Rumors and Collective Sensemaking: Managing Ambiguity in an Informal Marketplace*

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ABSTRACT

Rumors are an enduring form of communication across sociocultural landscapes globally. Counter to their typical negative association, rumors play a nuanced role, helping people collectively deal with problems through constructing a representation of an uncertain situation. Drawing on unstructured interviews and participant observation from a technology goods marketplace in Bangalore, India, we study the circulation of rumors related to the government's recent policy of demonetization and entry of online marketplaces and digital wallets, all of which disrupted existing market practices. These rumors emerge as attempts at sensemaking when a community is faced with ambiguity. Through highlighting the relationship of institutional trust with rumors, the paper argues that the study of rumors can help us identify the concerns of a community in the face of differential power relations. Further, rumors are a form of social bonding which help communities make sense of their place in society and shape existing practices.

CCS CONCEPTS

• **Human-centered computing** → *Collaborative and social computing*;

KEYWORDS

rumors; institutions; informal markets; informality; marketplaces; informal communication; uncertainty

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1 INTRODUCTION

Recently, there has been an increased awareness of rumors and their ability to influence public opinion. With social media sites and applications playing a key role in the circulation of unverified information, the proliferation of rumors appears to have drastically increased. However, rumors (and narratives of their consequences) are not new phenomena [28] - they are among the oldest known forms of informal communication and their economic, social, and political effects have been extensively documented. Rumors are treated with suspicion, in part due to the assumed dubious intent of the rumor originator, but also on grounds of function, since they lack a stamp of approval from formal channels of information dissemination. However, there is a significant body of sociological work that sees rumors in much more nuanced terms [12, 16, 17, 46] treating it as a direct consequence of communities navigating risk and uncertainty in new situations.

When we consider rumors in the context of informal economies that make up a large part of the social and economic activity in the Global South, we encounter unequal and sometimes antagonistic relations between local communities and formal institutions such as the state. When trust in formal institutions is inadequate, communities often depend on social relationships in regulating their everyday lives [21]. Here, informal communication, such as rumors, circulating through interpersonal relationships often play a far more important role than information verified by formal sources.

This paper focuses on the presence of rumors in a semi-formal technology goods marketplace in Bangalore, India when faced with the entry of new technology services. Such marketplaces remain the primary destination for consumers - especially low and middle income - across the Global South [13]. Despite the informal side being at odds with formal authorities (such as tax officials and law enforcement agencies),

they have been able to survive, thrive, and successfully cater to consumers for many decades. However, in recent times, government policies and the entry of new technologies such as online shopping and digital wallets have significantly disrupted these marketplaces.

As the business community in the marketplace has attempted to make sense and come to terms with these new developments, it has been accompanied by the circulation of unverified information - often in the form of rumors. This paper looks at these rumors as a means of understanding how communities perceive new and existing situations. Specifically, how do market actors use rumors to make sense of the ambiguity that accompanies the entry of new technologies and new government policies, both looking to disrupt existing market practices? This is in addition to actors navigating the historical tensions between the formal and informal - as the two oppose and at other times complement each other at the marketplace. In doing so, the paper builds on work in organizational literature that looks at the role of informal communication in collective sensemaking and processes of decision making.

Sensemaking relates to how individuals make sense of social environments and structure the unknown, the unfamiliar, and ambiguous events [52]. Extending this to communities, collective sensemaking refers to a shared understanding of such events arising from interactions within a social ecosystem. This can be either top-down, in which case the sensemaking is guided by formal institutions and rules of information veracity. Alternately, it can be a bottom-up approach that is more spontaneous and channeled through loose norms that leverage social relationships and ad hoc linkages. In the latter, channels of informal communication play an important role in facilitating interactions.

From the perspective of HCI/CSCW research, the paper adds to existing socio-technical literature on technology adoption [22, 37, 39]. Our research examines how business communities in a small local technology goods marketplace react to the entry of new technologies such as online shopping and digital payments. We propose that the trajectory of adoption and use of these new technologies is inseparable from the way communities subjectively interpret and discuss it. Rumors, as a form of information exchange, are an important part of this process of sensemaking.

Studying these rumors help us understand the role of informality in collective decision-making. Organizational and collaborative systems research has previously studied how informal communication is vital to collaboration, providing much-needed flexibility that helps systems deal with spontaneous needs and novel unplanned situations [53]. Further, these studies have highlighted the ability of informal communication to provide alternative perspectives and interpretations of formal events [5].

By outlining a community's reaction to government policies, our work also highlights the ways in which rumors relate to institutional trust. Collective sensemaking in this case either supports formal narratives or subverts it, with the latter helping us identify the concerns of a community, especially in the face of differential power relations. This has important implications for research in other parts of the Global South, especially where communities do not have cooperative relationships with formal institutions.

2 RELATED LITERATURE

Rumors, Ambiguity, and Collective Sensemaking

Informal communication such as gossip, urban legends, and rumors have been extensively studied, with researchers highlighting both their positive and negative functions. While some studies have argued for their social function in maintaining social norms and contributing to social order [20], others highlight individual self-interest that uses misinformation to advance a cause [38].

Early psychology research looked at the transmission (or retelling) of rumors as a way of people explaining uncertainty and ambiguity in everyday life along with simplifying complex events [1, 43]. Sociologists such as Shibutani [46] extended this to conceptualize rumors as a social act, shifting the focus away from solely individual motives. As recurring communication, rumors help people collectively solve problems through constructing a representation of an uncertain situation, especially when the demand for information is unsatisfied by formal sources. Rumors are thus a direct consequence of information scarcity [28]. For example, organizational researchers have looked at rumors as a means of understanding how employees deal with anxiety when faced with organizational change [6]. Stressing on the communal aspect of rumors, this paper thus looks at them as a form of bottom-up collective information seeking [51] that contrasts with more top-down controlled approaches to information management.

Studies have outlined the conditions that lead to a rumor spreading: 1) it must be relevant, 2) it must influence anxiety, and 3) while credible, must have a generalized uncertainty about it [42]. DiFonzia and Bordia [14] give an operational definition of rumors as "unverified and instrumentally relevant information statements in circulation that arise in contexts of ambiguity, danger or potential threat, and that function to help people make sense and manage risk". As situated acts of collective sensemaking, rumors necessarily diffuse through already existing informal social relationships [35] and are primarily defined by their ability to evade formal institutional restraint. Thus, the veracity of a rumor is not important and neither is whether it is positive or negative

- rather, a rumor is defined by the uncertainty in both its source and its content.

From an institutional perspective, rumors are characterized by their relationship to the social institutions that help them spread. They are thus indicative of the trust existing in these social institutions, while at the same time revealing a lack of trust in formal institutions and the quality of information that they provide [16]. Further, rumors play a key role in shaping trust - for example, researchers have argued that the depletion of organizational trust is a possible consequence of the spread of rumors [15]. Others have argued [35] that by creating informal networks of communication, they help in building social institutions and sustaining communal solidarity, especially in communities not served by formal institutional communication networks.

HCI, Rumors, and Collective Sensemaking. HCI/CSCW research has also studied rumors as a process of collective sensemaking during periods of uncertainty and stress, such as crisis events [30, 48]. Focusing largely on online rumors, specifically on social media channels such as Twitter, these studies analyze the spread of rumors and how different groups react to them [32]. Further, these studies have analyzed the role of formal communication channels in shaping the propagation of rumors. For example, Andrews, et al. [3] look at how official sources of information can play a crucial role in dampening rumors or correcting misinformation. On a similar note, Starbird, et al. [47] outline how journalists are more likely to deny negative rumors. In all these studies, rumors have been framed largely as misinformation that needs to be clamped down on.

On the other hand, HCI/CSCW research has generally been more positive about the importance of informal communication. Studies have discussed its importance in collaborative work, especially in workplaces and organizations [11, 54]. With respect to communities, researchers have outlined how the design of platforms that support community decision-making have to take into account informal conversations (or 'everyday talk') [27]. Much of this research has been in the Global North with very little focused on informality in the Global South, which often has a far more contentious relationship with formal institutions.

Marketplaces, Rumors, and Communication Channels

As public and highly networked spaces, local marketplaces facilitate the "interactions of flows of people, goods, and information" [26], and are central to everyday economic and social life. Often integral to the creation of intermediary channels of communication, they have exerted significant social, economic, and in some instances, political influence across the Global South [36].

A marketplace is accomplished - both economically and socially - primarily through communicative actions. These informal channels of communication play an integral part in decisions, helping actors at semi-formal marketplaces around the Global South get around issues of information scarcity and noise. Such marketplaces are characterized by their need (and ability) to circumvent formal institutions [8], and instead leverage social relationships to reduce risk and uncertainty in economic transactions. Informal communication such as rumors and word of mouth not only evade formal control but also help bolster existing social relationships. The role of rumors in facilitating decision-making is also visible in more regulated marketplaces. For example, in financial marketplaces - where exclusive (and new) information is particularly valued, rumors remain an important means by which traders make everyday decisions [29]. Here, profit-making is often contingent on actors being one step ahead of formal channels of verified news, with rumors providing such an alternative stream of information.

From a sociological lens, rumors in marketplaces also play a deeply symbolic role, helping actors make sense of their place in the local economy (and society, more generally). Marfang and Thiel [34] discuss how rumors among Senegalese and Ghanaian traders are coping mechanisms that help them deal with economic difficulties faced with the entry of Chinese entrepreneurial migrants. Harney [24] in his analysis of migrant communities in Italy argues that rumors help connect the racialized identities and uncertainties of migrant life with existing narratives of informal economic practices among the wider population. Rumors and other forms of informal communication, in-effect, help relate the individual to the community they are part of - in doing they also shape the moral economy. They thus both reflect and shape informal practices, acting as an interpretive frame that guides market actors in modeling their economic and social behavior in the face of change and uncertainty.

Technology Adoption and Communication Channels

Adopting a new technological innovation is accompanied by uncertainty as actors weigh the anticipated benefits against the relative costs [25]. This process is prolonged and involves multiple steps, including an initial decision to take-up a technology followed by subsequent decisions where actors assess the technology. The relationship between technology adoption and sensemaking has also been explored in organizational literature. Weick [52] discusses how a technology can have multiple interpretations depending on the group of users and context of use. Seligman [45] argues that the process of adoption can be thought of as a series of sensemaking cycles that help construct symbolic representations and interpretations of a technology, ultimately leading to its adoption or rejection. Here, sensemaking is a dynamic social process

of extracting cues from events and through the process of interpreting them, constructing a shared understanding.

In conventional models of technology adoption, once they have adopted (or rejected), actors subsequently influence others [50]. A sociological view of this process looks at the role of social relations in creating networks and communication channels that allow information about technological innovations to disseminate [33]. Roger's [40] diffusion of innovations theory is one of the major concepts in this line of thought and emphasizes the role of interpersonal communication in addition to mass media in the adoption or rejection of a technology. Roger attributes patterns of diffusion of technological innovations over time to "the role of information and uncertainty reduction in the diffusion of an innovation". In this theory, innovative individuals are assumed as risk-takers who can better cope with uncertainty and are thus early adopters. A key assumption is that innovativeness is positively related to interconnectedness in the social system, with earlier adopters having more access to interpersonal communication channels. However, the role of communication channels in these theories of technology diffusion has not been given their due importance, especially how communication channels themselves shape the use of technologies rather than just transferring information. For example, Burrell [7] in her analysis of Internet use in Ghana discusses how the retelling and circulation of rumors shape the use of technologies such as the Internet.

3 THE SITE OF STUDY, TIMELINE, AND OBSERVED RUMORS

The site of study is SP Road, a technology goods marketplace in Bangalore, India; here, wholesale suppliers and retail vendors sell a wide range of technology products. The marketplace has been around since the 1970s with the goods sold keeping up with changing consumer demands. The underlying social and technical infrastructure of such marketplaces has been previously studied [8, 9] and has highlighted the role of informal institutions in regulating the market environment and shaping existing practices.

The market ecosystem primarily consists of customer-facing vendors, wholesale distributors, and service centers. The majority of market actors belong to the Marwari community, a historically successful trading and entrepreneurial community [31]. In recent times, the local Muslim population has become involved in the sale and repair of newer technologies such as mobile phones, but much of the marketplace is still dominated by the Marwari community. Previous research has shown how strong community bonds have allowed economic relationships in this marketplace to function solely on the basis of informal community trust rather than formal contracts [8]. The research has also shown the tense equilibrium between formal authorities and vendors. While the quantity of illegal or grey market goods sold at the marketplaces has reduced over the years, there were still occasional police raids. Further, many of the business vendors actively attempted to evade sales tax with many of the informal business practices facilitating this.

The data for this paper were part of a larger project on the marketplaces and were collected via interviews and participant observation over 3 phases:

(1) Phase 1: June 2015 to July 2015
(2) Phase 2: November 2016 to December 2016
(3) Phase 3: October 2017 to January 2018

The primary researcher understood the languages spoken at the marketplace and was aware of the local culture. However, during Phase 1 of the research, he was looked at as an outsider and treated with suspicion. For Phase 2 and 3, he managed to get an insider contact who introduced him personally to multiple vendors. Connections to further respondents were snowballed through immersion in the field. Follow-up contact with vendors and questions were not informed by a priori design, rather, they were instead informed by a deep reflective reading of existing field notes.

The 3 phases of work allowed an examination of the extent to which informality shapes economic life in the marketplace along with the role of communication channels. When the primary researcher began the study, e-commerce was just beginning to make inroads into consumer life in India. In Phase 1, the researcher captured a marketplace in flux as it reacted to the cut-throat prices of online marketplaces. During Phase 2 of the study, the researcher observed the marketplace as it coped with the push of demonetization by the Government of India. This unanticipated exogenous shockwas a significant economic event and led to challenges to both the informal and formal sides of the marketplace. Demonetization became an important lens for analyzing informality, as its goal was to encourage (and at times coerce) actors to embrace the formal economy. By Phase 3, the markets were slowly reaching an equilibrium with respect to competition from online marketplaces as well as the effects of demonetization. Through the 3 phases, the researcher kept extensive field notes where they documented the daily interactions and conversations of market actors with each other and the customers.

Community, Communication, and Rumors

As public spaces, marketplaces like SP Road have historically been important sites of social interaction [23]. Besides extended conversations between vendors and customers, the researcher observed vendors interacting with each other as well as visiting distributors throughout the day. With significant vertical interdependence between marketplace actors, many of these interactions were related to business, such as paying off dues, striking deals, and sharing information

related to products. On occasion, vendors would ask others for help - for example, on how to use new technology such as a card-reader. This was interspersed with more informal conversations between groups of vendors especially during off-peak hours; conversations would often be over cups of tea that a local tea-seller would either bring during certain times of the day or on demand. Even when vendors were direct rivals, i.e., sold similar goods, they were observed socializing with each other. Much of this was a result of strong communal ties. Vendors who had been plying their trade at SP Road for many years had become part of a close-knit community. Further, Marwari vendors not only belonged to the same community but were, in many cases, from the same village or part of extended families.

Almost all the younger and middle-aged vendors at SP Road had mobile phones that they used when they were not with customers. The device was primarily used for playing music, watching videos, and messaging on WhatsApp. Further, it was used to communicate with customers and distributors who were not at SP Road, though this was limited to the main vendor who owned the shop rather than those working under him. During informal conversations with others, vendors were observed showing/sharing media content along with messages or social media forwards that they had received. Here, mobile devices played a key role in introducing information from outside the marketplace into daily face-to-face conversations between vendors.

The conversations themselves were wide and varied, ranging from family issues to the current political climate. These conversations played an important role in the information-sharing practices of the community and shaped the propagation of information in the marketplace. The researcher documented only those conversations where he had been given explicit permission to do so. The researcher further discussed any overheard rumors with the vendors; many of the quotes presented in this paper are from these interviews.

The data analysis was conducted concurrently with data collection through an iterative and deductive coding process. Following DiFonzo and Bordia [14], information statements were coded as 'rumors' if they were repeatedly shared (or transmitted), treated as credible and useful, and their contents were, to the knowledge of the researcher, unverified. Whenever any âĂŸrumorsâĂŹ were encountered, he followed up with the speaker in unstructured interviews aimed at gaining greater insight. Finally, selective coding was applied to both interview transcripts and field notes to categorize the rumors based on context and content. Qualitative coding of this data revealed three broad categories of observed rumors:

(1) Unverified information that helped market actors assess the risks of new technology, such as online shopping platforms
(2) Unverified information that helped actors deal with uncertainties surrounding new government policies such as demonetization and decisions such as pushing digital money services
(3) Unverified information that helped in the organization of informal business practices and was aimed at keeping informal activities hidden from the regulatory gaze of the state

4 RUMORS, MARKET ACTORS, AND NEW TECHNOLOGIES

Online marketplaces funded by international investors are significantly reshaping urban retail in India. However, current FDI (Foreign Direct Investment) laws in India restrict entities with foreign investment from operating inventory-based models of e-commerce, which has meant that online marketplaces can only act as facilitators between sellers and buyers. They have subsequently attempted to out-compete traditional marketplaces by luring buyers online through cutthroat, often predatory, prices [10]. In this section, we look at how rumors helped vendors assess the risks of selling on online marketplaces.

Vendors at SP Road with significant inventories have contemplated transitioning online, with many of them testing the waters over the last few years. However, online retail was unfamiliar and consequently perceived to be risky and fraught with dangers. Conversations between vendors about online shopping often consisted of them discussing the logistics of selling online and if the transition was worth it. Prevalent rumors were an important part of these conversations, and they conveyed the potential dangers of selling online. In the following conversation excerpt between the researcher and a vendor who sold audio equipment, he explains the problems faced:

> *"Customers also do hera-pheri (deceit). They'll buy something, then put something else in the boxes and try returning to claim refund. And we have no choice - we have to refund. It's our loss. (I: Does this happen a lot?) A lot of times. (I: When was the last time this happened?). Not recently. (I: Did it happen to you?) No no, but it has happened to others (here in the marketplace) - one customer put old electronics in the box and tried giving it back - people here (at the marketplace) complain about it. These companies are making it easier for people to do hera-pheri (deceit)"*

Variants of the above rumor, wherein customers replace a brand new item with an older item and attempt to return it, were repeated in multiple conversations among the vendors. However, these incidents were unverifiable and the researcher couldn't find anyone in the marketplace who

had personally experienced this. Indeed, the respondents themselves were aware of the unverifiability even as they shared it, as would emerge in conversations with the researcher. These rumors were nonetheless reiterated in conversations as a means for vendors to justify their decision to continue selling offline. As seen in the above rumor, it was done through highlighting the dishonesty of 'anonymous' online customers looking to game the marketplace and the lack of formal/informal mechanisms that could help prevent it.

This rumor was related to how risk was distributed in online transactions and how this differed from traditional marketplaces. In traditional marketplaces, vendors have relatively low risk with customers bearing the bulk of uncertainty. Further, repeated interactions (or clientelization) is an important practice that helps build familiarity and trust between buyers and sellers [9, 18]. At SP Road, it allows vendors to have a stream of customers who, based on history (and levels of trustworthiness), they could personally trust and subsequently offer further services such as credit, warranties, and product returns. Online marketplaces, in contrast, do not provide avenues for long-term customer relationships. They operate by putting the product and the platform at the center of the transaction, rather than the interaction between the vendor and the buyer. The focus on customer satisfaction and generous return policies has led to a shift in power from the vendors to the customers. This asymmetry in power manifests itself in rumors of customers abusing power as we see in the below quote by a vendor. The vendor sold audio accessories at SP Road for the last 20 years and had not attempted to sell online.

> *"People will make fake complaint about product - tell it is fake or that it came broken, and company will seal accounts. It happens a lot - no safety for us. (I: Why do they do that?) why they seal? Because customers lie about us. (I: what do you do when they seal) what can you do? You come back to selling here. (I: Have you faced such customer complaints?) No no. I don't sell online. I like selling here, no jhanjhat (complications). (I: Are there others in the markets who have faced this?) Yes yes. (When probed for more details, he veered away from the identity of people who have faced this but talking about how you can't trust online shopping)."*

Variants of such rumors were common in the marketplace and were invariably repeated by vendors who had chosen to not sell online. Similar rumors included stories about customers making fake complaints that led to vendor accounts being suspended or banned. All these rumors were framed in terms of morality and responsibility - vendors held the e-commerce companies responsible for making it easy for the customer to misuse the generous return policies.

These rumors were driven by a lack of trust in online marketplaces, especially with respect to them looking out for the best interests of sellers. This was not surprising given how they had disrupted traditional marketplaces and were looking to dominate the retail market. Further, while advertising/marketing campaigns have attempted to draw in buyers through extolling the benefits of online shopping, there have been less convincing mechanisms to woo traditional vendors online with the consequence that many at SP Road remained unsure if it was worthwhile to sell online. In the absence of formal communication looking to mitigate seller anxieties, informal communication such as these rumors played an important role in communicating the flip side - i.e. potential risks to the sellers. These rumors consequently constitute a community-level response to perceived deficiencies in the new online marketplaces. Besides allowing them to collectively make sense of the new online marketplace environment, it was also an avenue for them to vent their fears.

5 RUMORS, GOVERNMENT POLICIES, AND INSTITUTIONAL TRUST

In November 2016, the Indian government demonetized Rs.500 and Rs.1000 banknotes with the stated intent of combating the illicit shadow economy and remove unaccounted cash from the economy. A later professed goal was to push India into becoming a cashless digital economy and to bring more transactions under taxation, which was enthusiastically supported by e-commerce companies. Marketplaces such as SP Road were severely affected by the demonetization with customer traffic falling significantly in the following months. Old cash notes had to be either deposited or exchanged and there were restrictions on the cash withdrawals per week, both causing inconveniences to vendors who predominantly worked with cash payments. As the amount of liquid money in the local economy decreased, many vendors were forced to adopt card swipe machines and/or digital money wallets such as PayTM. Rumors here helped actors deal with uncertainties surrounding demonetization and the entry of digital money services.

The response of vendors to the aftermath of the demonetization shock showed strong community bonds. When vendors were unable to procure their own machines/digital wallets or did not have the technical knowledge to operate it, others stepped in and shared theirs. Vendors with more resources were observed handling the exchanging of the notes at the banks as leaving the shop to stand in long queues of lines was not feasible for all. Through all this, the rumors prevalent in the marketplace about demonetization showed an uncertain trust in the state's initiative and the entry of

digital wallets. It did not help that the move was shrouded in secrecy and at, times, its implementation seemed chaotic and unplanned [39]. The community, confronted by the uncertainty that followed this exogenous shock, responded through leveraging their social relationships and as information diffused through them, it constructed collective narratives that helped them both make sense and respond to it.

The below extract is from a conversation between a vendor and a long-term customer at a computer accessories store when discussing demonetization, a few weeks after it had been implemented:

> *"Vendor (V): But what's the point - fake notes are already out.*
> *Customer (C): Fake notes. Where?*
> *V: Yes. They caught someone in Calcutta smuggling fake notes. That was the 2000 rupee note. Here (at the marketplace) also, someone tried to pass off a fake 500 rupee note.*
> *C: So quickly?*
> *V: They want to make fake notes, they'll make fake notes. What's going to stop them?*
> *(C asks to see what the new 500 rupee note looks like)"*

The above rumor reflected an imaginary of a state that was struggling to truly contain illegal activity such as counterfeiting. The circulation of these rumors was used to create and reinforce the narrative of demonetization being a failed move and that the state was ineffectual in controlling the 'illegal'. Subsequently, such rumors could also be seen as political statements critiquing government policy.

There was unverified information extolling the government too - for example, an experienced SP Road vendor who actively supported the demonetization move shared information with the researcher about the presence of a chip with a nano-GPS tracker in the new (to be released) currency notes that could track its location and subsequently help cut down on money laundering. Showing the effectiveness and technological prowess of the Indian government, this rumor once again has its origins on social media and was so pervasive that the Reserve Bank of India (RBI), India's central banking institution, had to release a public media statement denying it. During the time after this statement was released, the researcher observed the rumor discussed by the vendors as they attempted to reach a collective consensus on its veracity. The consensus among other vendors was that it was probably false. The statement by the RBI played an important role in this and shows how official sources of information can allow actors to verify information contained in a rumor.

However, not all formal communication decreased uncertainty. The demonetization move was accompanied by extensive government-backed campaigns about transitioning from cash to digital payments coupled with advertising by digital wallet companies. Linking demonetization with the adoption of digital wallets bred mistrust about the true intentions of the government and did little to reduce uncertainty about the benefits of the policy. It brought in further ambiguity about the benefits of adopting unfamiliar technologies. This led to the circulation of rumors that suggested that the only ones benefiting from this move were digital wallet companies and government officials bought by these companies. The following forward from WhatsApp was read verbatim to a customer in the presence of the researcher:

> *"think that a 100 rupee note is circulated 1,00,000 times. It will have the same value. Nobody will get any commission. But if it is circulated through cashless way, each transaction fetches 2.5% commission; that means 1,00,000 times 2.5% = 2500%, i.e. Rs. 2,50,000 (Rs. Two lakhs fifty thousand rupees) to service providers like Paytm or Jio Money etc., just for this one hundred rupees. So, it's a perpetual golden egg laying goose gifted to the gang. That's why this is the Mother of All Scams."*

While the message misrepresented the fact that financial transactions cost 2.5% only when money was moved from a digital wallet to a bank account, it communicated fears that digital wallet companies were the ones benefiting from the move to a cashless economy. The numbers quoted in this rumor became part of multiple conversations. However, such rumors did not originate at the marketplace - most of them including the one about fake notes had spread to market actors via WhatsApp messages from networks outside the marketplace.

Over the last few years, WhatsApp has become integral to the communication practices in the marketplace, with all interviewees stating that they used it in some form, either for personal communication or for business transactions. Here, we see messages from WhatsApp networks spreading to conversations among market actors. This rumoring is what Shibutani [46] describes as "extemporaneous rumoring", which is a result of people facing higher than usual ambiguity due to an unexpected event or crisis. When dealing with the breakdown of their regular everyday practices, people are often receptive to sources of information beyond their immediate social networks - for example, conversations with strangers, social media messages, or as we see here, WhatsApp forwards. These circulating rumors played an important role: they allowed the community to construct a collective reality of the event while also finding a way to voice their displeasure against what they perceived were unfair policies. As an outlet to voice their discontent and thus

reduce anxieties, we once again see the cathartic properties of rumors.

6 RUMORS AND INFORMATION BOUNDARIES

In this section, we look at how rumors help organize informal business practices and play a role in keeping informal activities hidden from the regulatory gaze of the state. The informal economy exists at the interstices of the formal economy, with its boundaries ever-shifting as it seeks to sometimes evade, and other times interact with the formal economy [44]. These boundaries contour the flow of information and the modes of communication used, often leading to the territorialization of information. Such boundaries of information preserves [16] have previously been studied with respect to marginalized communities. For example, Fine and Turner [17] argue that communities in the United States have their own non-overlapping pools of knowledge, with informal communication among African-American communities a direct result of the historical mistrust against formal institutions dominated by white society. Informal communication, such as rumors have consequently served as a means of warning the communities to the dangers that lurk [19] and shaped practices, while also allowing the communities to collectively bond and make sense of their own place in society [35].

Vendors at semi-formal marketplaces such as SP Road have been able to compete with - and sometimes even out-compete - their formal equivalent (such as branded stores in formal marketplaces) largely through informal 'workarounds'. These workarounds, historical in nature, leverage strong community networks to find efficient ways to navigate local environmental constraints. The ability of vendors to remain competitive is contingent on their ability to resist formal restrictions and keep informal practices relatively invisible from regulatory agencies and corporations. This could be with respect to offering products and services that might border on the illegal or not declaring their profits/assets to tax officials. The boundaries between the formal and informal manifest themselves in the marketplaces as localized pools of knowledge.

Actors at SP Road use existing infrastructure - social and technical - to create information boundaries between the formal and informal. We thus have a closely-knit community that looks out for each other, especially against formal authorities if needed, for example, using the grapevine to warn others about potential police raids. Here, informal communication channels act as alternative knowledge streams that circumvent formal communication channels and shape everyday practices. In the below quote, we see a rumor about how law enforcement agencies entrap those installing illegal software:

> *I: What about (pirated) software installation? We actually don't do it a lot. Because they catch us, they will charge 5 to 10 lakhs. (I: If you are caught?) Yeah. Here, so many people this has happened. There was a Marwari guy here. They caught him and charged him. (I: So they came here and raided the shop?) No. They sent someone pretending to be like he is an old man, who knew nothing about computers - so they'll catch like that."*

This rumor was pervasive in the marketplace and repeated by multiple vendors with minor variations - the common theme being that law enforcement often sends undercover cops to catch vendors red-handed while committing illegal acts such as installing pirated software. However, this rumor once again was not verifiable by the researcher. Its lack of veracity was also questioned by officials from law enforcement agencies who stated that this had never happened and that, generally, they had no interest in going after these vendors who made very little money from pirated media. With formal authorities aware of the nature of informal practices prevalent in the marketplace, the ability of the marketplace to function was dependent on them being discreet and limited with respect to conducting any illegal activities.

Such rumors make risks more tangible and visible, and in the process play an important role in structuring existing practices. For example, at SP Road, software installations were done only for 'regular' customers or those who a vendor "was sure of". Here, the accuracy or veracity of the rumor was irrelevant in its true purpose and no one in the marketplace particularly cared to question it, rather it played a symbolic role as a mechanism for social control and shaped how the informal side of the market dealt with the formal regulatory agencies.

7 DISCUSSION

The strength of the informal has been its ability to help actors find ways to navigate local environmental constraints by leveraging community bonds and collective knowledge. Rumors are a form of collective knowledge built by actors exchanging information and interpretations. They help a community make sense of unfamiliar and ambiguous situations. Thus, instead of focusing solely on controlling, correcting, clamping down or discrediting rumors, can researchers learn from rumors to instead uncover the concerns of communities? Can rumors also help us analyze how the contours of uneven power geometry manifest themselves in everyday life? In our case, the rumors are situated within the context of existential anxiety for vendors on SP Road, who while still successful in maintaining their businesses, were deeply aware of the threat of online commerce and digitization. This is arguably not unlike the anxieties of a range of stakeholders

who see their traditional modes of exchange and livelihood challenged by change.

The rumors outlined in the paper largely correspond to 1) instances where existing institutionalized channels of communication were either inadequate or deemed untrustworthy, and 2) where informal communication channels were used to help keep the informal side discreet from regulatory agencies that could disrupt their business practices. With respect to the former, during the introduction of online marketplaces or digital wallets, formal channels were inadequate in assuaging the anxieties and concerns of potential adopters, especially for those who were ingrained in traditional ways of selling. Similarly, there was insufficient information about demonetization from both the government and the formal media sources.

As previously discussed, there has been a concern around the origins and spread of rumors in HCI/CSCW literature. But a focus on this, both in online and offline settings, deters a determined analysis of their cause and effect. The recent public discourse on "fake news" has furthered drawn researchers' attention to the mechanics of spread, alongside pre-defined assumptions of the political motivations of such activity (largely, negative). While these are undoubtedly important questions, there is little outside a small circle of research in sociology on the social motivators for acceptance and propagation of unverified/verifiable information. This paper instead examines peoples' internalization of rumors to reinforce that they are directly related to the lack or mistrust of institutionalized communication channels, coupled with high levels of trust in local social relations.

It is helpful to think of rumors as a direct consequence of the dynamics of trust pertaining to a community and the degree of formalization, which are both local and historical. For marginalized communities, formal institutional sources are likely to provide information that often does not resonate, particularly during moments of anxiety, as we see in the case of demonetization. For example, in our study, the rumors about customers gaming online purchases can be attributed to both the resonance of the narrative that online shopping works against small sellers and the lack of trusted information on the ways small vendors may participate in the digital economy. More broadly, rumors provide counters to dominant public narratives and are coping mechanisms, especially in situations of limited agency. Prior research on communities at risk, for example, immigrant communities, shows that they opt for various kinds of unverifiable information to avoid being in a constant state of anxiety [41].

Technology Adoption, Collective Sensemaking, and Rumors

Technology adoption literature has looked at the success or failure of top-down implementation of new technologies. We find here that in critical moments, such as the aftermath of demonetization or the sudden expansion of online market adoption, the ambiguity of likely outcomes bring rumors to the fore as the community collectively constructs interpretations of the technology. Focusing on these rumors allows an understanding of the tensions that accompany technology adoption, while also emphasizing the importance of communication practices in supporting the convergence of interpretations. This is especially true when new technologies are pushed by external actors, such as government initiatives or corporations looking to disrupt traditional practices.

At its heart, sensemaking relates to how individuals and communities make sense of new situations, especially when they are novel, or their meaning is ambiguous. The social nature of sensemaking means that it is mediated by social interactions, and thus the role of communication becomes key. The introduction of new technologies naturally results in sensemaking because their inherent complexities lend themselves to multiple interpretations [22]. The process thus involves developing "assumptions, expectations and knowledge" [37] about the technology, and subsequently shapes how actors respond to it. As an iterative process involving varying interpretations of different aspects of the technical artifact, the interplay of communication practices ultimately leads to a shared understanding [49].

As we see in this paper, communities respond to the uncertainty of technologies by collectively constructing and circulating rumors as tales that warn potential adopters of risks (and sometimes benefits). The role of rumors in making sense of new technologies - reassuring to an extent, it complicates the model of technology diffusion. An assumption inherent in technology diffusion models is that a new 'better' technology will be adopted simply because it is superior to older ones. This results in a linear model which begins with a potential adopter introduced to a technology and ends with either an adoption or a rejection. However, from a social sensemaking perspective, technology adoption is a dynamic process in which people are continuously seeking to make sense of the gap between expectations and actual experiences. Further, it highlights the importance of informal communication in the process. Sensemaking is more concerned with plausibility rather than accuracy and is about "accounts that are socially acceptable and credible" [52]. Circulating rumors, as "improvised news" that are collectively constructed by a community [46], are integral to this process.

Informality, Institutions, and Rumors

Informality in the context of organizations and much of the Global North is starkly different than in local communities in the Global South. Altrock [2] differentiates the two kinds of informality as 'complementary' and 'supplementary'. In complementary informality, informality is with respect to

the informal exchange of information with the legitimacy of institutions not questioned. In supplementary informality, informal institutions substitute for formal institutions because the latter are either too weak or because of low institutional trust. At semi-formal marketplaces, while we see both forms of informality, the presence of supplementary informality wherein local actors actively mistrust formal institutions makes communication starkly different than when studying organizations in the Global North.

Researchers looking to understand or leverage informal communication channels will need to differentiate between the two kinds of informality to understand power and trust relations. In conditions of supplementary informality, rumors play an important role in shaping trust in a society and are often vital in helping social, economic, and political systems strike a balance between the formal and informal. For example, Fine [16] discusses how a moderate level of rumors helps facilitate a vibrant public sphere. He argues that the absence of rumors indicates a society where the public no longer seeks to contest formal institutions, while a society rife with rumors shows the breakdown of trust in formal institutions.

Identity construction accompanies any process of sensemaking - how events are interpreted and made sense of is influenced by individual and group identity [4], while also having a bearing on them. As a form of collective sensemaking, rumors play an important role in shaping identity; for example, Coast and Fox [12] argue that rumors can "help uncover collective beliefs and shared identities" and help in bringing communities together. This is often against external threats, such as perceived outsiders, the state, or the entry of new technologies. A rumor is justified by its origins in a community, but more importantly, the community is reinforced by its shared purchase of a rumor.

While rumors can help bind communities, the potential divisiveness that might exacerbate existing tensions is what leads formal authorities to clamp down on them. However, when we look at rumors through the lens of power relations in the Global South, the antagonistic relationship that they suggest between local communities and powerful entities (such as the state and corporations) can also be seen as a form of resistance. Informal spaces in the Global South have long survived through resisting the formal, and in the context of informality, rumors are yet another way for the unequal power relationships to be both actively and, more importantly, tacitly discussed and opposed. This is not to deny that rumors cannot be used to spread misinformation or be propaganda. Instead, rumors and their negotiation in the process of sensemaking is central to understanding their functioning broadly. Our challenge as scholars of the sociotechnical is how to be nuanced about understanding and contextualizing rumors.

Future HCI/CSCW research and design in the Global South is contingent on our ability to understand how institutional structures shape technology adoption and use. Here, we argue that identifying and analyzing the role of informal communication in the negotiation of technologies by local communities offers important lessons on how institutional trust and mistrust shape technology appropriation.

Finally, the focus of this paper is on rumors in an offline setting; it is important to differentiate these from online rumors. While offline rumors do intersect with the online world of social media forwards, most of the circulation of rumors here is through face-to-face conversations. This brings with it a unique set of localized trust relations and social institutions. For example, actors are able to assess the credibility of those telling the rumors more accurately. A historical unease with formal institutions and deep-rooted community bonds in the marketplace also mean that rumoring here has different temporal characteristics than online rumoring - rumors move relatively slowly but are also given more credibility when relevant.

8 CONCLUSION

Having outlined some of the rumors encountered in a semi-formal marketplace, our work argues that studying rumors can be a useful means of gauging the pulse of a community. Exogenous events such as technology pushes often exacerbate the difficulties of operating in environments in which there is limited access to institutional information and/or recourse. Unverifiable information here indeed becomes the norm, rather than the exception. As social media such as WhatsApp become integral to how information is shared in communities, it is worth taking a step back to study the offline spread of unverified information. Our work in this paper, while primarily instructive on the strategies of information sharing and its relation to institutional trust in a marketplace setting, is also useful in framing the motivations and strategies of unverifiable information flows in any community. This paper also highlights ways in which sensemaking is fundamentally collective. Individuals' decisions to trust, consume, or propagate information are driven not by formal institutions, but the embedded relationships with other actors in their networks. Our work further underlines the role of communication channels - informal and formal - in analyzing the adoption of a new technology or community response to a new policy.

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