexure 1: A conceptual framework for digital trade

Figure 1: The conceptual framework for digital trade



Sources: IMF, OECD, UNCTAD and WTO, adapted from OECD, WTO, IMF (2023).