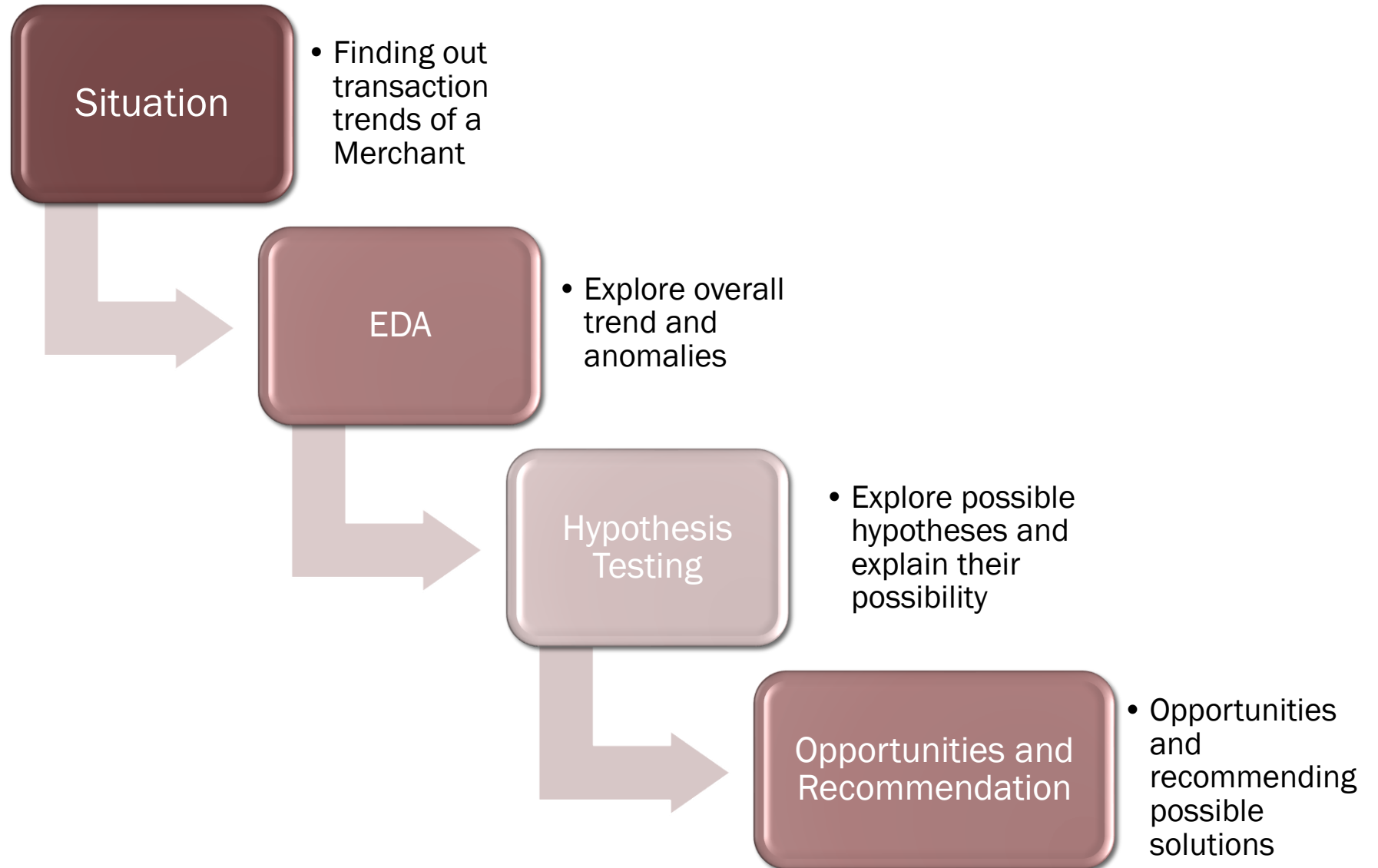


Merchant Transaction Case study

ANKITA GHOSH

Logical Flow



USA is leading with highest Approval rate

Summary

- The Merchant has functions across 4 regions with USA leading in payment attempts(42%), Approved attempts(48%) and emerging with the highest approval rate(**94.7%**) across the board
 - India has second highest #attempts but has the least Approval rate
 - Every Country has higher than avg. Approval rate(83.6%) other than India(**53.8%**)

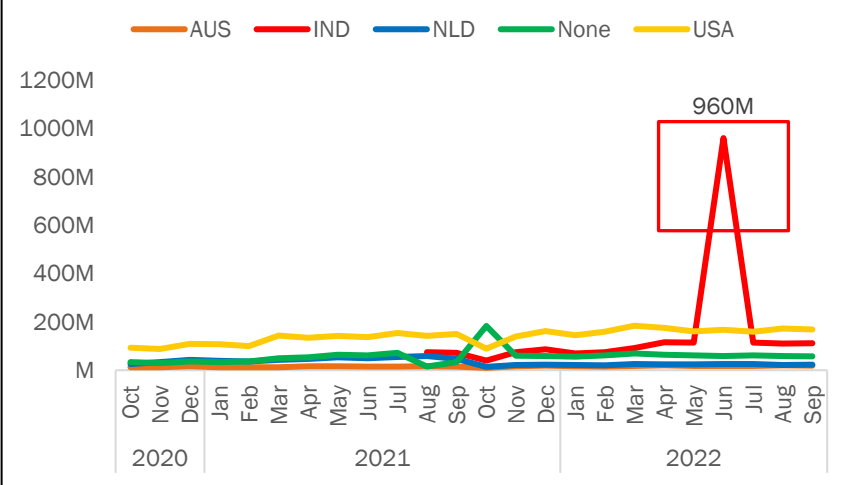
Opportunity: Improve India's approval rate

Merchant Countries	Attempts	Attempts % Contribution	Approved Attempts	Approved Attempts % Contribution	Approval rate
USA	3.4B	42%	3.2B	48%	94.7%
IND	2.1B	26%	1.1B	17%	53.8%
None	1.4B	17%	1.3B	19%	93.8%
NLD	799.2M	10%	742.4M	11%	92.9%
AUS	377.2M	5%	355.2M	5%	94.2%
Total	8 B	100%	6.7B	100%	83.6%

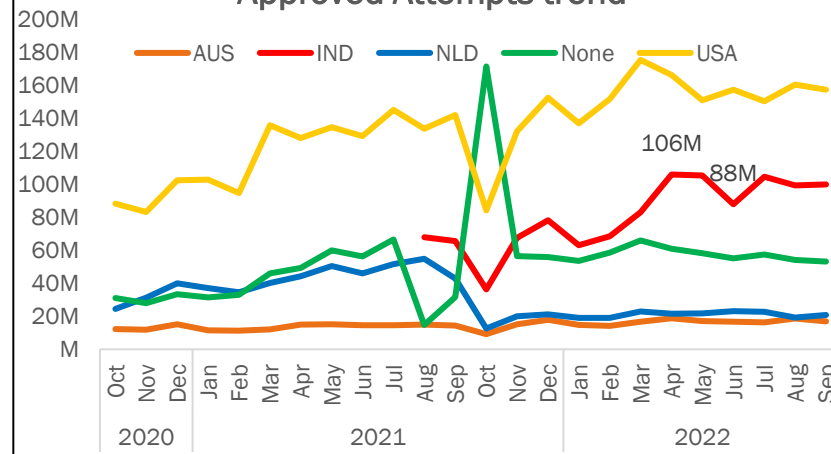


India saw a **736%** jump in transactions MoM in June 2022

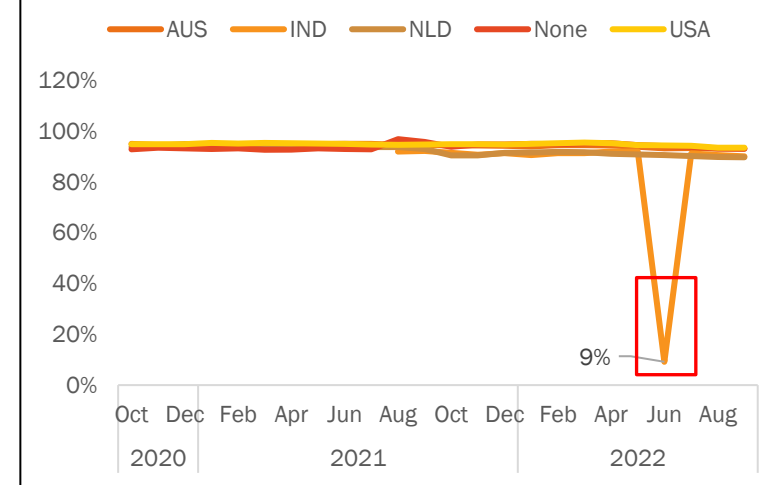
Transaction Attempts



Approved Attempts trend



Approval rate



Summary

- The Jump in transaction is not supported in Approved attempts as abs Approved attempts dropped in June making India's approval rate drop to **9%** from an YTD monthly average of **91%**, majority attempts from Indian Cards
- MoM Credit card attempts alone increased by **7x** while Approved attempts decreased by **17%** bringing Approval rate down

Conclusion

- This Increase in attempts not resulting into Approve attempts, suggest a possible BOT generated transactions in India
- *Exclude* these Data points from Exploration to avoid further dilution
- *Exclude* only the hour of the day when the transactions were fraudulent

Revised data revives India's Approval rate to 91.2%

Summary

- The Merchant has functions across 4 regions with USA leading in payment attempts(48%), Approved attempts(48%) and emerging with the highest approval rate(**94.7%**) across the board
- With the Revised data India's approval rate revived a lot and became **91.2%**
- Still India's approval rate is lowest

Opportunity:



Improve India's approval rate

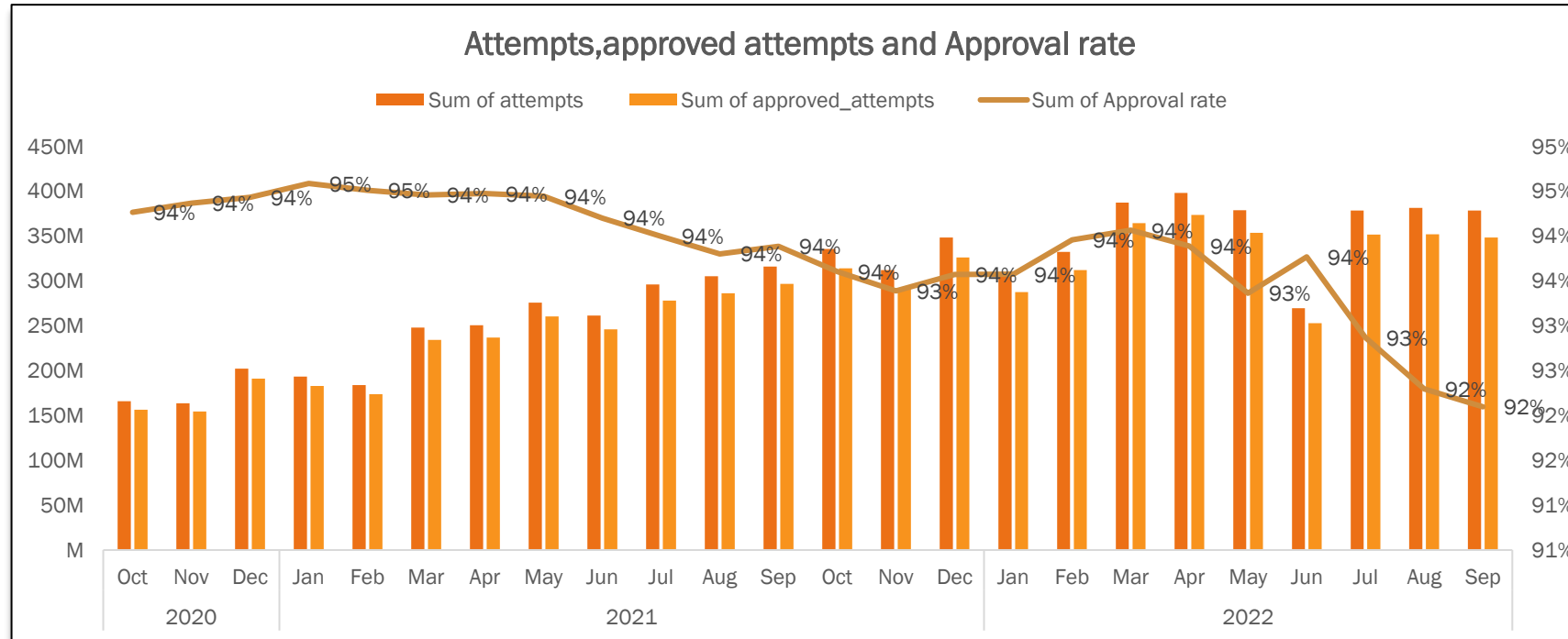


- Australia have second highest Approval rate but only 5% transactions , increase transaction

Merchant Countries	Attempts	Attempts % Contribution	Approved Attempts	Approved Attempts % Contribution	Approval rate
USA	3.4B	48%	3.2B	48%	94.7%
None	1.4B	19%	1.3B	19%	93.8%
IND	1.1B	16%	1B	16%	91.2%
NLD	799.2M	11%	742.4M	11%	92.9%
AUS	377.2M	5%	355.2M	5%	94.2%
Total	7 B	100%	6.6B	100%	93.7%



Since July 2022 overall Approval rate is declining



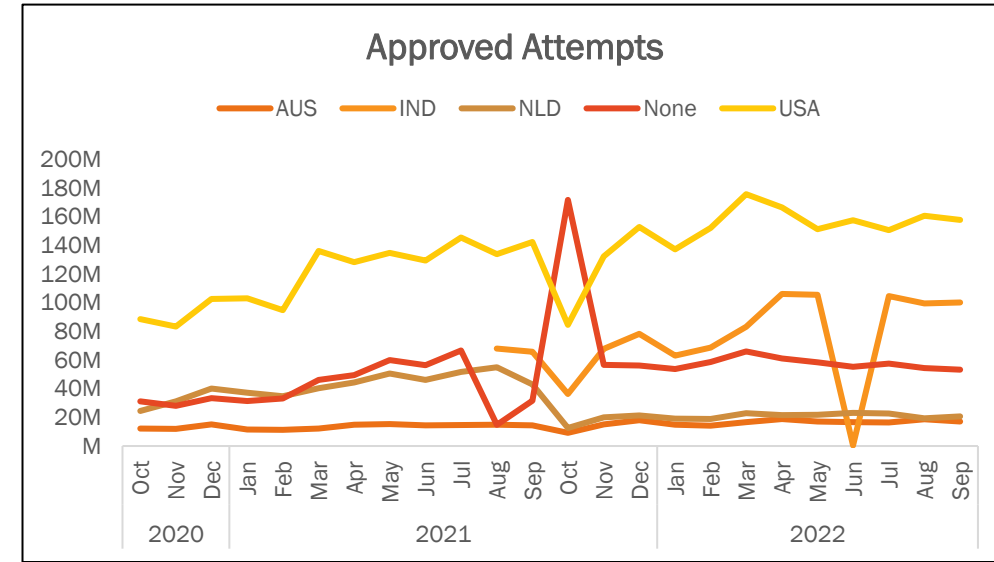
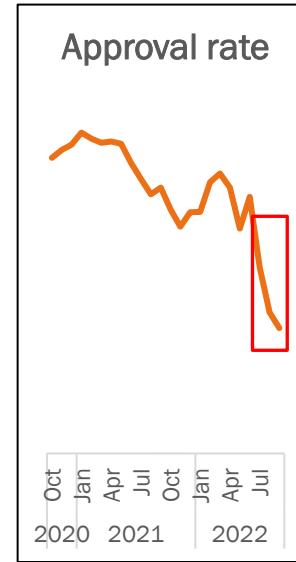
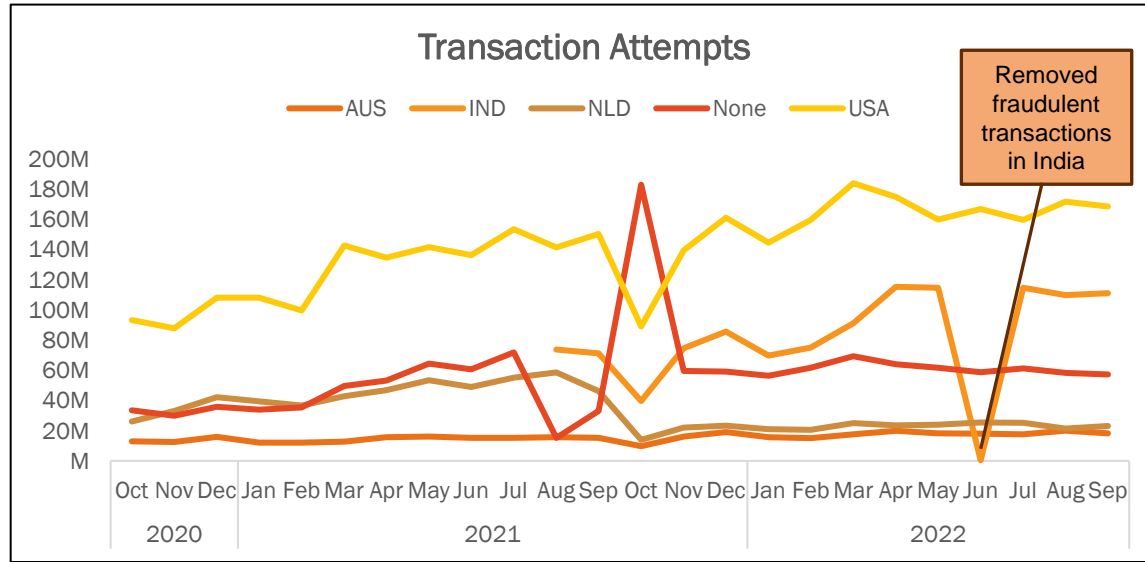
Summary

- Since July 2022 overall approval rate has declined
- Number of attempts have increased by 1% MoM since July onwards but Approved attempts remained same declining Approval rate

Opportunities

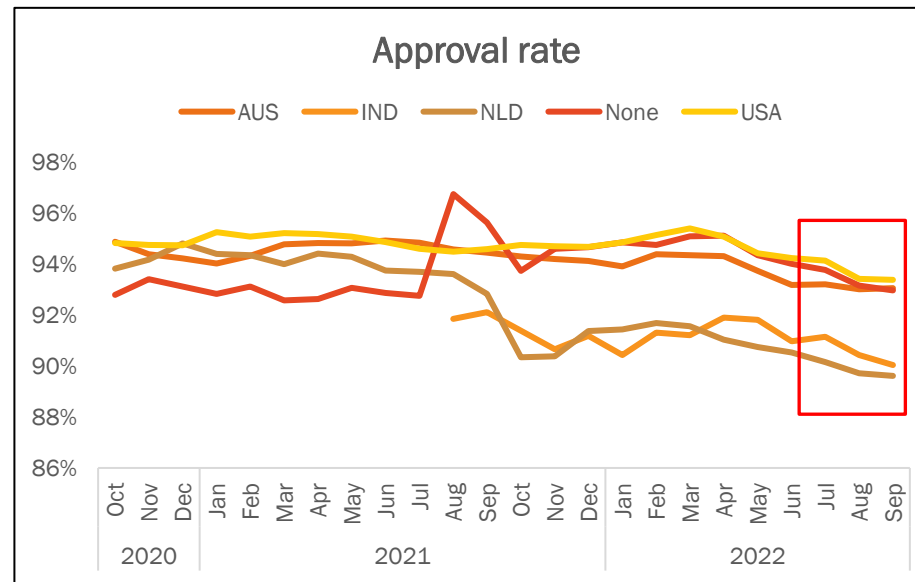
- Investigate which country , mode of payment or Country of card issuance is causing the declining impact
- Investigate if the Approval rate amongst other payment methods are also seeing a declining effect

Overall Approval rate declined by -1% MoM since July 2022



Summary

- July 2022 onwards overall Approval rate trend has declined MOM by -1% for consecutive 2 months
- In every country level approval rate declined compared to Avg Approval rate of 2022
- Attempted along with Approved transactions in 'None' increased in Oct 2021 contributing to 25% of yearly trans



Opportunities

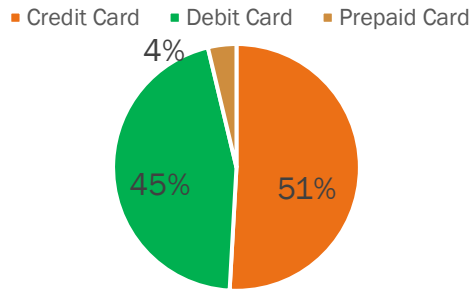
- Look into strategies to increase Approval rate for major areas
- Investigate the mode of payment that has led to the decline of Approval rate
- Investigate the sudden increase in #Attempts in None, Which countries are contributing in transactions

Credit card is dominating Payments with 51% contribution

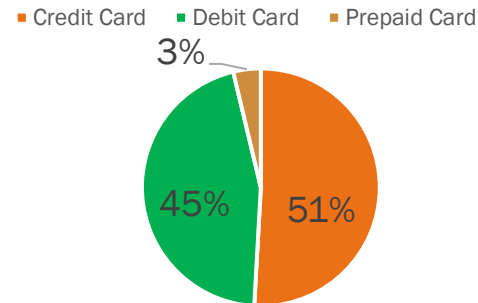
Summary

- Although in 2020 Debit card had the highest contribution , since 2021 June Credit card has taken the 1st spot in contribution and approval rate
- Prepaid card has the least contribution and approval rate, with all the modes having declining approval rate from July 2022 Onwards

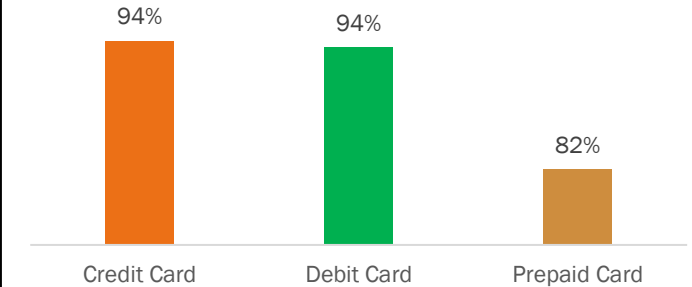
Attempts



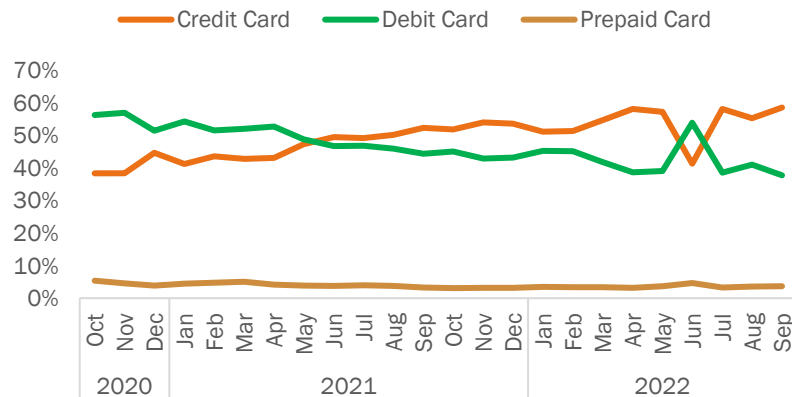
Approved Attempts



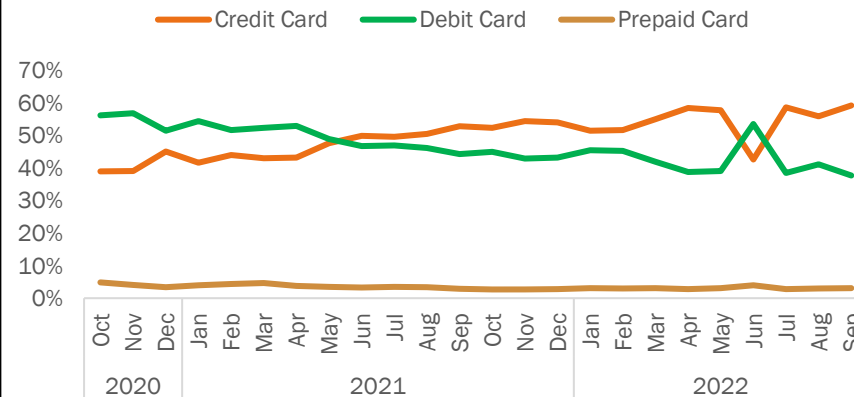
Approval rate



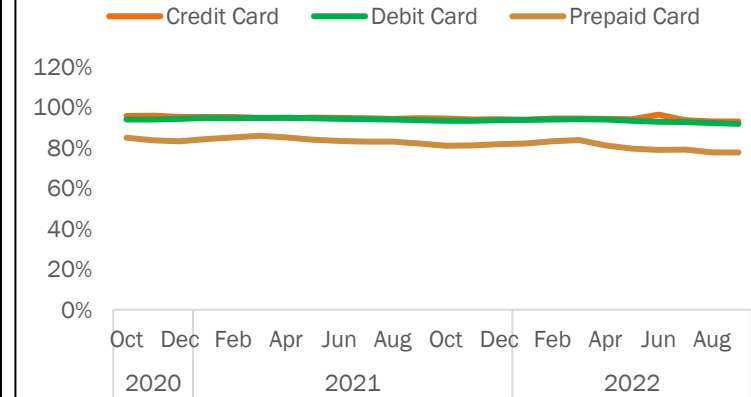
Attempts contribution



Approved attempts



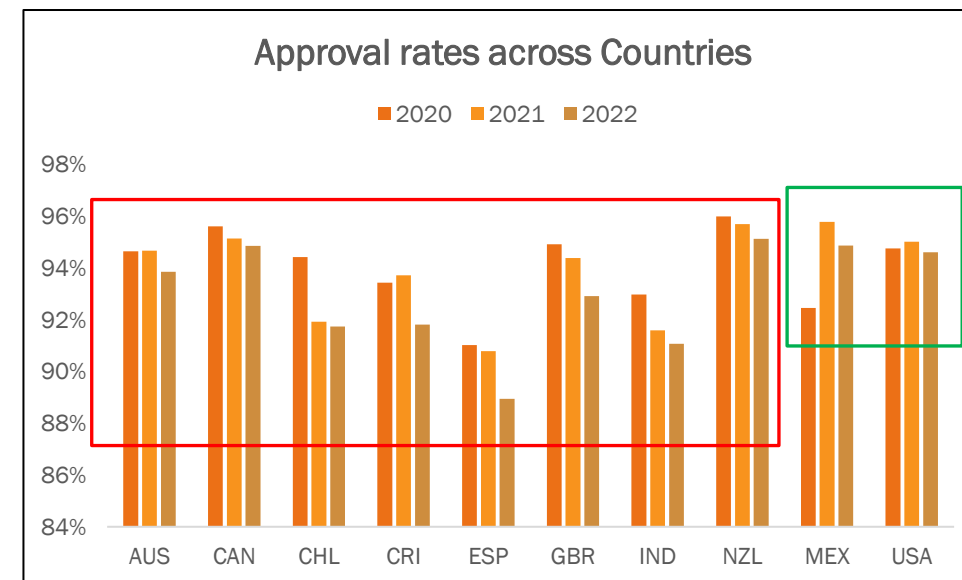
Approval rate



****Since majority contribution in India is from Credit card , removing fraudulent transactions in June 2022 reversed the contribution rate of Debit and Credit**

8 card issuing countries seeing a declining trend in Approval rate

Row Labels	Credit Card	Debit Card	Prepaid Card	Approval Rate
AUS				
2020	23%	76%	0%	95%
2021	23%	77%	0%	95%
2022	22%	77%	1%	94%
CAN				
2020	62%	37%	1%	96%
2021	61%	38%	1%	95%
2022	63%	35%	1%	95%
CHL				
2020	68%	19%	13%	94%
2021	63%	25%	12%	92%
2022	50%	39%	11%	92%
CRI				
2020	23%	77%	0%	93%
2021	24%	76%	0%	94%
2022	24%	76%	0%	92%
ESP				
2020	23%	76%	1%	91%
2021	22%	78%	1%	91%
2022	21%	78%	1%	89%
GBR				
2020	13%	86%	1%	95%
2021	15%	84%	1%	94%
2022	16%	83%	1%	93%
IND				
2020	98%	1%	1%	93%
2021	99%	0%	1%	92%
2022	99%	0%	1%	91%
MEX				
2020	46%	54%	0%	92%
2021	90%	10%	0%	96%
2022	91%	9%	0%	95%
NZL				
2020	31%	69%	0%	96%
2021	28%	72%	0%	96%
2022	25%	75%	0%	95%
USA				
2020	36%	58%	7%	95%
2021	40%	55%	5%	95%
2022	45%	49%	5%	95%
Total	51%	45%	3%	94%



- USA Approval rate remained same over the years , Mexico Approval rate increased
- While the rest of the Countries see a **declining Approval rate**
- Most of those countries have shifted towards Debit Card payment from Credit Card

Summary and opportunities

Summary

- ❑ Approval rate has declined across all the countries of business
- ❑ USA is the major contributor in payments but American issued card didn't cause approval rate decline
- ❑ Most of the countries which shifted towards Debit card is seeing a declining Approval rate
- ❑ India saw a Massive fraudulent transactions in June 2022
- ❑ In 2021 October None labelled transactions were high from all the countries

Next Steps

- ❖ Possible explanations towards declining approval rate could be **shifting towards Debit card from Credit card**
- ❖ Also investigate types of error for decline in Approval rate e.g. **OTP failure ,insufficient balance ,incorrect Merchant categorization etc.**
- ❖ Investigate into **Weekly and Hourly** data to find out specific patterns of approval rates and only **remove the specific hours** where fraud attempts happened
- ❖ None labelled transactions could have increased due to higher awareness of **GDPR and CCPA** rules across the world, raising security concerns amongst consumers or due to Cross country travellers trying to avoid confusion
- ❖ Investigate the **avg. transaction amount** in each transaction to understand the data patterns better

Require more data to reach a conclusion on improving Approval rate for future decision making



Appendix

17% of Customers entered **None** as country in the payment form

Sum of attempts	Column										
Countries	AUS	CAN	CHL	CRI	ESP	GBR	IND	MEX	NZL	USA	Grand Total
AUS	99.20%	0.06%	0.01%	0.00%	0.03%	0.18%	0.02%	0.01%	0.20%	0.29%	100.00%
IND	0.00%	0.02%	0.01%	0.00%	0.03%	0.03%	99.75%	0.01%	0.00%	0.15%	100.00%
NLD	0.22%	12.98%	5.33%	8.13%	32.11%	30.00%	0.22%	0.31%	6.98%	3.72%	100.00%
None	1.00%	20.24%	0.75%	0.82%	1.63%	26.58%	26.56%	2.36%	0.35%	19.71%	100.00%
USA	0.31%	0.46%	1.52%	0.47%	0.06%	0.19%	1.06%	1.08%	0.08%	94.77%	100.00%

Scenario:

1. Australia, USA and India seeing majority of the transacting card from their own country($\geq 95\%$)
2. Netherlands have majority transactions from Canada, Spain, Britain and Costa Rica
3. Majority of the None transactions are coming from Britain ,India, Canada and USA

Assumptions:

1. Britain and Canada might input None in the field as Merchant has not expanded in those two countries
2. India and USA could be putting None, as the field might not be mandatory to input
3. Also , **cross country travellers** might put None in the country field to avoid confusion
4. Canada, Spain, Britain and Costa Rica do not need a visa to visit Netherlands. So the tourists could be making a purchase later on/while visiting.
5. Netherland citizens might prefer some other payment method

You don't need a Schengen visa for the Netherlands if: you are an Spanish national. you live in Spain and have a valid Spanish residence permit.

NetherlandsWorldwide
<https://www.netherlandsworldwide.nl/apply-spain>

Applying for a Schengen visa for the Netherlands in Spain

Do I need a visa? If you are the holder of a Costa Rican passport, you do not need a visa to visit the Netherlands. If you have a different nationality and are unsure what the visa requirements are, check whether you need a visa to visit the Netherlands.

NetherlandsWorldwide
<https://www.netherlandsworldwide.nl/apply-costa-rica>

Applying for a Schengen visa for the Netherlands in Costa Rica

Can UK citizens travel to Netherlands without visa?

Do I need a visa? If you are the holder of a British passport, you do not need a visa to the Netherlands.

NetherlandsWorldwide
<https://www.netherlandsworldwide.nl/schengen-visa>

Applying for a Schengen visa for the Netherlands in the United ...

The Netherlands is a Schengen area country. Canadian citizens do not need a visa for travel to countries within the Schengen area.

Travel.gc.ca
<https://travel.gc.ca/destinations/netherlands>

Travel advice and advisories for Netherlands - Travel.gc.ca