

IFC-ECB-Bank of Spain Conference: “External statistics in a fragmented and uncertain world”

12-13 February 2024

Capturing e-commerce transactions from the travel group of BPM6: an Indian experience¹

Arjya Misra, Savita Pareek and Seema Saggur,
Reserve Bank of India

¹ This contribution was prepared for the conference. The views expressed are those of the authors and do not necessarily reflect the views of the European Central Bank, the Bank of Spain, the BIS, the IFC or the other central banks and institutions represented at the event.

Capturing eCommerce transactions from the Travel Group of BPM6

An Indian Experience

Arjya Misra, Savita Pareek and Seema Sagar¹

Abstract

The rise in eCommerce transactions received an impetus globally during the social restrictions induced by the COVID-19 pandemic, when consumers, businesses, and governments placed higher reliance on digital solutions for continuity of economic and social activities. During this period, physical retail sales moderated in many geographies but online B2C sales and global eCommerce surged substantially. In India, volume and reach of eCommerce have since strengthened further and the share of businesses and consumers shifting to online shopping has been ever rising. This marked shift necessitated the designing of suitable systems to capture such transactions. For external sector statistics, capturing cross-border eCommerce transactions as per economic purpose classification is more challenging, especially when past data collection has been on a more consolidated basis. Cross-border card-based eCommerce transactions, witnessed a rise since the onset of the pandemic, and their classification under travel/non-travel economic activities needed special attention in India. The paper documents the motivation, the challenges of addressing multilateral net card settlement mechanism and multiple settlement structures, a detailed approach for ensuring uniform reporting on a gross basis, the processes adopted for capturing merchant category code (MCC) for transactions, differences between card present/not-present transactions and the consequent refinement undertaken in compilation of BOP statistics. The paper inter-alia also analysed the behavioural differences in card usage for international trade in various types of goods and services. These insights from the Indian experience would be useful to some compilers dealing with similar issues.

Keywords: Covid-19, balance of payments, cross-border eCommerce, international digital card payments.

¹ The authors work in the Department of Statistics and Information Management, Reserve Bank of India. This paper was prepared for the Second External Sector Statistics Conference on "External statistics after the pandemic: addressing novel analytical challenges", co-organised with the European Central Bank and the Bank of Spain, in Madrid, Spain, on 12-13 February 2024.

Disclaimer: The views expressed here are those of the authors and do not represent those of Reserve Bank of India.

Correspondence: Seema Sagar, Director, Reserve Bank of India; E-mail: ssagar@rbi.org.in

Contents

Capturing eCommerce transactions from the Travel Group of BPM6 1
An Indian Experience1
1. Introduction 3
2. The Overview and the Issue.....4
3. India’s Stepwise Approach to Address the Challenge.....8
4. Integration of Card-based eCommerce Transactions into BOP Framework.....11
5. Conclusions.....12
6. Bibliography.....13
Annex: Cross-country Practices in Collection of Cross-border eCommerce
Transactions..... 14

1. Introduction

The revolution in online payment systems worldwide, including in India has been one of the important drivers facilitating the surge in eCommerce business processes. The state-of-the-art digital public infrastructure (DPI) in India is boosting connectivity through its integrated payment systems and data exchange². With availability of instant and convenient modes of payments that provided ease in transactions, the volume and reach of eCommerce have also strengthened concomitantly.

International trade administration, U.S. department of commerce projects global eCommerce sales to soar to \$28.1 trillion in 2023 and further to \$41.3 trillion by 2026. It also expects India to lead retail eCommerce development globally with 14.1 per cent compound annual growth rate between 2023 and 2027 (Bledsoe J.). The report by UNCTAD (2021)³ places India at 9th place among 20 top economies engaging in B2C eCommerce sales and documents online shoppers in India to be around 20 per cent of all internet users. The DPI has been the big enabler and contributor to the rising share of business and consumers shifting to online shopping in India.

This marked shift necessitates the designing of suitable systems to identify and capture such cross-border eCommerce transactions. However, capturing them as per economic purpose classification under the balance of payments (BOP) framework tends to be more challenging due to lack of details on the economic activity of the transactions ordered/delivered online⁴ and also partly due to data collection that are done on a more consolidated basis, for instance for the transactions that involve card payments.

In India, the development in secure online payment gateways and networks has resulted in ease and greater card use as a mode of payment, as reflected in rapid growth in the volume of outstanding credit/debit cards. The credit and debit card volume as proportion to India's population increased to 0.76 as on March 2023 from 0.66 as on March 2020, signalling a notable post-COVID rise (Figure 1.1).

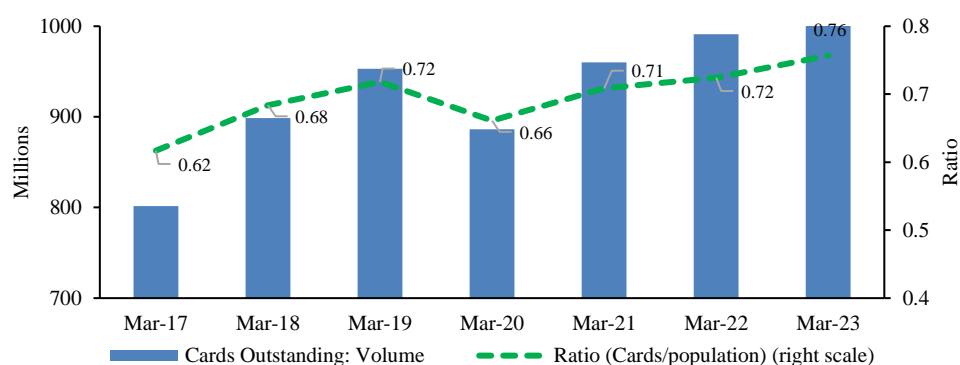
In this context, the paper documents the innovative approach to capture and measure that part of the cross-border eCommerce that are enabled by credit and debit card payments (mostly B2C or retail online) with a special attention to their classification under travel/non-travel economic activities. It then integrates and substitutes such transactions in BOP framework. To that extent, the approach refines the BOP estimates for India at sub-component level. The measure of cross-border eCommerce facilitated through electronic fund transfers/EDI (largely B2B) is however, an agenda for future work.

² Different digital payment modes include BHIM-UPI, IMPS, NACH, AePS, NETC, debit cards, credit cards, NEFT, RTGS, PPI and others.

³ UNCTAD, estimates of global eCommerce 2019 and preliminary assessment of COVID-19 impact on online retail 2020.

⁴ There could be links between postal/courier shipments and eCommerce (UNCTAD (2016)). However, due to the lack of details on the economic activity of the transactions ordered online, a transaction can be allocated to multiple BOP classifications.

Figure 1.1: Credit/Debit Cards Outstanding to Population Ratio: India



Sources: CEIC and RBI.

The approach paper is structured in 5 sections. Section 2 provides the concept and the overview of the digital trade and eCommerce. It describes the extant practice of classifying card payment related transactions in transactor-based travel category of BOP. Section 3 explains the approach adopted and steps involved to identify and reclassify card-enabled eCommerce transactions that should result in some refinement in India's BOP statistics at the sub-component level. Section 4 documents the preliminary findings on eCommerce reflected in card transaction data and looks at the supplementary data collected for card consumption patterns. Section 5 concludes with key observations on the approach for improving and enhancing the statistical measurement of card based B2C eCommerce for its integration with BOP at the component level.

2. The Overview and the Issue

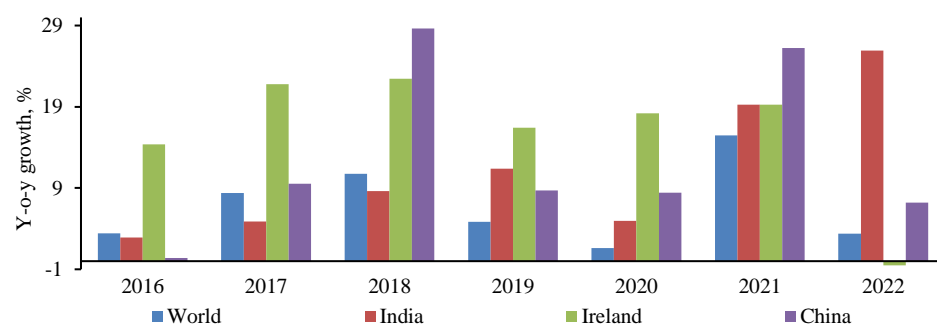
Digitally related transactions have become significant over the years with rapid progress in digitalisation and globalisation. Digital trade involves a trade in a good or a service or in information/data. The partners involved could be B2B, B2C, B2G, C2C etc. Digital trade is premised on how it is ordered or delivered.

While digital commerce encompasses digital technologies, digital marketplaces, and platforms, eCommerce primarily indicates buying and selling products online. While the World Trade Organisation (WTO) defines eCommerce as "the production, distribution, marketing, sale or delivery of goods and services by electronic means" (WTO (1998a)), the Organisation for Economic Cooperation and Development (OECD) focuses on ordering process in defining eCommerce and defines it as "...the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders.....to be included are orders made over the web, extranet or electronic data interchange" (OECD (2011)). The type is defined by the method of placing the order. India Foreign

Trade Policy 2023⁵ defines eCommerce exports of goods and services as, “where selling is through the internet on an eCommerce platform⁶, the payment for which shall be done through international credit or debit cards, or other authorised electronic payment channels and as specified by the RBI from time to time”.

Notwithstanding the flexibility in definition, cross-border digital trade, whether in the nature of data flows or eCommerce, appears as a good or a service in the current account in exchange of monetary payment. For instance, rapidly growing internet penetration is resulting in understating the magnitude and growth of online cross-border data flows (Mandal (2014)). These flows being intangible, do not pass through the customs. Digitally ordered/deliverable services are not compiled as a separate category in trade statistics but are generally related to the BPM6/EBOPS 2010 service cluster comprising the categories that relate to insurance and pension services, financial services, charges for the use of intellectual property n.i.e., telecommunications, computer and information services, other business services, and audio-visual and related services (IMF *et al.* (2023)). India’s exports in this service cluster have been recording a marked growth (Figure 2.1).

Figure 2.1: Digitally Delivered (Exports) Services Growth



Notes: digitally deliverable services are an aggregation of the insurance and pension services, financial services, charges for the use of intellectual property n.i.e., telecommunications, computer and information services, other business services, and audio-visual and related services.

Sources: WTO and authors’ calculations.

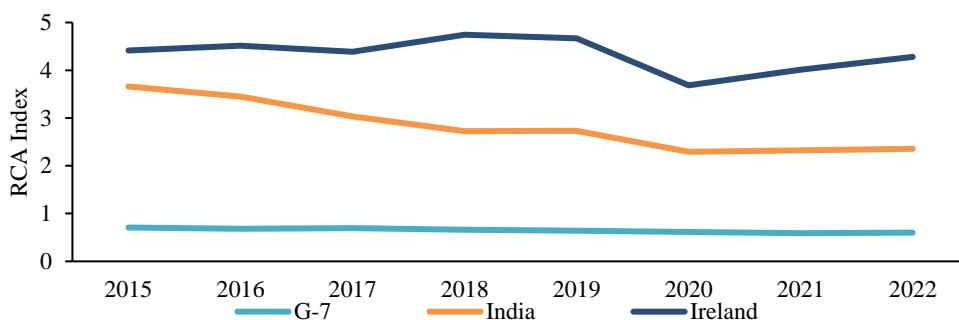
Within this cluster of digitally delivered services, India’s exports under ‘telecommunication, computer, and information services’ and ‘other business services’ lead with almost 95 percent share in 2022. Overall, in total service exports, these two groups dominate forming more than 70 percent. The prominence of the digitally delivered data sector for India is also reflected in strong revealed

⁵ India Foreign Trade Policy 2023, Promoting Cross Border Trade in Digital Economy.

⁶ eCommerce platform is an electronic platform, including a web-portal, that enables the commercial process of buying and selling through the internet.

comparative advantage (RCA)⁷ which India enjoys in the telecommunication, computer and information export service group, second only to Ireland⁸ (Figure 2.2).

Figure 2.2: Telecommunication, Computer and Information Services Exports Revealed Comparative Advantage (RCA): Major Economies



Notes: G-7 includes USA, UK, Canada, Germany, Italy, France and Japan.

Sources: WTO and authors' calculations.

Though the digital/eCommerce trades are compiled and are part of BOP statistics, the distinct identification, and the measurement of cross-border eCommerce under various economic classes for the countries following international transaction reporting system (ITRS), have remained the challenges given the lack of granular information with the reporting banks, contrasted with enterprise reporting on the same through surveys, where direct information on ecommerce activity can be compiled.

BPM6 as early as 2010 has recognised an increased use of credit and debit cards and other similar payment means in settling international eCommerce transactions⁹. Such card-based eCommerce generally involves small-value B2C transactions, in contrast to large-size B2B transactions that may use electronic data interchange (EDI)/payment systems. In this context, several economies are looking at increases in card usage as one of the many approaches for measuring the rise in B2C eCommerce in their countries. Cross-country practices in the collection of cross-border eCommerce transactions are provided in the Annex. For instance, Portugal which follows ITRS for the BOP compilation, collects monthly card payment data at a gross level, and classifies all under travel. However, the approach adopted lacks differentiation in non-travel-related eCommerce sales/purchases of valuables, consumer durables, and non-tourist goods and services made by individuals in their home country (Miguel C.J. *et al.* (2011)).

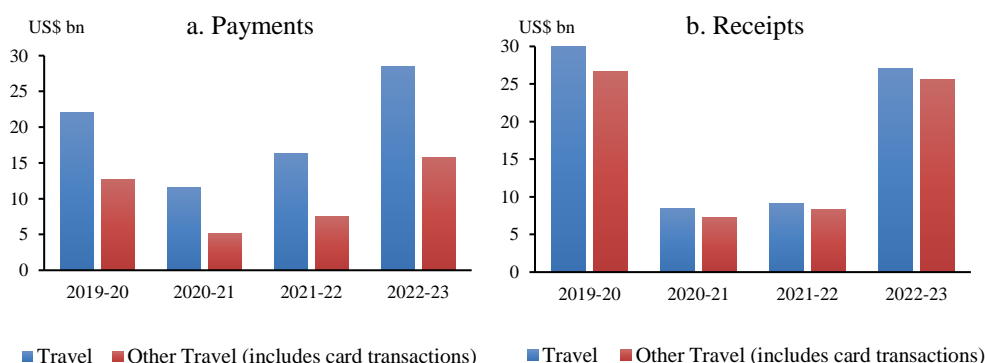
⁷ A country is said to have a revealed comparative advantage in a given service *i* when its ratio of exports of service *i* to its total service exports exceeds the same ratio for the world as a whole. In terms of comparative advantage ($RCA > 1$), a country is a competitive producer/exporter in comparison to a country producing/exporting goods at or below the world average.

⁸ Ireland has a presence of several large multinational firms in the ICT space, contributing significantly to its exports.

⁹ IMF, BPM6 compilation guide Chapter 12. Services; para 12.158, 2014.

Likewise, in the production of India's BOP statistics, all transactions other than card-based are being captured at the gross level in relevant economic categories correctly. Given the limited cross-border eCommerce activity that was in the nascent stage of growth and with the view that card spending is generally in-store (card present¹⁰) during foreign travels, the Working Group (WG) on India's BOP in 2010¹¹ also recommended card-based transactions to be classified in the travel group¹². As per the global guidelines, the travel purpose group covers the traveller's purchase of all goods and services abroad¹³ (provided that, there is no change in residence status of the traveller). It is a transactor-based category of BOP covering an assortment of goods and services. In India, the receipts, and the payments in this component of travel group have clearly risen post-covid, reflecting the notable use of cards for overseas payments (Figure 2.3).

Figure 2.3: Travel Payments and Receipts in India BOP



Notes: Travel includes business, education, health related and other travel.

Sources: RBI and authors' calculations.

With the associated strong growth in eCommerce business crossing borders, the proposition that card enabled cross-border transactions take place only while on travel appears restrictive. The significant and rapidly increasing gross credit/debit entries with card-not-present (CNP)¹⁴ status are found to be majorly related to non-travel economic activities, bunching them all under travel overstate the travel services and by contra, induces underestimation elsewhere. This requires re-categorisation of such non-travel eCommerce transactions even as the overall size of BOP remains unaltered.

¹⁰ The term "card present" refers to transactions that are made when the card is used in PoS or ATM.

¹¹ RBI, Report of the Working Group on India BOP para 4.21, 2010.

¹² Here, the other travel service category inter-alia captures transactions related to credit card, debit card and prepaid cards along with other tour operator related transactions.

¹³ According to IMF, BPM6, 2009, the travel purpose group includes transactions related to visiting another economy and incurring expenses related to that visit. For example, not only accommodation and site-seeing expenses are captured in travel, but goods or services acquired by persons undertaking study or medical care while outside their country of residence are also included.

¹⁴ The card-not-present refers to transactions that are made when the card is used through internet.

3. India's Stepwise Approach to Address the Challenge

The primary source of BOP compilation in India is the gross forex receipts and payment transactional settlement data reported by authorised dealer banks under FEMA to the Reserve Bank of India (RBI (2012)). These transactions are settled through Nostro/Vostro accounts of the reporting entities. However, for the card transactions, the reporting could be on a net basis as international card transactions are settled through a multilateral net settlement mechanism at end-of-the-day (EOD) that involve card payment networks such as Visa, Mastercard, Amex etc. These networks which have the long pipeline of transactional details at gross level for all card-based transactions undertaken by their member banks, play a significant and distinct role given their different settlement structures¹⁵. The related economic activity for all card-based transactions as mentioned under section 2 is recorded as 'travel'.

The multilateral net settlement recording in BOP results in an underestimation of the value of card transactions. Also, as multiple card transactions settle on an EOD basis at the bank level, the volume of such transactions also gets underestimated. Therefore, the first step is to ensure the uniform reporting of the value of card transactions at the gross level by the reporting banks. For this purpose, RBI as a regulator for foreign exchange transactions and payment systems, instructed card networks to provide proprietary gross-level international card settlement data to its respective member banks for them in turn, to report the same at gross level to RBI for BOP compilation. This was the first refinement of India's BOP in compliance with BPM6 gross reporting.

With the rising recognition of card usage for eCommerce activity, the approach needed to segregate online card transactions by the banks. It underscores the need for more details such as card-present/card-not-present concerning card transactions, which can be used to broadly identify the eCommerce trade, *vis-à-vis* in-store card-present purchases. Also, information on merchant category code (MCC) embedded in the card transaction data pipeline, can be used to identify the economic activity pertaining to the transaction.

However, the banks' gross reporting on cross-border card transactions under India's ITRS in the travel group of BOP does not include such details. This is because the transactor-based travel group for BOP reporting does not require information on the underlying goods and services and whether the purchase is with a card-present (in-store) or a card not present (eCommerce). In other words, the banks' reporting on card payments under travel fails to provide details for any further disaggregation. As such, the approach needed to find an alternative source for obtaining the relevant details on card transactions to supplement the gross settled aggregates reported by banks under BOP framework.

In India, card transactions are settled either by transaction issuing/acquiring banks or by designated banks of the card networks. These designated settlement

¹⁵ For instance, Mastercard transactions in India are settled directly with overseas banks by the AD banks, but majority of international Visa transactions are settled with overseas banks by a designated bank which holds current accounts of member banks in India. India also has its own Rupay network which has arrangements with foreign networks to facilitate the Rupay-based transactions abroad where it lacks presence.

banks which hold current accounts of member banks in India, collect net settled card amounts from resident banks and channel the same to overseas bank (and vice versa) and as such, have neither visibility of the economic nature of card transactions nor their card present status. In other words, the visibility on economic nature of card transactions through MCCs resides with either the card payment network or with the transaction issuing or acquiring bank.

In view of above, the detailed MCC-wise aggregates at gross card transaction data were collected from transaction issuing/acquiring banks. This formed the second source of information on card transactions data, which included the value and volume of transactions across both credit and debit cards. Alongside, the gaps in information from the first source, namely, data on card present (in-store payment (Point of Sale)/ATM withdrawal) and card not present (card not used over PoS or ATM/Online) status and MCC of a transaction are also collected.

The above satellite information on card payments is collected in a fixed format¹⁶ and at the aggregate so as to keep the reporting burden minimum. The fixed format ensured the comprehensibility, comparability and ease of reporting. The data on amounts and transaction currency are collected at MCC X country X currency X amount (payment/refund) X card present/not present status at credit and debit card levels to RBI. Since the information sought from the secondary source is not at transaction level, no beneficiary/remitter details are collected. Likewise, aggregates for UPI cross border transactions¹⁷ are collected on MCC X country X currency X Amount (Payment/refund) X QR scan status levels (RBI (2021)).

The next step in the approach involves the integration of the data compiled from two different sources in order to identify and filter out the non-travel eCommerce transactions from travel group. This could be challenging as integration may not be straightforward as the gross reporting on card transactions by the settlement banks (the first and the primary source) was found to be at variance with the gross reporting of the same by transaction issuing/acquiring banks (secondary source). As such, the identification of the sources of the difference and reconciliation thereafter of the data compiled from two sources became the next step in the approach before the integration.

The primary source of gross card payment data for BOP is Nostro/Vostro credits and debits of the settlement banks. The data revealed that the settled amount for a cross-border card transactions not only includes the price of the purchased merchandise/services (transaction amount), but also the various fees namely, interchange fee, member-to-member fee, service assessment fee, network fee etc. These fees are different kinds of financial service charges clubbed with the value of the product/service in settlement amount. The presence of such charges in the settled amounts, though relatively small in magnitude, made the reconciliation between the two sources providing information on card transactions very challenging. BPM6 recommends classifying the various kinds of services associated with the cost of a

¹⁶ RBI, A.P. (DIR Series) Circular No.13 dated March 25, 2021.

¹⁷ According to NPCI "Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood. It also caters to the "Peer to Peer" collect request which can be scheduled and paid as per requirement and convenience". Currently, P2M UPI payments are live in Singapore, UAE, Bhutan, Nepal, and Mauritius, Maldives.

particular goods/ services ordered through eCommerce as per their respective economic nature¹⁸. Moreover, financial charges are treated differently by the card networks which added another layer of difficulty in uniformly extracting and classifying them in financial services group under BOP.

For the purpose of reconciliation, card networks were instructed to provide details of various explicit financial service fee (such as member to member fee, network charges etc.) associated with the settlement amount on card transactions separately to their member banks to enable them in turn, to eliminate from gross settlement values and bundled these charges correctly under financial services for BOP reporting to RBI¹⁹. This was the second refinement.

To reconcile the data received from the two sources, AD banks were instructed to provide card network-wise break-up of the settlement amounts reported by them in the payments data (primary data). Alongside, designated settlement banks were instructed to provide bank-wise gross settlement amounts reported in payments data. Reconciliation table was prepared and cross-verified. The approach assumes the reconciliation complete if on the quarterly basis, the variation between the said data sources is below 5 per cent.

Post successful reconciliation between the two data sources, i.e., when the gross aggregates match, the details on card transactions compiled from the secondary source could safely be integrated in the BOP framework to identify and filter out the non-travel eCommerce card transactions reported and distribute them as per the economic activity the card is used in. As a next step, therefore, MCCs were mapped to the economic activity classification as per BPM6²⁰.

For the purpose, the card aggregates (at MCC X card-status) for card present status were mapped to travel, ignoring the economic activity reflected in MCC. On the other hand, MCC level card aggregates having the status 'card not present' were mapped in the respective BOP purpose category (including travel) based on mapped MCC, as these were linked to eCommerce.

This approach targets such international card transactions and correctly classifies them into relevant economic BOP activity. This is the third improvement that the approach brings to India's BOP estimates at component-level.

In short, the approach does not affect the overall BOP aggregates, but at disaggregate or compositional level, it redistributes the card-based overseas transactions over the relevant economic activities.

¹⁸ As per IMF, BPM6, 2009 "In general, charges for electronically delivered products are usually included in services, whereas products supplied across the border are usually classified as goods (see Table 10.4 for further details). Shipping charges associated with eCommerce are allocated in line with the FOB valuation principle. Financial services associated with eCommerce are included in financial services."

¹⁹ Other than these explicit financial charges which could be separately provided by networks, there was an implicit part that remained in the transaction amount. This inherent charge in card transaction data provided by the secondary source is imputed based on suitable proportions for each network and added to the implicit financial charges under financial services of BOP.

²⁰ In India, economic activity of forex transaction is captured through purpose codes as per the recommendation of Working group committee on BOP. MCCs captured through card transactions data are mapped with the existing purpose code list.

As a case study for India, the present paper analyses the detailed international card transactions during April 2022-September 2023 obtained from transaction issuing/ acquiring banks, that were reconciled with data reported by settlement banks under BOP framework. It then integrates the two data sources as per the adopted approach, to identify the eCommerce transactions with the underlying economic activity. In addition, the detailed card transaction data were broken down into various key goods/services groups based on only MCC, independent of BOP classification. Next section presents the findings.

4. Integration of Card-based eCommerce Transactions into BOP Framework

The internal pilot exercise on the integration of information compiled from the two sources on card payment data for the period April 2023 to September 2023 reveals more than half of total payments and receipt pertained to card-not-present transactions, volume-wise. Following the literature, this part of reporting in travel can be assumed to belong to eCommerce transactions which, as per the suggested approach outlined in the previous section, needed to be filtered out and reclassified away from transactor-based classification. The rest, where the card was presented for making cross-border payments will stay in travel component of BOP.

Within the segment identified as eCommerce, a small component as per the approach will pertain to eCommerce in travel, for instance for hotel booking, car rental etc. Remaining eCommerce transactions not pertaining to travel category would get appropriately distributed, for instance into transport, goods trade, personal, cultural and recreational services and other business services.

In other words, the approach does not expect any change in aggregate BOP outflow or inflow as no new transactions from a new source are added, but at disaggregate or compositional level, it refines the underlying economic activity-wise aggregates. In nutshell, the steps in the approach ensure the gross reporting of card transactions for BOP, segregate the eCommerce non-transactor-based transactions and lastly filter out and classify card-enabled eCommerce transactions into appropriate BPM6 based economic classes.

Additionally, card details captured separately under this approach, could also be used to analyse the behaviour of resident Indians and non-residents in India in terms of respective card usage. For this, merchant categories were clubbed for making classifications, differently from the classifications recommended by BPM6. This provided classification of card transactions into homogeneous types of goods and services based on MCC descriptions, enough to be made into groups. In other words, a meaningful grouping can be done to homogenise the activities strictly based on merchant categories. The groups so formed can provide interesting observations, for instance, the behavioural differences between Indian residents and non-residents in their comfort in using cash (using cards for withdrawing cash from ATMs and then paying cash for the activity) in contrast to, using cards to directly paying for the activities, sidestepping the cash withdrawal.

Large use of cards for cash withdrawal means the comfort in holding cash in their hand for spending in stores and making remittances abroad. Also, the additional data on cards can be used to analyse the differential behaviour between residents and foreigners travelling from different countries on their respective preference of merchandise/services that use card payments.

Such analytical insights are the potential inputs for the policy makers on international eCommerce in different economic activities that add to the importance of the additional data collected.

5. Conclusions

In view of the rapid rise in digital payments and associated increase in cross-border eCommerce transactions, their measurement is becoming increasingly more important with the rising demand for such statistics for policy making and monitoring. At the same time, compilers face the challenge of identifying and capturing details of such transactions, where data collection efforts have been on a more consolidated basis so far.

The paper discussed an approach for capturing details of cross-border eCommerce statistics, based on credit and debit card payments (mostly B2C), which can be extended to measure such transactions facilitated through other modes of payments. To address the challenges of multilateral net card settlement mechanism and multiple settlement structures, detailed approach is presented for ensuring uniform reporting on a gross basis, the processes adopted for capturing MCC for transactions, and the consequent refinement undertaken in compilation of BOP statistics.

At present elsewhere, card payment data are largely used to estimate travel debits or issuing transactions, and therefore, some information gap exists on the treatment of identified card-based eCommerce in the BOP network. The paper discusses the Indian effort to compile auxiliary information on international card transactions for identification of non-travel eCommerce card transactions, which presently remain small in size. Integration of MCC mapping with the BOP classification indicates sizeable redistribution of transactions into different BOP classifications, away from travel group at present, including into merchandise.

A study of the distinct behavioural aspects on card-usage for international trade across different goods and services and across countries, also provides important inputs towards policy making for measuring and promoting eCommerce, enhancing the value and usability of the data collected under the suggested approach.

6. Bibliography

1. Bledsoe J., "2024 eCommerce size & sales forecast", eCommerce solutions center, International Trade Administration, U.S. Department of Commerce. <https://www.trade.gov/e-commerce-sales-size-forecast>
2. Carboni A., Catalano C. and Doria C. (2023), "How can Big Data improve the quality of tourism statistics? The Bank of Italy's experience in compiling the "travel" item in the Balance of Payment", Bank of Italy, Occasional Papers.
3. Dubreuil M. (2017), "The Potential Use of Credit/Debit Card Data for Tourism Statistics", UNWTO/DG GROW Workshop Measuring the economic impact of tourism in Europe: The Tourism Satellite Account (TSA).
4. IMF (2009), "Balance of Payments and International Investment Position Manual, 6th ed. (BPM6)", Washington, D.C.
5. IMF, OECD, UNCTAD and WTO (2023), Handbook on Measuring Digital Trade, Second Edition, OECD Publishing, Paris/International Monetary Fund/UNCTAD, Geneva 10/WTO, Geneva. <https://doi.org/10.1787/ac99e6d3-en>.
6. Mandel, M. (2014), "Data, Trade and Growth" Progressive Policy Institute Policy Memo.
7. Miguel C.J., Ferreira, Inês C.F., João V. (2011), "The use of payment cards data for travel statistics", Banco de Portugal, Supplement 1/2011 to the Statistical Bulletin.
8. OECD (2011), "OECD Guide to Measuring the Information Society 2011", OECD Publishing, Paris. <https://doi.org/10.1787/9789264113541-en>.
9. RBI (2010), "Report of the Working Group on Balance of Payments Manual for India", Mumbai, India. <https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/IBPM221110R.pdf>
10. RBI (2021), "FETERS – Cards: Monthly Reporting", A.P. (DIR Series) Circular No.13, RBI/2020-21/113. <https://www.rbi.org.in/hindi1/Upload>Returns/PDFs/FETERSCARDSRETURN44C2889F0DDD4E3FBD5424845A502485.PDF>
11. RBI (2012), "Compilation of R>Returns: Reporting under FETERS", A.P. (DIR Series) Circular No. 84, RBI/2011-12/413. <https://rbi.org.in/Scripts/NotificationUser.aspx?Id=7026&Mode=0>
12. Ribarsky J. and Ahmad N. (2018), "Towards a Framework for Measuring the Digital Economy", 35th IARIW General Conference Copenhagen, Denmark.
13. United Nations Conference on Trade and Development (UNCTAD) (2023), "Measuring the value of eCommerce", UNCTAD/DTL/ECDE/2023/3, United Nations, Geneva.
14. United Nations Conference on Trade and Development (UNCTAD) (2016), "In Search of Cross-Border eCommerce Trade Data", UNCTAD Technical Notes on ICT for Development, No. 6, Geneva: UNCTAD.
15. United Nations Conference on Trade and Development (UNCTAD) (2021c), "Estimates of global eCommerce 2019 and preliminary assessment of covid-19

impact on online retail 2020”, UNCTAD Technical Notes on ICT for Development No. 18, Geneva: UNCTAD.

16. World Trade Organisation. (1998a), “Work programme on electronic commerce”, Adopted by the General Council on 25 September 1998.
17. Yezekyan L. (2018), “Compilation of eCommerce data for Balance of Payments”, IFC-CBA workshop on external sector statistics.

Annex: Cross-country Practices in Collection of Cross-border eCommerce Transactions

The growing digital economy is throwing up significant measurement challenges within existing national and international frameworks, including BOP statistics. Literature highlights various sources for capturing digital trade, majorly through business surveys, household surveys and surveys of government units or NPISHs. Countries such as the UK, Spain, Canada, Malaysia, France, and Poland publish business cross-border eCommerce sales, while some collect web sales data, excluding electronic data interchange (EDI) type sales (UNCTAD (2023)). Alternative approaches for aggregating tourism spending data include mobile data, big data analytics, artificial intelligence tools, payments, credit card records, and social media (Dubreuil M. (2017)). Ribarsky J. and Ahmad N. (2018) explore the creation of a macroeconomic satellite account for the digital economy, adhering to international accounting standards.

Specifically, Canada enterprise survey of digital technology and internet use²¹ measures international eCommerce sales by trading partner. It provides data on the proportion of overseas B2B and B2C internet sales of all Canadian enterprises, broken down by sales to the United States and to the rest of the world. UK digital economy survey²² collects trading partners involved, the sales channels used, including online marketplaces (DIPs), and the types of products sold and purchased for both international eCommerce sales (exports) and purchases (imports) by businesses. In Japan, the Ministry of Economy, Trade and Industry (METI) is the official source that collects data on the value of bilateral B2C trade for selected destinations²³. Malaysia Survey on Usage of ICT and eCommerce by Establishment²⁴ includes questions about Malaysia's eCommerce sales income, including an apportionment between domestic and international eCommerce sales.

Akin to India, Philippines under ITRS captures forex transactions, encompassing credit card settlements between banks and major credit card networks (VISA, Mastercard, American Express, etc.). Credit card details are sourced from the credit card business activity report (CCBAR), that offers insights into card-present and card-

²¹ Canada Survey of Digital Technology and Internet Use – 2021 questionnaire.

²² 2022 UK Digital Economy Survey questions.

²³ Results of FY2022 Japan eCommerce Market Survey Compiled.

²⁴ Borang-ICTEC-2020.pdf (dosm.gov.my).

not-present status, usage profiles, active cards, limits, billing, and fees²⁵. However, debit card details are not captured in the report.

In Portugal, which follows ITRS for the BOP compilation, card payments are used for the estimation of travel items of BOP. A monthly report is collected from the card processing companies detailing transaction volume and value from ATMs and POS, both domestically and abroad. This data also includes card characteristics and channels used. The approach adopted in Portugal lacks differentiation in non-travel-related eCommerce sales/purchases of valuables, consumer durables, and non-tourist goods and services made by individuals in their home country (Miguel C.J. *et al.* (2011)).

Armenia's BOP compilation relies on surveys conducted by its central bank, extensively explores B2C imports in goods and services and provide insights by country, POS terminal types, and transaction classification, with a focus on import transactions related to issuing rather than acquiring transactions. Utilising the Armenia card database (ArCA), the research filters online transactions based on the card-not-present status and categorises them using MCC. The study addresses travel debits transactions, leaving travel credit or the non-resident ecommerce transactions. Also, how the information captured as such is used into BOP framework is unclear (Yezekyan L. (2018)).

In Italy, where BOP compilation relies primarily on surveys, a significant technology advancement that involved integration of mobile phone data, Google trends data, and electronic payments data contributed to enhancement in collection of tourism statistics. Carboni A. *et al.* (2023) proposed a model that leveraged payment card data to enhance the timely estimation of travel-related items within the BOP framework. The study employs predictive modeling techniques such as ridge, lasso, and decision tree algorithms. However, despite the availability of payment databases at the MCC level, an information gap on travel whether business or personal limited the use of information into the BOP framework.

²⁵ Guidelines on the Electronic Submission of the Credit Card Business Activity Report.

Capturing eCommerce Transactions from the Travel Group of BPM6 - An Indian Experience

Arjya Misra, Savita Pareek and Seema Sagar



Reserve Bank of India

Feb 12-13, 2024

Second External Statistics Conference
organized by IFC, BIS jointly with ECB and Banco de España

The views expressed are those of the authors and do not represent the views of the Reserve Bank of India (RBI).

Objective

Capture and measure part of the cross-border eCommerce - that are enabled by credit and debit card payments (mostly B2C or retail online).

-With a special attention to their classification under travel/non-travel economic activities.

-With a purpose to improve India's BOP estimates.

Contents

The Concept and the Issue

The Challenges and the Approach

BOP Refinements

Conclusion

Growth in cross-border digital trade in India - Pull factors

A world-class digital public infrastructure (DPI) – served India well during the pandemic

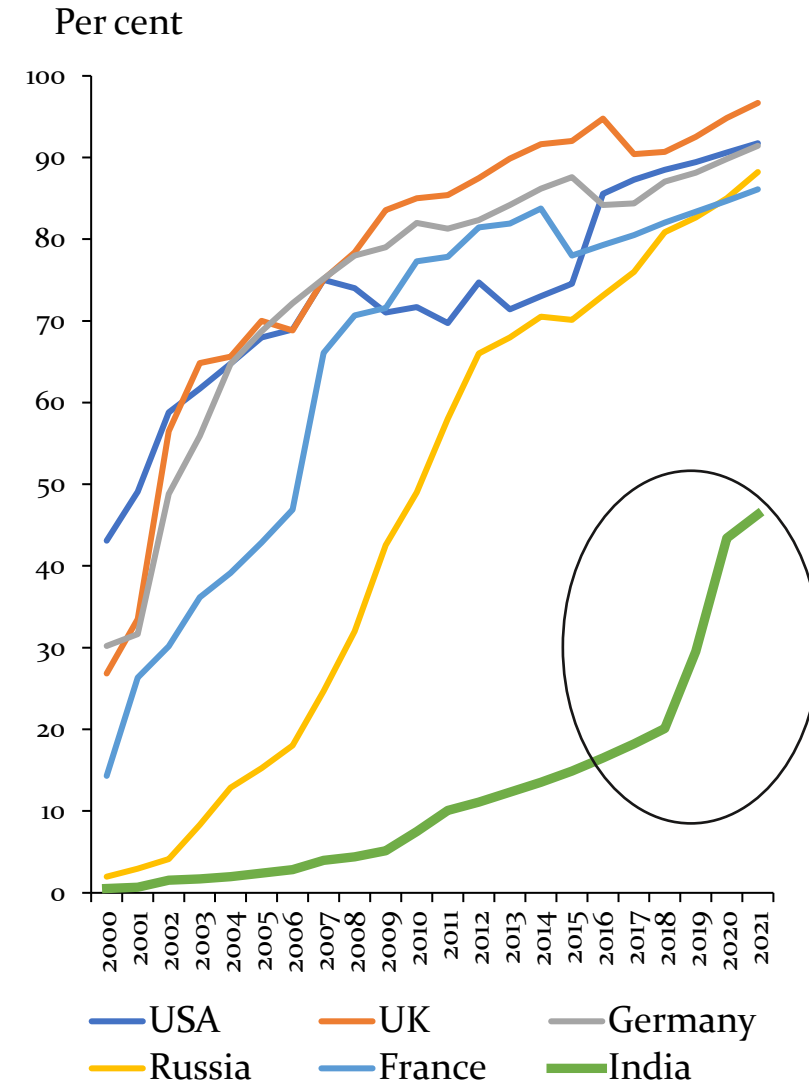
- Prominence of international transactions in services – majorly software and IT enabled services

(Revealed Comparative Advantage (RCA) in Exports = 2.36 in 2022)

- ‘Digital India’ programme - Internet & smartphone penetration.

- 100% FDI in B2B eCommerce and 100% FDI within the marketplace

Internet Penetration- Major Countries



eCommerce

The Definition

“the production, distribution, marketing, sale or delivery of goods and services by electronic means” (WTO, 1998a) -- *focuses on sale and delivery*

“the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders.....to be included are orders made over the web, extranet or electronic data interchange”(OECD, 2011) - -- *focuses on the mode of the order*

“where selling is through the internet on an eCommerce platform, the payment for which shall be done through international credit or debit cards, or other authorised electronic payment channels and as specified by the RBI from time to time” (India Foreign Trade Policy, 2023) -- *focuses on the mode of order and payment channel*

Measure and Economic Classification of Digital Trade in BOP –

IMF *et al.* (2023) *

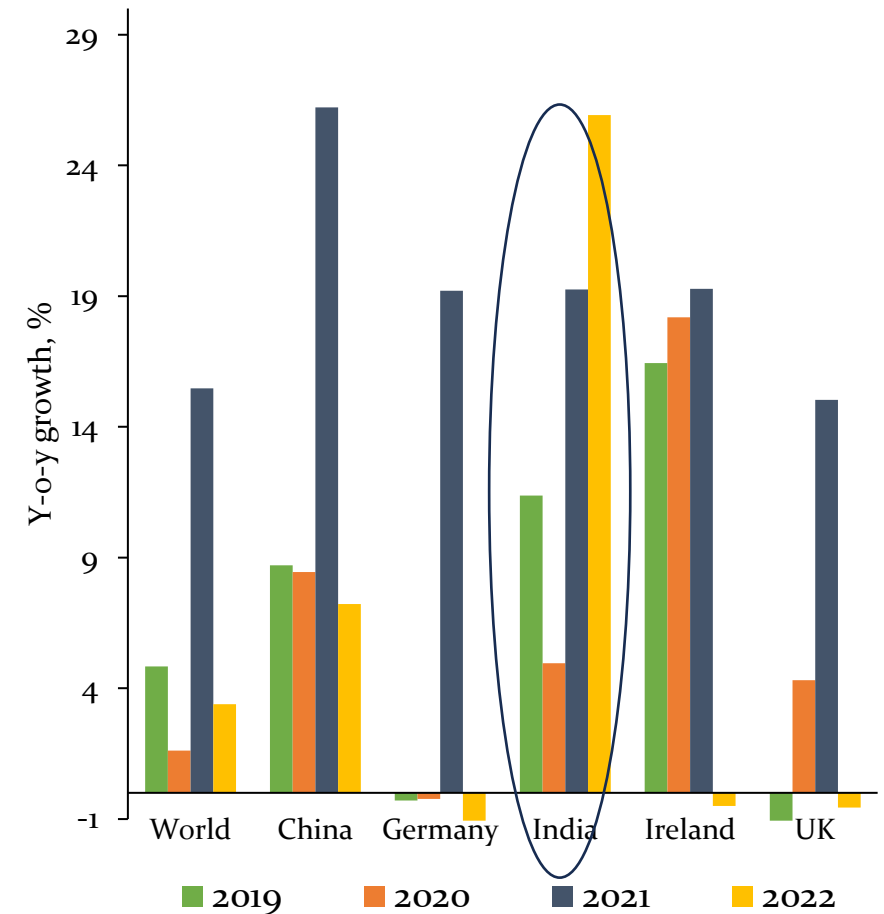
Digitally ordered/deliverable services

Generally, relates to the BPM6/EBOPS 2010 categories -

- (a) insurance and pension services,
- (b) financial services,
- (c) charges for the use of IP *n.i.e.*,
- (d) telecommunications, computer and information services,
- (e) audio-visual and related services
- (f) other business services

Global shares of digitally delivered (exports) services for UK, Ireland, Germany, India and China in 2022 are 9, 8, 6, 6 & 5 per cent, respectively.

Digitally Delivered (Exports) Services Growth



Data Source: WTO and authors' calculations.

*: IMF, OECD, UNCTAD and WTO (2023), Handbook on Measuring Digital Trade, Second edition.

Measure and Economic Classification of eCommerce in BOP

Under international transaction reporting system (ITRS) framework

– A Case of India

- Identification and estimate of digital trade is a challenge given the limited information with the reporting authorised dealers for BOP under ITRS.
- Each sale/purchase forex transaction at gross level is classified as per the purpose, including digital trade transactions.

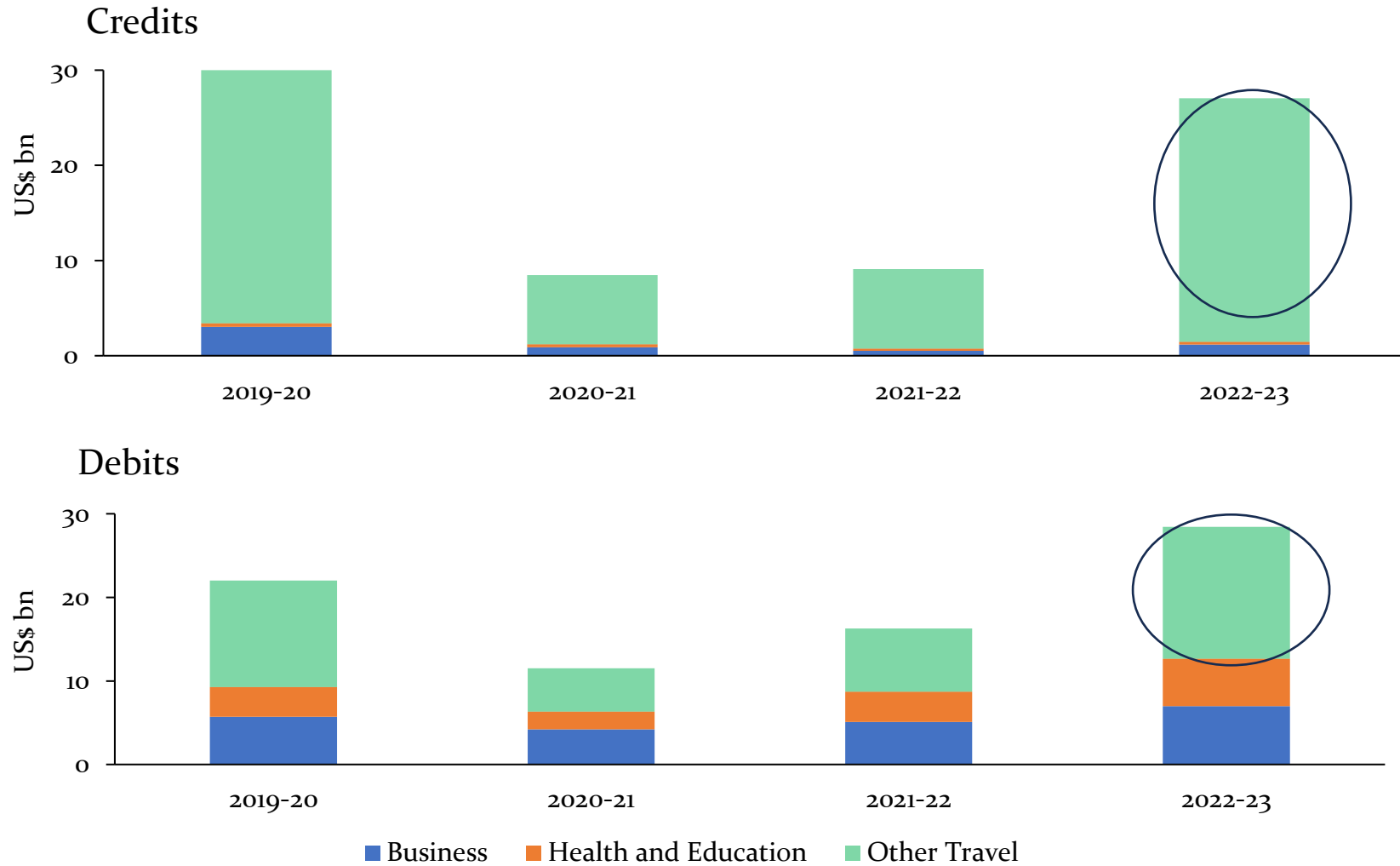
Except for card transactions, which generally get reported at a net multilateral flow (on end-of-day basis) under travel.

Measure and Economic Classification of Card-based eComm in BOP

Global BPM6 guidelines - travel purpose group covers traveller's purchase of all goods and services abroad (provided that, there is no change in residence status of the traveller). It is a transactor-based category of BOP covering an assortment of goods and services.

- Travel purpose group includes transactions related to visiting another economy and incurring expenses related to that visit (assortment of goods and services).
- For instance, accommodation, site-seeing expenses, goods and services acquired by persons undertaking study or medical care outside their country of residence etc. are all captured in travel group.
- Also with limited eComm activity, all cross-border card spending could safely be assumed to be card present purchase/cash withdrawal in store/ATM.
- Accordingly, the card transactions are classified in travel group, besides travel for medical, education, business etc.

Travel Service Debits and Credits: India



Note: Other travel *inter alia* includes payments for settling international cards transactions.

Data Source: RBI.

The Issue

The card transactions are classified under transactor-based travel group of BOP given,

(a) lack of purpose details with the reporting banks on card transactions

(b) limited international card-not-present transactions until till very recently

- Globally, rapid recent **growth of credit/debit with card-not-present (CNP) transactions.**
- The present classification may be **overstating the travel service and by contra, inducing underestimation elsewhere.**
- Need to segregate transactions with card-not-present (CNP) (eCommerce) related to non-travel economic activities from the travel group.
- This is the timely and appropriate refinement towards the development of India's BOP statistics at component level, even as the overall size of BOP remains unaltered.

Card-based Cross-border eCommerce - India's Stepwise Approach to capture and measure

Step 1

- Gross Reporting of Card-based International Transactions

Step 2

- Identifying the non-travel transactions

Step 3

- Allocating the non-travel transactions to relevant BPM6 purpose groups

Conceptual issues and compilation challenges

Identification of the new data elements and processes to report at a gross level.

Need for a secondary source

Reconciliation of gross amounts obtained from two sources to enable integration

Filtering out the financial service fees in card settlement amounts

Additional data required for reconciliation

Mapping for economic purpose across sources

Challenge 1:

Correcting for Net-Multilateral Reporting of Card-based International Transactions

Multilateral net settlement mechanism results in understated reporting of the value of card transactions.

Need to identify the new data elements and processes and advise banks accordingly to report at gross level.

Challenge 2:

Banks' reporting for BOP on card transactions -

Does not provide comprehensive data for purpose/ eCommerce identification

Banks reporting for BOP under ITRS in India do not report information on:

(i) card present(CP) to identify eCommerce activity

(ii) economic nature of the card transactions

(designated settlement bank does not have visibility on the issued /acquired card transactions by its member banks).

Need for a secondary source.

Challenge 3:

Need for Reconciliation of Primary and Secondary Data Sources

Primary Data Source : All card transactions (at gross without required details) are reported for BOP under the travel group

Secondary Data Source : All card transactions (at gross with details) were compiled in a fixed format.

Need reconciliation of gross amounts obtained from two sources to enable integration of information.

Challenge 4:

Different settlement structures of different networks and inclusion of financial services in settlement amount

Different card networks have different settlement structures and different financial service fee structures.

For instance, MasterCard international transactions are settled by domestic banks directly with overseas banks, but Visa transactions are generally settled through a designated bank that holds current accounts of member banks in India.

Financial service fees explicitly include member-to-member fee, network fee etc. Also include implicit fees like service assessment fee and interchange fees.

The presence of various kinds of financial charges in the settled amounts, *albeit* relatively small in magnitude, made the reconciliation between the two sources very challenging.

Need to filter out the financial service fees.

Challenge 5:

Data Sources Providing Data Differently

Reporting for card transactions under ITRS is either by an individual settlement bank OR designated bank for a specific network for its member banks

Compilation of detailed card transaction data are from respective issuing and acquiring banks, collectively under all networks.

Reconciliation needs additional data

Challenge 6:

Integration of Data from Two Sources

The gross data on card payment transactions (primary source)
reported under BOP

Disaggregated granular gross data on card transactions
(secondary source)

Needs mapping for economic purpose between two
sources

Challenge 7:

Allocating non-travel transactions to relevant BPM6 purpose groups

Redistribution of the cross-border card-enabled debits and credits over the relevant economic activities, resulting in component-level changes.

The shift may bring-in sudden large variations across BOP components over time

The Approach.....

Steps Taken to Address the Challenges

Challenge 1

1: Correcting for Gross vis-à-vis Net Multilateral Reporting



Multilateral net settlement of card transactions

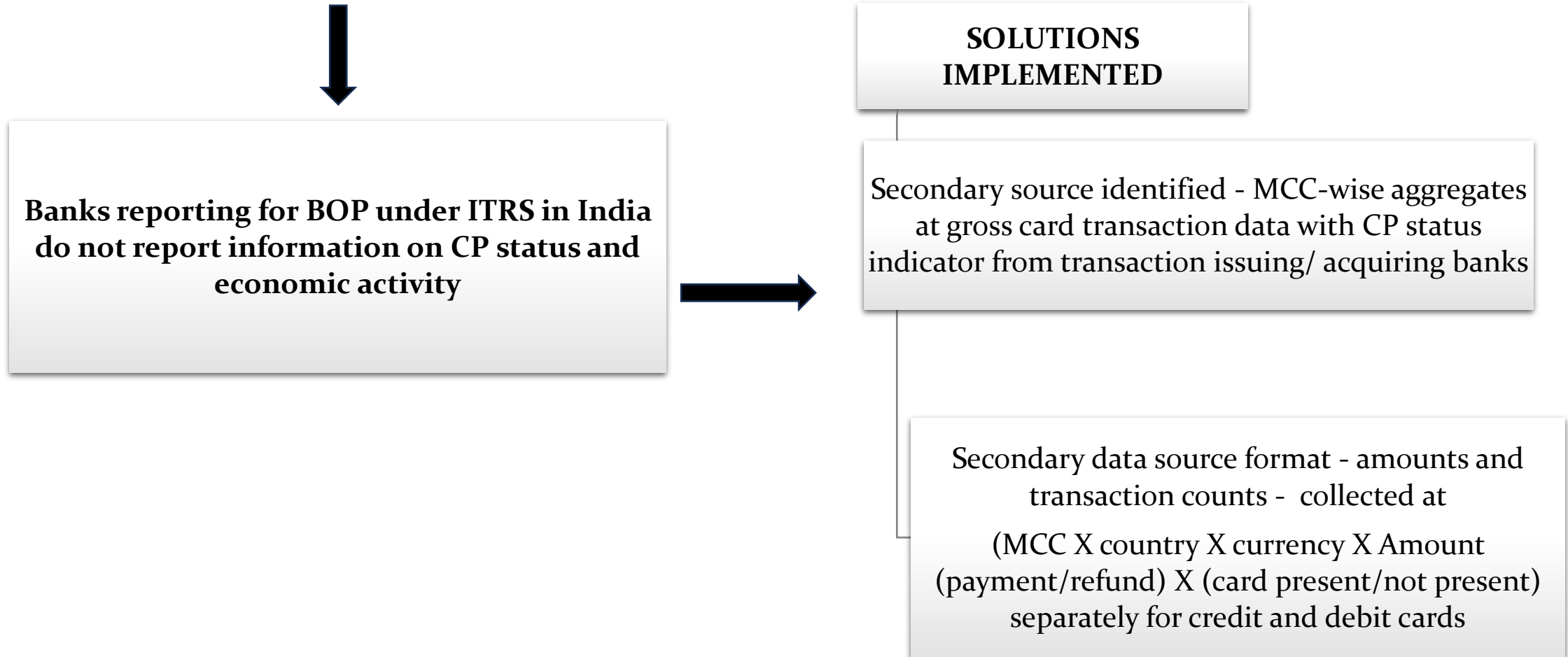


SOLUTIONS IMPLEMENTED

Card networks were instructed to provide proprietary gross-level international card settlement data to its respective member banks.

ADs (including the designated bank for member banks' transactions) in turn, reports the same at gross level to RBI for BOP compilation ([first refinement](#)).

2: Identifying the Non-travel Transactions



[Challenge 3](#)
[Challenge 4](#)

3 & 4: Reconciliation of data collected from primary and secondary sources

The settled amount includes the price of the purchased merchandise/services (transaction amount) along with service charges

Different card networks have different settlement structures in India

SOLUTIONS IMPLEMENTED

Instructed card networks to support the banks in extracting the explicit financial service fees associated with settlement amounts

Started classifying the financial charges on card payments in financial services group of BOP ([second refinement](#)).

Challenge 5

5: Reconciliation process of data collected from primary and secondary sources

Reporting banks (Primary source) instructed to provide card network-wise breakdown of settlement amounts in payment data.

Designated settlement banks directed to provide bank-wise gross settlement amounts.



Reconciliation table prepared based on network-wise breakdown.

Reconciliation is deemed complete if quarterly variations in the two sources stay below 5%.

Challenge 6

6: Integration of Secondary source data into BOP framework

After matching the gross aggregates from two sources, secondary source data is used to identify and filter out non-travel eCommerce card transactions. Therefore, MCCs were mapped to the economic activity classification as per BPM6.

Card aggregates (at MCC X card present) were mapped to travel, ignoring economic activity.

Card aggregates with the status 'card not present' were mapped to the respective BOP purpose category (including travel) based on mapped MCC.

Challenge 7

7: Allocating non-travel transactions to relevant BPM6 purpose groups

Data granularity allows redistribution of the cross-border card-enabled debits and credits over the relevant economic activities, resulting in component-level changes ([third refinement](#), though very small for India).

Card not present transactions

(a) are taken out from travel.

(b) mapped in the respective BOP purpose category, including travel.

The integration does not increase the size of overall BOP outflow or inflow.

The Refinements

The Impact

- BOP estimates at the component level could be refined.
- With the gross reporting, identification, reconciliation and redistribution of card-enabled cross-border eComm transactions, hitherto under a transactor-based Travel,
- The magnitude of card-based credit/debits has been small and therefore the refinements might not get visibility.

BUT the conceptual approach to deal correctly with such transactions is highlighted.

Conclusion

- The approach entails capturing details of card-based cross-border eCommerce statistics (mostly B2C).
- Does not affect the overall BOP aggregates, but at a disaggregate level, it redistributes the card-based overseas transactions based on economic activities, and hence refines India's component-level BOP.
- The proposed approach can be extended to measure such transactions facilitated through other modes of payments.
- Since the approach captures credits and debits both, card details captured could also be used to analyse the behavior of resident Indians and non-residents in India in terms of respective card usage.

Thank You!

Q & A

Cross- country Practices

- USA, UK, Canada, Malaysia, and Spain - Business surveys, household surveys, and surveys on government units of NPISHs are the major sources of capturing e-commerce, including card transactions
- In Portugal which follows ITRS for the BOP compilation, monthly card payment data are leveraged at a gross level and are classified under travel (Miguel C.J. et al. (2011)).
- Armenia's BOP compilation relies on surveys, explores B2C imports in goods and services, and provides insights by country, POS terminal types, and transaction classification (Yezeqyan L. (2018)).
- Italy - Carboni A. et al. (2023) proposed predictive modeling techniques that used payment card data at MCC level to enhance the timely estimation of travel-related items within the BOP framework.
- Philippines under ITRS captures forex transactions, encompassing aggregate level credit card settlements between banks and major credit card networks.