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Rural E- Commerce and Last Mile Delivery: Challenges and Solutions in the Indian Context.

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Abstract

The opportunity in rural e-commerce beckons companies to make inroads to serve a larger market. However, the path to making inroads is marred with obstacles, and firms often choose to refrain to enter, albeit the market is laden with potential. The opportunity in rural e-commerce is valued at $10-12 billion. The article aims to articulate the preconceived notions in the minds of the customer which make traditional courier channels implausible in the rural context. It also addresses the challenges faced by companies when trying to surmount the last mile delivery to rural markets using the same channels that have been used in urban settings. By consolidating information from various secondary sources, the article puts forth viable options that can replace the traditional courier delivery, through suitable initiatives for the rural market, by also substantiating the same with examples.

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Introduction

Proliferation of mobile devices and access to the internet has created more opportunities for e-commerce retailers such as Amazon and Flipkart to make inroads in the rural market. India's population, as per World Bank reports, is estimated at 905 million, which is 64 percent of the total Indian Population. However, e-commerce penetration in the rural areas of the country is extremely less. The number of internet users is expected to go up to nearly 400 million users in rural areas by 2021 as per the Internal and Mobile Association of India. But it's becoming more evident that the mere increase in internet access and usage does not imply increased transactions on e-commerce websites.

Semi-urban and rural inhabitants exhibit different purchasing patterns, and their preferences are largely different than their urban counterparts. While urban orders may consist of books and electronics, the case is different in rural areas, which is more focused on merchandise and health products as per the Indian Institute of Public Administration. Incomes are heavily reliant on agricultural activities, and consumers tend to be more frugal in non-harvest months, and are extremely price sensitive. Linguistic differences and lack of English literacy also make it difficult for companies to access rural customers.

However, a swarm of activities by both companies and the government helps to circumvent these problems and provide easier access to rural consumers. AI-based technologies help in translating English to regional languages, which would eliminate any linguistic barriers to purchasing online.

The Government of India, in the budget of 2019, has announced a 100 lakh crore investment in roadways, which aims to expand national highways by 60,000 kilometres in the next five years of their term. This aims to build upon the earlier BharatmalaPariyojana project.

Increasing availability of internet through cheaper bandwidths and data plans, followed up by increasing awareness initiatives that are piloted by the government are helping in digital inclusion and educating consumers to use the internet to satisfy various needs. The Digital India program launched by the Government of India has helped in increasing the internet population to exceed half a billion.

Albeit several initiatives taken by both the government and companies, a major roadblock that deters rural customers to buy, and online retailers to serve, is the last mile that is to be covered in order to reach the customers. The final node in the supply chain is extremely crucial and is a sizable chunk in the overall supply chain cost, reaching as high as 53% of the total logistics cost involved in the transportation of the product. Final nodes situated in rural areas are usually distant from the previous node of the supply chain and the transit of a package involves considerable cost and effort to reach the last station before reaching the end customer. These contorted channels of delivery make it difficult for companies to access the end customer, but it is also important for them to find ways to bypass these challenges to break into the rural market which is offering huge potential for revenue growth. In this paper, we discuss at length the problems faced in reaching the rural customer and the potential solutions that can be applied to make inroads.

Methodology used:

The study has been done by collecting data from various secondary sources such as publications, websites, journals, and magazines related to e-commerce. No primary data has been used in the study.

Objectives of the study:

The objective of this paper is threefold. We aim to clearly establish and articulate the following –

- Problems associated with last mile delivery from the rural customer's perspective in India.
- Problems associated with last mile delivery in rural locations from a supply chain perspective.
- Potential solutions to surmount the challenges present in reaching the final customer in the rural areas.

Scope of the study

The study aims to identify the significant factors that limit widespread reach in rural areas, and the potential solutions that companies can adopt to overcome these problems by citing examples of existing operations that have proven to be successful in rural India.

Review of Literature

E-commerce and the Rural Sector – 2012 by Hardikkumar V Desai and MarolinaJamshid R.

This research was conducted to identify the knowledge of the rural sector, pertaining to E-Commerce usage. It also focuses on the problems that arise when rural e-commerce is used in India. The study covered the Gandevi Taluka in the Navsari District of Gujarat. It evaluated the level of knowledge on computer literacy and the ability to access e-commerce websites. It also questioned the villagers on the factors contributing to their reluctance in using e-commerce platforms. The study concluded by identifying that lack of courier

service, payment options, and lack of trust to be the major reasons for abstinence. The study also finds that there is significant knowledge on operating computers with 61 percent of the total 150 participants referring to good knowledge on using the computer to view e-commerce catalogues.

E-Commerce in Rural India – 2016 by Saroj Kumar Singh.
This article talks about the challenges faced by the e-commerce sector when trying to penetrate new markets. It identifies that lack of trust, lack of skills, and security problems are factors that promote a group in each country to avoid e-commerce transactions. It states that lack of ICT technology and awareness in rural areas in the northern region of India make it difficult to reach the customers and coordinate information, which deters service providers in venturing into such areas, but government initiatives such as the Digital India program, if implemented successfully, can pave way for rural internet users.

Reverse Logistics in Indian Rural Retail Market – 2013 by Haidar Abbas.
The study conducted aims to establish the conceptual foundation of reverse logistics and the difference between forward and reverse logistics. The author defines reverse logistics as a flow of both goods and information in a reverse transaction, and establishes the drivers of reverse logistics in unorganized retail in the Indian rural market. Through the study, the author elicits the reasons for return, establishing a number of drivers or reasons, including legal obligations, moral obligations and customer goodwill, wherein product quality turns out to be inferior. However, it addresses the case in unorganized retail and leaves room for studies on organized retail

E Commerce Deterrents in Rural Markets.

The reason for limited transactions online is skepticism on behalf of the buyers. As stated by Singh (2016), a group of people in every nation are averse to online transactions for a plethora of reasons that include, but are not restricted to security and skills. In India, technology that anchors free flow of information between rural areas is yet to be constructed. There are many villages that suffer major power outages and the whole concept of an online transaction is obscure to the minds of the consumers in rural markets. However, with promised development through budgetary allocations can create a burgeoning market which can be tapped by companies that are looking to serve a customer base spread across a wider geography. Few of the major deterrents that block e-commerce penetration are –
Lack of 'Touch and Feel' facilities – An issue that is common across all Indian states is the willingness of customers to touch and feel the product before a purchase, which is completely absent in a courier based transaction, wherein the product can be evaluated only after it reaches the end consumer. Villagers tend to prefer purchases through a retailer than have it delivered at home for the fear of a defective product.
Familiarity with retail outlets and shopkeepers – Another reason is the reliability attributed to the local retailer than the unknown third party sellers or direct sellers online. People in semi-urban and rural settlements in tier 3 cities and below are comfortable in purchases where there is already an existing relationship with the retailer. An online source is not tangible from the customer's perspective and they tend to refrain from purchases due to the same reason.
Mobile literacy – A significant hurdle is the literacy of such customers to access an m-commerce or e-commerce platform and navigate through the site to purchase a product. The fear of making a wrong transaction keeps them from engaging in such transactions. Programs initiated by both the Government of India and corporate bodies to promote literacy has helped in improving the situation of IT literacy in such parts.
The unavailability of after-sales service – The question about facilities that would be provided post sales, and whether there are proper grievance redressal mechanisms to address any issue that may arise post a purchase also makes such customers eschew online transactions.
Return facilities – The process of returning a damaged good, if received, also makes customers question the reliability of such online sellers and whether they would take back such products. The inability to converse face to face on such matters also makes rural customers avoid the online route.

Customer buying patterns in Rural India.

In a study conducted by the Indian Institute of Public Administration, the buying patterns of rural customers from Kolhapur district and Amravati district in the state of Maharashtra and Aara district and Sitamarhi district from Bihar has identified the purchase patterns of the populace. The study was conducted in 2016, and identifies the most purchased goods by rural customers.

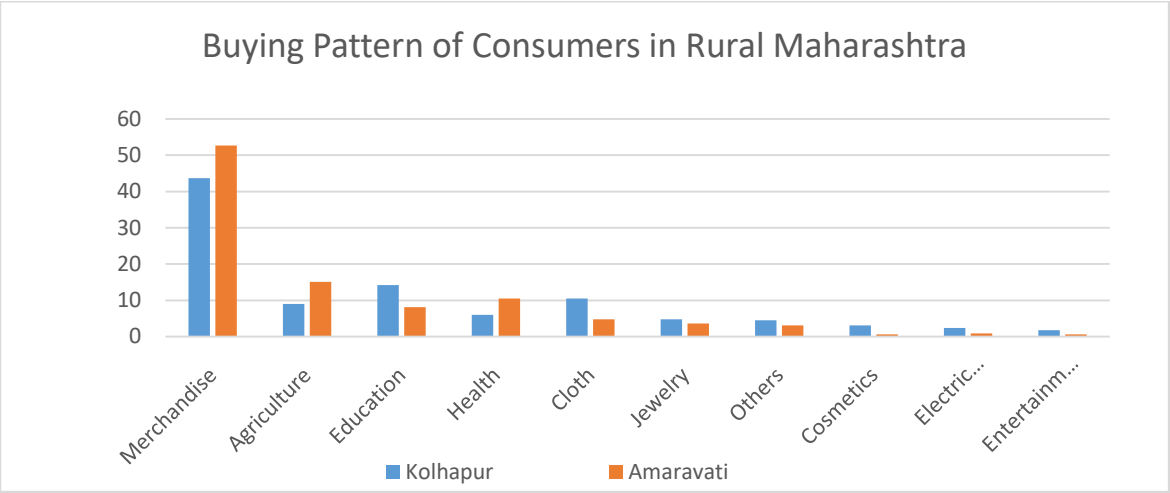

Figure 1 – *Buying Pattern of Consumers in Rural Maharashtra*

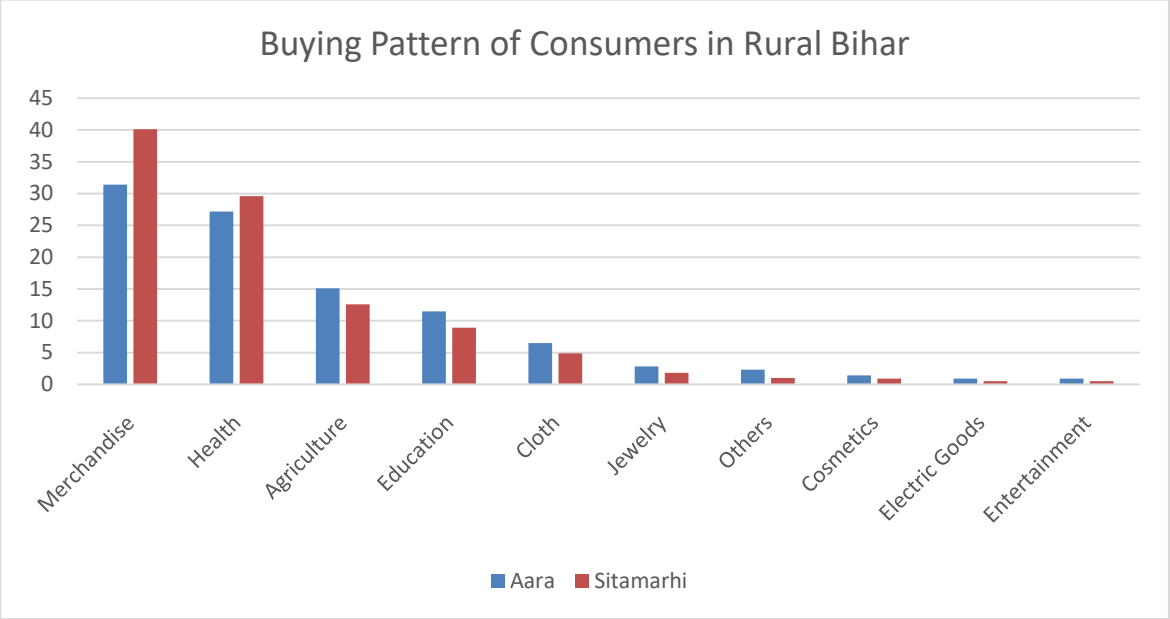

Figure 2 – *Buying Pattern of Consumers in Rural Bihar*

Source – *IIPA report on Buying Behaviour of Rural Consumers in India, January 2016.*

From the study undertaken, it can be said that the normal rural customer engages in low value purchases that include consumables and merchandise. Electronics can see an increase in the upcoming years as the state of ICT infrastructure improves in rural regions, but merchandise remains the major purchasing area. They also do not engage in high value transactions, and even if they do, offline channels are more preferred for such transactions.

Challenges faced in Last Mile Delivery in Rural and Semi –Urban Locations –

The last mile in logistics, or the final leg of the journey to deliver the goods to the customer, is often the most expensive process for e-commerce organizations. Unlike urban areas, rural areas are usually scattered and the locations are often wrongly provided. Few of the most common challenges faced while delivering to rural settlements in India include -

Unavailability of consumer – Often, a carrier may have to make several trips to deliver a product to a customer who has made an online purchase. In rural areas, the unavailability of a customer who has placed an order can drive the costs of the last mile delivery upwards, because the distance covered to reach the

customer from the previous node may be significant and the inability to contact such a customer or hand over the parcel to a designated individual may not be possible. Rural areas do not have reliable alternatives like a security guard or neighbour in apartments or individual houses situated in an urban environment. Handing over of a parcel to any unauthorized individual, leading to loss or theft can damage goodwill and hence a repeat trip has to be made after confirming presence of the customer.

Longer delivery times – The distance between a depot and the customer's residence in a rural environment is often significant. Rural areas, unlike urban areas, do not have multiple stations assigned for each vicinity and often have to coordinate with one depot. Having multiple stations in rural areas with low volume of transactions is not feasible. Hence the e-commerce retailer must have to bear the long distance to deliver the good to the customer.

Sourcing problems – If a customer from interior Kerala places an order for a product in Delhi, it would become more costly for the company to deliver that product and would have to inevitably pass on the delivery charges to the customer, which may decrease chances of purchase as rural customers are price sensitive. Transporting such a product to the final depot before dispatch to consumer would not be feasible.

Incorrect addresses – The absence of digitization of addresses makes it difficult for carriers to deliver the package. Confusion on delivery address leads to increased complexities in the form of repeat trips for same delivery. The carrier may have to cover unnecessary distances to locate the customer.

Reverse Logistics – This is often the biggest problem for companies to surmount when delivering to rural areas. Erratic consumer decisions that may lead to order cancellation at odd times, would force the company to take back the product. The flow of goods and information is often tedious as the carrier has to receive the parcel and cover the distance of the last leg and coordinate the flow of information to receive the goods and initiate the return process. This would mean the product re-enters the distribution cycle, leading to longer replenishment times, and loss in product value. The huge logistics cost involved in a return transaction in the rural market deters companies from offering services to these geographies. The lack of free flowing information is also another contributing factor.

Alternatives to penetrate the rural market in India

Although e-commerce giants such as Amazon have tied up with India Post and Blue Dart to deliver in such areas, they are still threatened by the loopholes in the final leg of delivery when trying to reach the customer at his residence. There are several proposed alternatives for this whose success is yet to be measured at length, but seem to have provided a path for e-commerce retailers to make inroads in rural markets. Barriers to entry in rural markets are both major and minor in many ways, and prevent increase in transaction volume for a market consisting of more than 800 million.

The Pick-Up & Drop-off (PUDO) system, a retailer or small shop would tie up with Amazon to act as a pick-up and drop-off point for customers to receive their orders and also act as the point of return. The first advantage that can be pencilled in here is having the final delivery point at one single node. Companies do not have to endure the final leg of delivery which would require carriers to cover varying distances. This would also serve as a single point for returns in that specified area, meaning the trust of customers is also enhanced in case of an unsatisfactory product, they can redress their grievances with a known individual, i.e., a familiar retailer.

In an article published by The Wall Street Journal which briefs about Amazon's ventures into rural India, it is stated that vernacular differences between states, apart from the inability to read English also creates a problem for users trying to access the platform via their mobiles. Although human assistance has helped in creating Hindi translations, Amazon needs to overcome the language barriers posed by several states. The advent of AI for helping translation can ensure that more customers participate in e-commerce transactions.

Having a PUDO system can also help in educating users and acting as an order placing intermediary as customers are sceptical in placing orders because all of it involve financial decisions and wouldn't want to place an order for the wrong item. The retailer in a pick-up drop off centre would help uncertain customers place orders while teaching them how to navigate through the application which has been tailor made for regional languages and rural customers. For all the services, the retailer would be given a percentage of commission. This has already been done in certain states and rural areas by Amazon, where rural app versions have replaced terminologies to suit the rural customers who are different from urban customers.

Kirana stores and their owners, can also act as delivery partners for certain customers who wish to have it delivered at their residence. A kirana store owner would be familiar with the residence and its residents and can easily navigate and deliver the parcel. Since most of the goods ordered are merchandise, credit payments for certain types of goods can be allowed to help customer pay in easy instalments to the kirana store owner. This would increase the replenishment cycle for a company, but would help in increasing customer satisfaction, and lead to an increased customer base.

A PUDO system alleviates a major factor hindering rural penetration which is a lack of trust. By gaining the trust of customers via small retail outlets and shops, the volume of transactions would increase. Postal deliveries are mostly unreliable and may cause abrupt time delays, which would further raise the lack of trust exhibited by the customer. By having a constant point of contact with regard to their product, customers develop more trust, which would lead to e-commerce being perceived as more reliable than before.
This understanding would prove more beneficial to the company as they now have a single node that would act as an intermediary in a market which was earlier inaccessible. The threat of damage and pilferage, along with negotiating commissions for each product is still very much there. A company would have to negotiate a commission with these retailers that justifies their services. But the benefit that is reaped through the access of the market can offset the expenses incurred on the distribution front.
Another example that can be drawn is a Chennai based company, Inthree. The company uses the concept called Boonbox. By using a hub and spoke system to connect manufacturers offering several SKU's to the customers in rural areas, it has appointed associates in rural regions. These associates would then use tablets to show customers the catalogue from which they can choose, receive the payment made, and then place an order for the item that has been requested. After confirming delivery address, the goods will be directly delivered to the customer. Boonbox is exclusively available to rural markets and is not offered in urban regions. The possibility of using an associate to display and confirm order purchase and delivery related queries is also an alternative for e-commerce firms to circumvent vernacular problems and reverse logistics as there is a single point of contact which avoids any confusions that may arise as a result of customer placed orders.
E-commerce companies must also revise their catalogues to suit the customers of rural environments. Urban listings will not work, and hence listings must comprise of sellers who are closer to the customer and also fit within the price ranges which can be afforded by the customers. This would lead to identifying new suppliers, increasing the number of nodes with whom delivery must be coordinated.

Conclusion and Dicussions –

By examining secondary sources of data and existing business models, we were able to identify the problems associated with rural delivery of products and how customers perceive courier deliveries. Customers are averse to buying from sources they do not place trust on as there is no physical verification. This is a major barrier and will continue to be the major barrier which has to be surmounted by e-commerce firms to reach the final consumer. By determining the purchase pattern, it can also be said that rural customers do not engage in high value transactions frequently, and also prefer offline channels for such transactions. Companies can leverage existing set-ups via the PUDO system or use an intermediary such as an equipped associate to place orders online on behalf of customers. Delivery through PUDO system partners is also an option for those customers who require home delivery.
The rural market in India is a quagmire that companies fail to penetrate due to lack of infrastructure for transportation and communication. However, improved efforts by the government to bring rural customers under the digital parasol, and aiming on 4G data provision and advancements in ICT infrastructure have opened up potentially new markets. The rural e-commerce potential which is valued at $10-12 billion can help companies serving a broader and wider market. The aforementioned alternatives are examples and are not steadfast solutions to access the rural customer, but have several attached benefits which make them more feasible to enter into a technologically detached market.
The customer profile that has been established in the study may not be representative of all rural customers pan India. Since the IIPA data has been focused on two districts in two states, it does not become representative of all rural customers. Hence, any future study that tries to establish the best channel to access rural customers should be able to collect data from various other states in the country.

References –

[1] Desai, H. V., &Jamshid, M. R. (2012). E-commerce and the Rural Sector. *International Journal of Advanced Research in Computer Engineering & Technology*. Retrieved from http://ijarcet.org/wp-content/uploads/IJARCET-VOL-1-ISSUE-9-144-150.pdf

[2] Abbas, H. (2013). Reverse Logistics in Indian Rural Retail Market. *Journal of Business Management & Social Sciences Research*. (JBM and SSR). Retrieved from https://pdfs.semanticscholar.org/beb2/5031e221f98a28303a6447ed0257b9c0aed7.pdf

[3] Singh, S. K. (2016). E-Commerce in Rural India. *Advances in Economics and Business Management*, *3*(3).Retrieved from https://www.academia.edu/33101176/E-Commerce_in_Rural_India?source=swp_share

[4] Inthree. Retrieved from
http://www.inthreeaccess.com/

[5] Bellman, E. (2018, December 31). Amazon, to Win in Booming Rural India, Reinvents Itself. Retrieved from
https://www.wsj.com/articles/amazon-to-win-in-booming-rural-india-reinvents-itself-11546196176

[6] Rural E-Commerce - The Untapped Potential. (n.d.). Retrieved from
https://www.ey.com/Publication/vwLUAssets/ey-rural-e-commerce-the-untapped-potential/$FILE/ey-rural-ecommerce-the-untapped-potential.pdf

[7] Rural market for e-commerce in India likely to be a US$10-12b opportunity in the next four years: EY. (2018, November). *EY*. Retrieved August, 2019, from
https://www.ey.com/in/en/newsroom/news-releases/news-rural-market-for-e-commerce-in-india

[8] Breaking down the 'Last-Mile Delivery': Challenges and Solutions. Retrieved from
https://jungleworks.com/breaking-last-mile-delivery-challenges-solutions/

[9] Misra, S., &Pathania, M. (2016, January). Buying Behaviour of Rural Consumers in India. *Indian Institute of Public Administration*. Retrieved from
https://consumereducation.in/ResearchStudyReports/RuralIndia2016.pdf

[10] Saluja, N. (2019, June 4). Roads ministry to build 12,000 km highways this current financial year: Nitin Gadkari. *The Economic Times*. Retrieved from
https://economictimes.indiatimes.com/news/economy/infrastructure/roads-ministry-to-build-12000-km-highways-this-current-financial-year-nitin-gadkari/articleshow/69655734.cms

[11] (2017). Mobile Internet Report. *Internet and Mobile Association of India*. Retrieved from
https://cms.iamai.in/Content/ResearchPapers/2b08cce4-e571-4cfe-9f8b-86435a12ed17.pdf

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