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Digital transactions through cards and digital means - who pays for such payment services?

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IMPS
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Digital transactions through cards and digital means - who pays for such payment services?*

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Executive Summary

To promote small ticket debit card transactions up to Rs 2000, the government during the calendar years 2018 and 2019 made merchant discount rate (MDR) zero for the merchants while providing monetary support to banks, @ 0.4%, towards MDR. At the current level of about Rs 80,000 crore worth of monthly debit card merchant transactions, effective January 2020, the government has done away with the zero MDR regime on about Rs 42,000 crore worth of monthly debit card transactions. This would mean that merchants would now be overburdened annually in the range of Rs 2000 crore and Rs 4500 crore depending upon the MDR ranging between 0.4% and 0.9% for mastercard/ VISA's sub Rs 2000 ticket transactions.

The government and RBI have implemented a net increase of debit card MDR expenses for the small and medium merchants. This eventually negates the government's spirit behind making MDR zero (effective January 2020) for all RuPay debit card transactions. In presence of the induced discrimination between RuPay and mastercard/ VISA, how would the debit-card based payment system work?

The reasonability of MDR, as a means to promote digital payments, has been a contentious issue for quite some time now. The MDR helps in fuelling the merchant payment acceptance system so that it runs steadily. MDR should neither be unreasonably high nor should it be so low that it raises viability concerns.

Given that small and medium merchants' overall cost of card acceptance would increase, a vital question remains on the efficacy of the zero MDR, on RuPay debit cards alone, as a means of encouragement to promote supply and demand of acceptance infrastructure. How should the government and RBI solve this

* The views expressed are those of the author and not necessarily of the institution to which he belongs.

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complex problem? As a corrective measures for the financials related to all debit cards, the law should be amended so as to allow reasonable MDR to be paid for. More specifically,

- For small and medium merchants, having annual turnover of at most Rs one crore, the MDR could be fixed with a ceiling of 0.3% and zero interchange.
- For large merchants, having annual turnover in excess of Rs one crore, MDR could be fixed with a ceiling of 0.6% and interchange of 0.3%.
- In absolute terms MDR should have a cap, say Rs 150.
- Any monthly/annual charges for the card acceptance infrastructure at the merchant location should be capped by RBI for small and medium merchants.
- Any fees related to card acceptance merchant services should be included in the list of RBI mandated items of schedule of service charges.
- To maintain parity, when we revise MDR caps, the extant mandates that currently promote excessive free cash withdrawals and cheque usage should be revised.

Focusing on other digital means, we look into three significant modes of retail digital payments, i.e., UPI, IMPS and NEFT. We highlight a policy disarray when it comes to whether customer or the bank should bear the cost of such transactions.

Finally, we revisit the prevailing policy on merchant payments, where extant rules debars cost of payment services offered to merchants being passed on to consumers either by merchants or the acquirer banks. Despite extant rules, regulations and laws, this is an area which RBI could not address till date due to lack of its capacity to supervise noncompliance.

Introduction

1. Debit cards are issued by banks for facilitating interoperable ATM cash withdrawal and carrying out merchant transactions by bank account holders. For merchant payments, such debit cards are issued under some card schemes, which are primarily *mastercard*, *VISA* and *RuPay*. Historically, card payments had a well-defined revenue generating structure, where the revenue came from Merchant Discount Rate[1] (MDR).

2. In order to set catalysts for the digital payment systems, Government of India on February 29, 2016 came out with cabinet approved guidelines for the 'Promotion of Payments through Cards and Digital means'. The Finance Ministry's office memorandum provides broad guidelines on the way forward for promotion of digital payments. Among several measures for wider adoption of card/ digital transactions, one specific measure therein was to take steps to "rationalize MDR on card transactions".

The history of MDR regulations

3. In September 2012, Reserve Bank of India (RBI) mandated to cap debit card MDR at 0.75% for transactions upto Rs 2000 and 1% for transactions above Rs 2000. This continued till November 8, 2016.

4. Immediately after the demonetization of the specified bank notes on November 8, 2016, the government instructed banks to temporarily waive MDR imposed on merchants.

5. As an interim measure, RBI effective January 1, 2017 rationalized the MDR on debit cards by capping it at (i) 0.25% for transactions valued up to Rs 1000, (ii) 0.5% for transactions valued in excess of Rs 1000 but not exceeding Rs 2000, and (iii) 1% for transactions valued in excess of Rs 2000. RBI's new caps on debit card MDR were a substantial reduction to the RBI's pre-demonetization cap of 0.75% for transactions valued up to Rs 2000.

6. Subsequently, effective January 1, 2018, RBI tweaked MDR rules claiming that that such tweaks would encourage some small businesses to accept debit card payments. For businesses with annual revenue below Rs 20 lakh, RBI capped the debit card MDR at 0.4% of transaction value or Rs 200, whichever is lower. For others, the debit card MDR was capped at 0.9% of the transaction value or Rs 1000, whichever is lower. For QR-code based debit card acceptance, the MDR caps were set 10 basis points lower than the physical POS and online debit card acceptance infrastructure.

[1] Merchant Discount Rate or Merchant Discount Fee is a service charge that banks take from merchants accepting card/ digital payments, which is usually a certain percentage of the transaction amount. The MDR paid by merchants is shared by acquirer banks, issuer banks and the card payment networks.

7. In parallel, effective 1 January 2018, the government decided to bear MDR for two years on all debit card transactions valued up to Rs 2000. However, the government fixed the MDR at 0.4% of the transaction value for debit card transactions up to Rs 2000. In effect, due to the government's intervention, RBI's decision to allow banks to charge up to 0.9% as MDR for businesses with annual revenue of Rs 20 lakh or more (even for transaction amounts less than Rs 2000), got overruled and the banks got only 0.4% as MDR for such transactions. Corresponding to this MDR of 0.4%, the interchange[2] fixed by card payment networks is 0.15%. Thus, RBI's MDR mandates could never get implemented since the government felt otherwise on small ticket sized transactions up to Rs 2000 and reduced the MDR to zero for all merchant categories and restricted the banks to receive no more than 0.4% as MDR.

The present *avatar* of MDR

8. Effective 1 January 2020, the government decided not to bear MDR any further on all debit card transactions valued up to Rs 2000.[3] In effect, due to this decision, RBI's mandate got re-invoked and banks got the leverage to charge MDR @ 0.9% or less from businesses with annual revenue of Rs 20 lakh or more for transactions of any value. Furthermore, for businesses with annual revenue of less than Rs 20 lakh, banks got the freedom to impose an MDR of 0.4% or less.

9. However, the government simultaneously brought in a law where RuPay debit card and *BHIM-UPI* have been identified, and banks could no longer charge any fee when such payment acceptance infrastructure is provided to the merchants. Consequently, any charge including the MDR shall not be applicable on payments made through RuPay debit card and/ or BHIM-UPI.

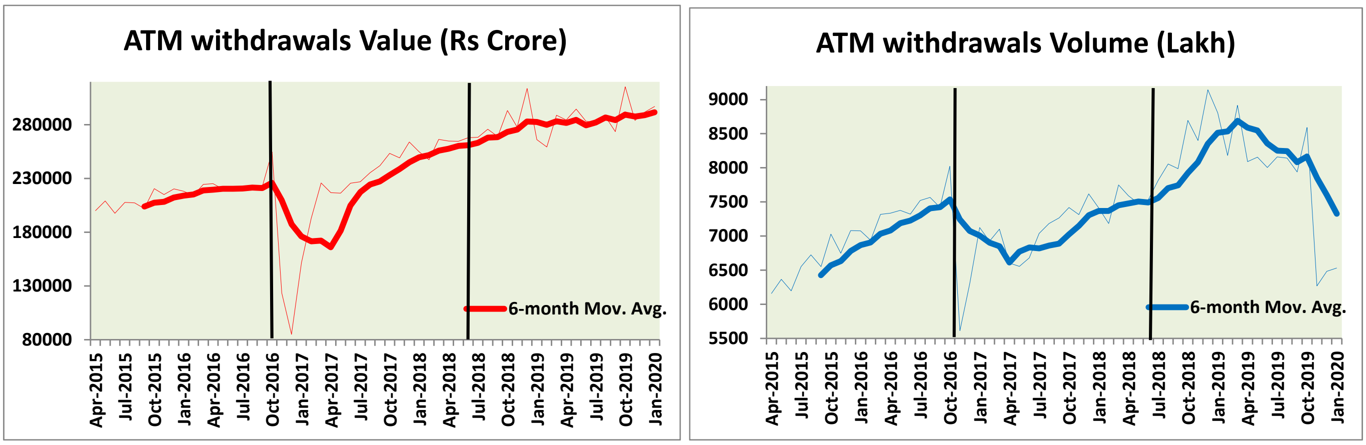
10. The rationale provided by the government is that among low-cost digital modes of payment, RuPay debit cards (and not mastercard/ VISA debit cards) and BHIM-UPI will promote less cash economy through their extensive use for P2M (person-to-merchant payments) transactions. The underlying philosophy is that neither merchants nor consumers should get any feel of extra cost while adopting such digital modes of payment. It is envisaged that RBI and banks will be able to absorb the associated costs from the savings that will accrue to them on account of handling less cash as people move to these digital modes of payment.

Migration of cost from cash handling to merchant handling

[2] Interchange or issuer interchange is the share of the MDR that the issuer bank keeps as their commission. Thus, MDR comprises of the interchange and the acquirer's commission.

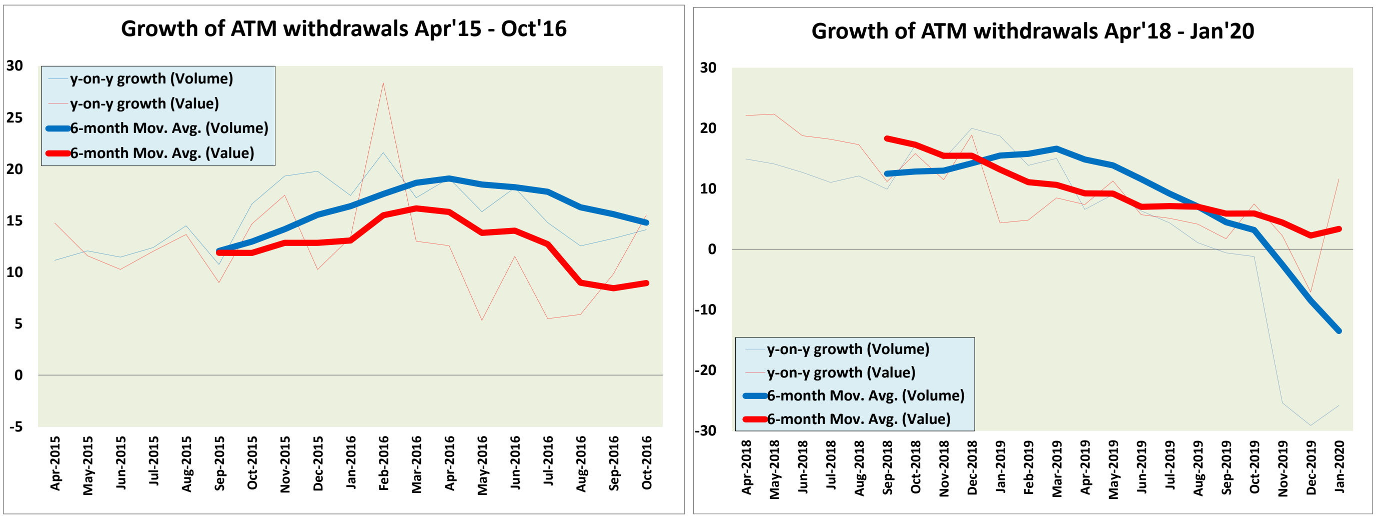
[3] Earlier banks were getting reimbursement of 0.4% MDR for transactions upto Rs 2000 from MeitY.

11. Currently RBI and banks are absorbing significant cost while they provide cash as a prominent mode of payment. Cash is predominantly promoted in India with 8 to 10 free ATM withdrawals. This potentially amounts to disbursement of nearly Rs one lakh of free cash per month to an individual holding a bank account. While keeping 17 months of wash-out period in between the pre- and post-demonetisation periods, Figures 1 and 2 show how the ATM cash withdrawal behaved during the pre-demonetisation periods April’2015 – October’2016 and the post-demonetisation periods April’2018 – January’2020. The figures indicate that though in absolute terms there has not been any significant respite from predominant ATM cash withdrawals in the country, there are some signs of reduced y-on-y growth in recent years.



Source: RBI data

Figure 1: ATM withdrawals during the pre- and post-demonetisation (after wash-out period)



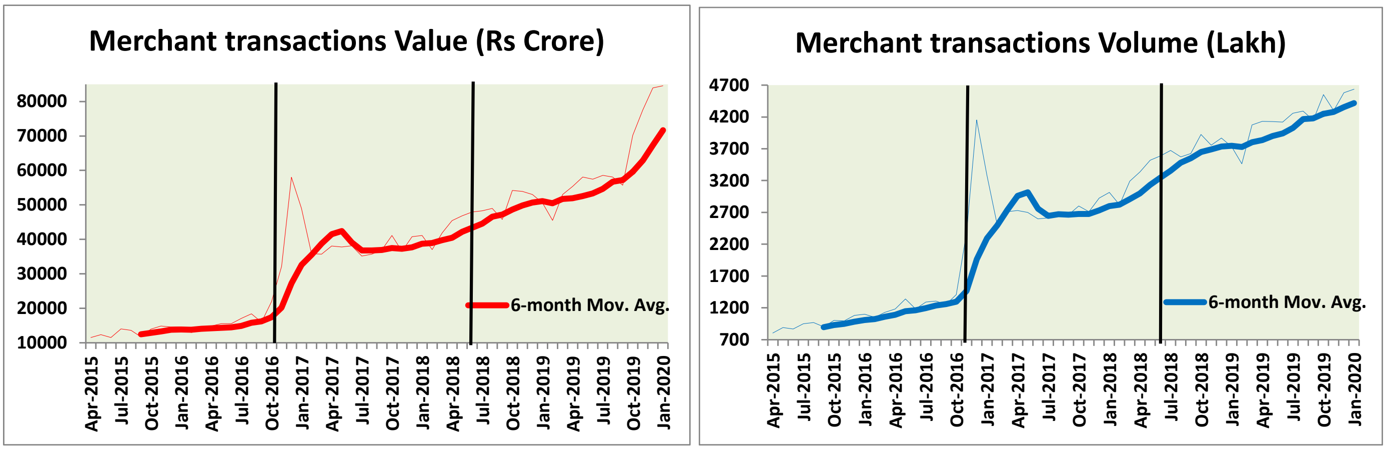
Source: RBI data and author’s computation

Figure 2: ATM cash withdrawal growth during the pre- and post-demonetisation (after wash-out period)

12. Since RBI’s mandate makes cash withdrawal practically free for most bank customers, therefore technically speaking, providing cash is still an expense for banks. There is nothing which strongly prompts a desired reduction of cash withdrawals.

13. However, historically speaking, cash had never been unlimited free. Even when digital transactions were at its nascent stage, ATM cash withdrawal was made free for a reasonable number of withdrawals per month. At that time the banking industry could see a trade-off in terms of capacity utilisation and cost savings at tellers. However, the current rationale of unlimited debit card merchant transactions for free needs some convergence.

14. Figure 3 shows the growth for debit card merchant payments during the period April'2015 – January'2020 where we have indicated a wash-out period of 17 months to account for the disturbances due to impact of demonetisation. Clearly, under a controlled MDR-revenue model, debit card usage and acceptance for merchant payments has shown a consistent growth for some time now. This has an associated cost for which revenue is collected either directly or indirectly from the users of the banking system.

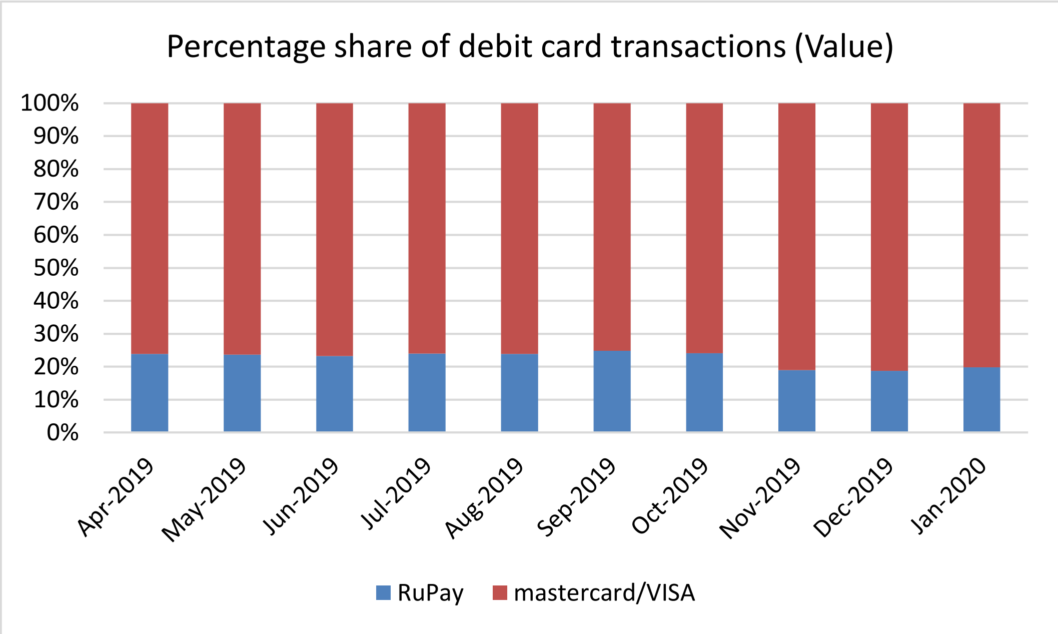


Source: RBI data

Figure 3: Debit card merchant transactions during the pre- and post-demonetisation (after wash-out period)

The increased MDR burden for *small and medium* merchants

15. Figure 4 shows the percentage share of debit card transactions for RuPay and mastercard/ VISA. During April'19 – January'20, in value terms, RuPay had an average share of only 22% whereas mastercard/ VISA had 78%. However, during November'19 – January'20, in value terms, RuPay had an average share of only 19% whereas mastercard/ VISA had 81%.



Source: RBI and NPCI data

Figure 4: Percentage share of RuPay and mastercard/VISA

16. A question: Given that there is zero MDR on RuPay, would there be an increase in the card acceptance desire at merchant locations? If 'cost to the merchant' is an important attribute for merchant's choice for card acceptance how would it impact continuation of the card acceptance trend?

17. The Watal Report[4] highlights the breakup of debit card transactions of less than Rs 2000 and more than Rs 2000 in value terms (see Table 1). Nearly 65% of the total values of debit card transactions fall under sub Rs 2000 tickets, and all these transactions would now attract MDR within the RBI set cap of 0.9% for about 80% of debit card swipe amounts (i.e., for mastercard/ VISA but not RuPay).

18. What we have in front of us is a strong potential for increased MDR when merchants accept cards – contributed by 80% of the debit card and 100% of credit card swipes. The banks' re-imposition of debit card MDR @ 0.4-0.9% will affect the *small and medium* merchants significantly for their debit card accepted transactions. There is a strong potential of the zero MDR that is applied to RuPay debit cards (constituting only 20% of the total values of debit card transactions) getting marginalized in due course. If there is a revenue differential for banks between RuPay and mastercard/ VISA, banks would always, in their commercial interest, tend to promote that card scheme which generates more revenue for them.

Table 1: Debit card transactions of less than and more than Rs 2000 in value terms

[4] Report of the Committee on Digital Payments headed by Shri. Ratan P Watal, December 2016. Ministry of Finance, Government of India.

Table 6.10.: *Breakup of acquirer gross margins**

Type of transaction	% of transactions value by value	MDR charged to merchants	Issuer interchange fees	Scheme fees	Acquirer gross margin
Debit Regular $\lesssim$ INR 2,000	20%	0.75%	0.50%	0.07%	01.8%
Debit Premium $\lesssim$ INR 2,000	15%	0.75%	0.65%	0.07%	0.03%
Debit Regular $>$ INR 2,000	10%	1.00%	0.75%	0.07%	0.18%
Debit Premium $>$ INR 2,000	10%	1.00%	0.90%	0.07%	0.03%
Prepaid	5%	1.00%	1.85%	0.07%	0.92%
Credit Regular	10%	1.30%	1.10%	0.07%	0.13%
Credit Premium	25%	1.90%	1.80%	0.70%	0.03%
Credit Corporate	5%	1.90%	2.00%	0.07%	0.17%

*Source: See, submission dated 28-10-2016 by Payment Council of India

Source: Shri Ratan P. Watal Report "Committee on Digital Payments – Medium Term Recommendations to Strengthen Digital Payments Ecosystem"

19. Now, since 80% of the 65 (out of 100) debit card transactions (in value terms) falling under sub Rs 2000 tickets is 52, it would mean that 52% of the total values of debit card based merchant transactions would be subjected to an increased MDR at the RBI prescribed cap of 0.9%.[5]

20. During the three-month period November 2019 through January 2020, the average monthly total value of debit card merchant transactions had been about Rs 80,000 crore. This would mean that at this level of debit card transactions, merchants would now be overburdened annually in the range of Rs 2000 crore and Rs 4500 crore depending upon the MDR ranging between 0.4% and 0.9% for mastercard/ VISA's sub Rs 2000 ticket transactions.[6] In short, overall the government and RBI have implemented a net increase of MDR expenses for the small and medium merchants. This eventually negates the government's spirit behind the new law on MDR and instead builds negative sentiments among small and medium merchants, towards card acceptance.

21. Even if we keep aside the issue of MDR, Section 10A of the Payment and Settlement Systems Act 2007 emphasises that no bank or system provider shall impose any charge upon anyone, **either directly or indirectly**, for using RuPay debit cards. If

[5] The average ticket size on RuPay debit card transactions being less than Rs 1200, the benefit of zero MDR on RuPay debit cards on ticket sizes more than Rs 2000 is minimal.

[6] @ 0.4% MDR, increased burden = 80000*12*0.52*0.004 = Rs 1997 crore, and @ 0.9% MDR, increased burden = 80000*12*0.52*0.009 = Rs 4493 crore.

we can have a bundled pricing for RuPay card acceptance, the monthly/ yearly rentals for POS terminals and PGs would increase with rentals being attributed to mastercard/ VISA (and not RuPay) debit cards. This would actually lead to an indirect charge being imposed on RuPay debit cards.

22. An important question remains as to whether zero MDR for RuPay debit cards would serve the purpose of promoting card payments in the presence of merchants being still overburdened on the fee for accepting other cards (cards other than RuPay debit cards). Could the answer lie in allowing merchants, at their discretion, not to accept cards other than RuPay debit cards?

The IBA's move

23. Early January 2020, the Indian Banks' Association (IBA) made a move when 15 major banks came together to decide what should be the MDR for mastercard/ VISA debit cards. Considering the government's agenda of promoting digital transactions and encouragement to merchants for promoting low value transactions, the IBA indicate that the banks reached a consensus that for transactions upto Rs 2000, the applicable MDR should be 0.4% irrespective of the merchant category.

24. The norms recommended by the banks are:

a) MDR cap should be 0.4% for businesses with annual revenue of less than Rs 20 lakh.
b) For businesses with annual revenue of Rs 20 lakh or more,
   i. MDR to be capped @ 0.4% for transactions upto Rs 2000.
   ii. MDR to be capped @ 0.9% for transactions above Rs 2000.

25. The new norm appears not quite in sync with RBI's attempt in January 2018 to eliminate the concept of MDR based on ticket size (which had been in place since 2012 for transactions upto Rs 2000). However, had RBI's merchant categorisation been more rationale, we would not have seen revenue losses from large merchants like Amazon, Big Bazaar, IRCTC and the like at the cost of relatively smaller merchants, where both have now been kept at par by the banks with respect to transactions upto Rs 2000. It does not make sense to see RuPay debit cards offering zero MDR to small and medium merchants while mastercard/ VISA debit cards imposing MDR @ 0.4% for transactions upto Rs 2000. Banks could have instead considered the RBI set MDR cap of 0.9% for large merchants, whatever be the ticket size. A more reasonable MDR cap for large merchants could be something like 0.6%.[7] Large merchants should be reasonably defined.

[7] The MDR pricing structure that National Payments Corporation of India (NPCI) had arrived at, effective October 2019, for RuPay debit card is 0.4% (0.3% when the transaction is QR-code based) for transactions upto Rs 2000 and 0.6% (0.5% when the transaction is QR-code based) for transactions exceeding Rs 2000, with a ceiling on MDR of Rs 150 for any transaction.

The way forward for debit cards

26. Digital payments need support till volumes pickup. Though it is acknowledged that digital payments do come at a cost, the transaction costs would reduce only if volumes pickup. The country has to invest through its banking system to build volumes. Volumes being still low cannot be the ground to charge more from small and medium merchants – that would be a retrograde step. As a way out, following the principle of cross-subsidisation, we have to obtain a well calibrated balance such that large merchants can be used in the MDR play to reasonably cross-subsidise the MDR of small and medium merchants. Thus, the definition of large merchants attaches much significance and for whom a reasonable MDR should be put in place.

27. The government has identified small and medium unorganised businesses comprising merchants whose annual turnover is not exceeding Rs 2 crore. In fact, linking their business in terms of the digital means of payment, the government under The Finance Act 2017 has put in place the following:

> *The tax liability under the scheme of presumptive income tax for small and medium tax payers whose annual turnover is upto Rs 2 crores, only 6% (rather than 8%) of their annual turnover is counted as presumptive income in respect of turnover which is received by non-cash means.*

28. Accordingly, at some point of time in the near future, **the law under Section 10A of the Payment and Settlement Systems Act, 2007 should be amended so as to allow reasonable MDR to be charged to large merchants.**

29. The country's payment system should make cost of cash explicit. Banks have to target to break even few years down the line by balancing the costs associating with providing the cash payment system and the digital payment system. Banks have to devise means to show the users of the payment system that after a certain minimum threshold, cash is more expensive to use than digital payments. This threshold could be, say Rs 20,000 of free cash withdrawal per month beyond which banks could be given the freedom to charge a fee. **RBI needs to correct its stance on its current mandate promoting excessive free cash disbursals by banks.**

30. While converging to prudent regulations incorporating all good features in a simplistic manner, the only way forward is that the digital payment space enshrines parity in transaction cost vis-à-vis cash handling costs. In order **to maintain parity, RBI on one hand would need to set a revised cap on debit card MDR, on lines set by NPCI for RuPay debit card, and on the other hand revise its mandate on excessive free cash withdrawals.**

31. To summarise, as a corrective measures for the financials related to all debit cards, the law should be amended so as to allow reasonable MDR to be paid for. More specifically,

- For small and medium merchants, having annual turnover of at most Rs one crore, the MDR could be fixed with a ceiling of 0.3% and zero interchange.
- For large merchants, having annual turnover in excess of Rs one crore, MDR could be fixed with a ceiling of 0.6% and interchange of 0.3%.
- In absolute terms MDR should have a cap, say Rs 150.
- Any monthly/annual charges for the card acceptance infrastructure at the merchant location should be capped by RBI for small and medium merchants.
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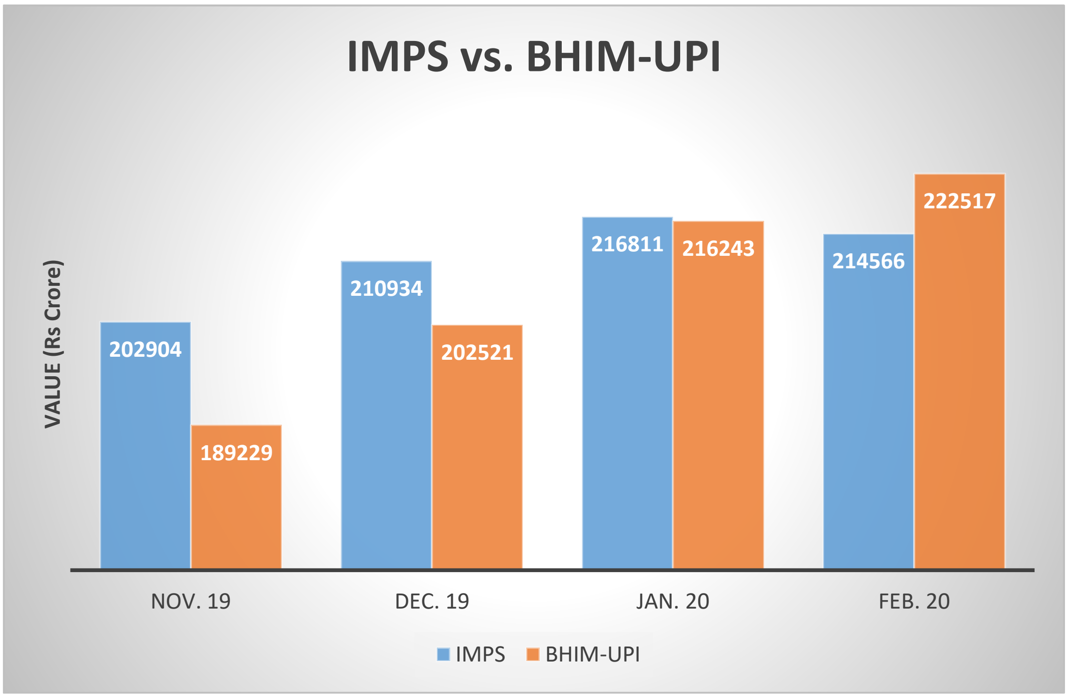
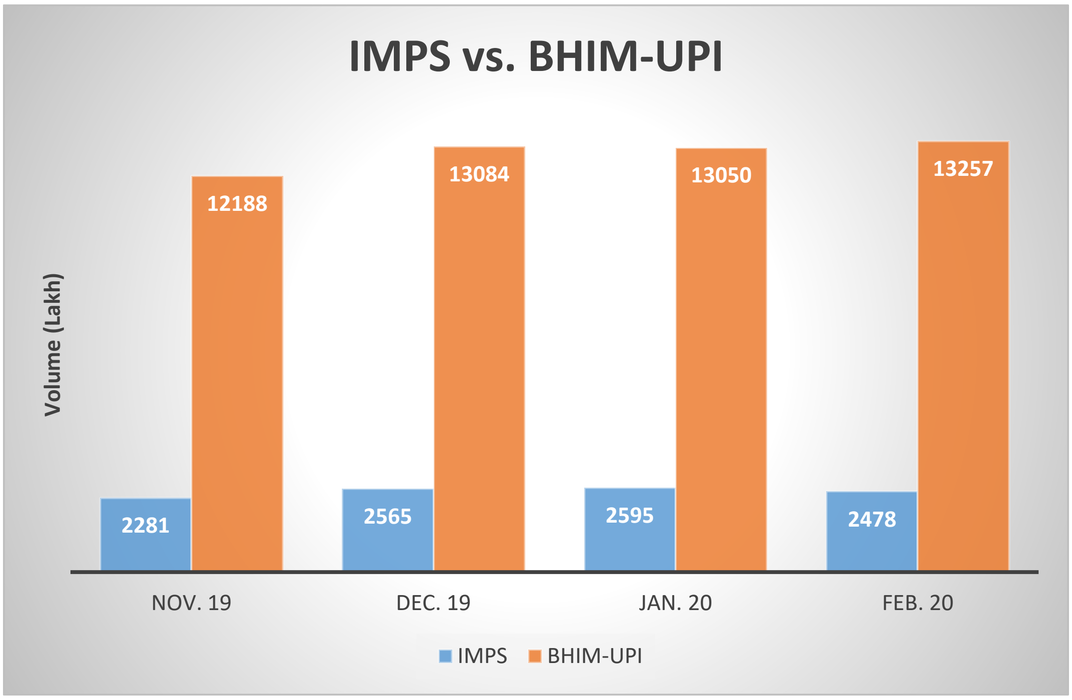


Source: RBI and NPCI

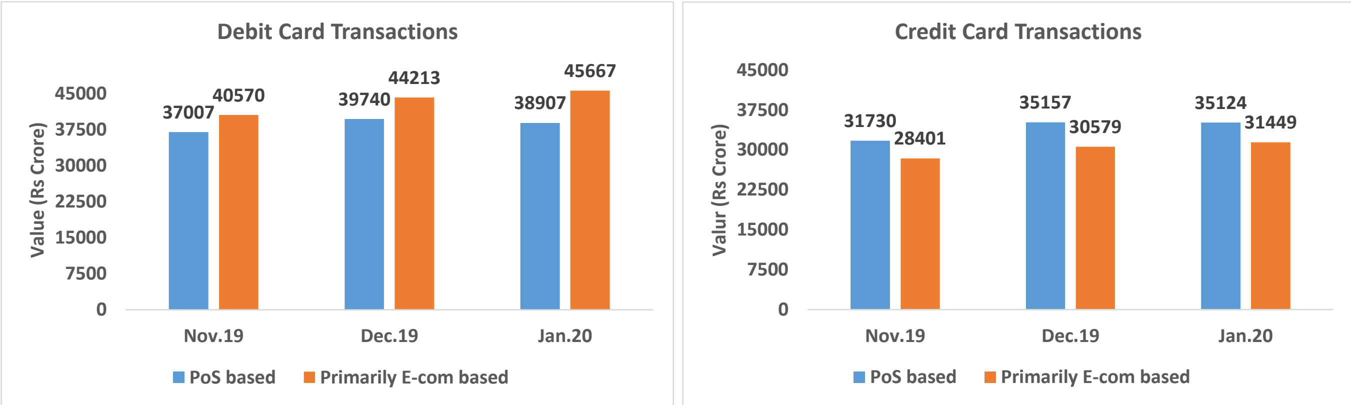
Figure 5: IMPS and BHIM-UPI (Value)



Source: RBI and NPCI

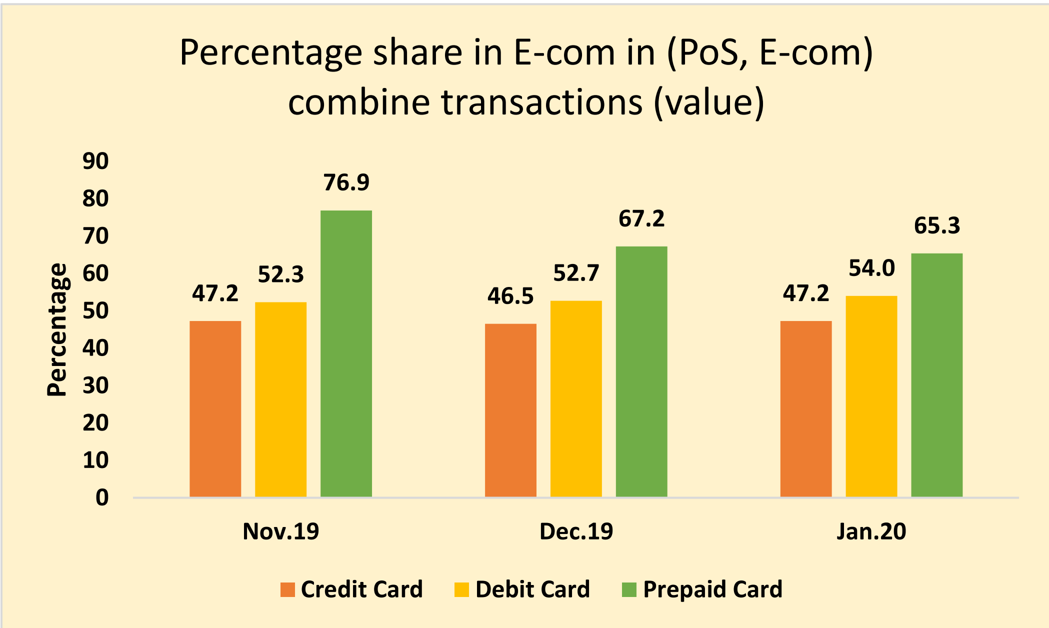
Figure 6: IMPS and BHIM-UPI (Volume)

Primarily E-com constitute data on e-commerce transactions and digital bill payments through ATMs, etc. for credit/debit cards, while for debit cards it additionally includes card to card transfers. For prepaid cards, it includes usage of PPI Cards for online and other transactions.



Source: RBI

Figure 7: Share of PoS and E-com merchant transactions via cards



Source: RBI

Figure 8: Percentage share of E-com transactions (value) over PoS and E-com combine

References *(Chronological from oldest)*

[1] Das, Ashish and Agarwal, Rakhi (2010). Cashless Payment System in India - A Roadmap. IIT Bombay Technical Report. May 31, 2010. http://dspace.library.iitb.ac.in/jspui/handle/10054/1732

[2] Das, Ashish (2016a). Incentivising ATM-cash and cheques over electronic transactions - A policy gap. IIT Bombay Technical Report. January 26, 2016.
http://dspace.library.iitb.ac.in/jspui/handle/100/18425

[3] Promotion of Payments through Cards and Digital means. Government of India (Ministry of Finance), February 29, 2016.
http://finmin.nic.in/the_ministry/dept_eco_affairs/currency_coinage/Promo_PaymentsMeans_Card_Digital.pdf

[4] Concept Paper on Card Acceptance Infrastructure. RBI, March 8, 2016.
https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=840

[5] Das, Ashish (2016b). Promotion of payments through cards and digital means. IIT Bombay Technical Report. April 24, 2016.
http://dspace.library.iitb.ac.in/jspui/handle/100/18428

[6] Das, Ashish and Das, Praggya (2016). Sanitising Distortions in Digital Payments. IIT Bombay Technical Report. November 28, 2016.
http://dspace.library.iitb.ac.in/jspui/handle/100/18430

[7] Das, Ashish (2017). Discovering the right MDR for India. IIT Bombay Technical Report. February 28, 2017.
http://dspace.library.iitb.ac.in/jspui/handle/100/18431

[8] Das, Ashish (2019). To surcharge or not to surcharge! The plight of small and medium merchants. IIT Bombay Technical Report. March 3, 2019.
http://dspace.library.iitb.ac.in/jspui/handle/100/25212

[9] Das, Ashish (2020). Discriminatory approach for RuPay debit cards: Some suggestions for corrective measures. IIT Bombay Technical Report. January 7, 2020.
http://dspace.library.iitb.ac.in/jspui/handle/100/25214