

CUSTOMER ACQUISITION AMONG SMALL AND INFORMAL BUSINESSES IN URBAN INDIA: COMPARING FACE-TO-FACE AND MEDIATED CHANNELS

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ABSTRACT

This study further explores the use of information and communication technologies (ICTs) in small and informal businesses in the developing world by focusing on the role of ICTs in customer acquisition and retention. Data is drawn from a survey of 317 sole proprietors and operators of small businesses with five or fewer employees in and around urban Hyderabad in Southern India. Respondents describe how various customers were acquired—via walk-in, referral, family connections, landline telephone, mobile phone, internet/email, etc. Results suggest that face-to-face interactions dominate customer interactions, even among those with access to ICTs. Four tests explore whether telephony enables more specialized, hands-off, numerous or distant relationships with customers; a significant relationship between landline ownership and total number of customers is found.

Key words: Small and Informal Business, Mobile Phone and Telephone Use, Customer Acquisition and Retention, India

1. OVERVIEW

In the both the popular press and the academic/development literatures, there is much enthusiasm about the potential of information and communication technologies (ICTs) to improve the productivity of small and informal businesses in the developing world. Clearly, ICTs can help small businesses replace travel and save money, compare price information, respond to existing customers, and find new customers (Saunders et al., 1994). As more small businesses gain access to ICTs, the research community is working to provide a more detailed understanding of the magnitude and details of these improvements. This study contributes to this effort by focusing on the role of ICTs in customer acquisition and retention by the smallest of enterprises. To do so, it surveys 317 sole proprietors and operators of small businesses with five or fewer employees in and around urban Hyderabad in Southern India.

The mobile telephone has become the ICT most useful to small and informal businesses as a means for developing and maintaining contacts with customers (Donner, 2006; Esselaar et al., 2006; Vodafone, 2005). However, we know relatively little about the relative importance of mediated vs. face-to-face means of customer interaction. Molony's (2006) ethnographic work in Tanzania suggests that the trust accrued through face-to-face interactions trumps the convenience of any telephone, but additional quantitative work is necessary to further this line of inquiry, and to bring it into other developing-world contexts.

In this survey, respondents were asked to report how various customers were acquired - via walk-in, referral, landline telephone, mobile phone, internet/email, etc. The results are presented and discussed in two parts. The first is descriptive, focusing on the aggregated

responses from the 317 small businesses. These responses suggest that face-to-face interactions dominate customer interactions, even among those with access to ICTs.

The second part tests four hypotheses about the role of landline and mobile telephones in shaping the business networks of small businesses. Four tests explore whether telephony enables more specialized, hands-off, numerous or distant relationships with customers; only a significant relationship between landline ownership and total number of customers is found.

2. BACKGROUND

The term “small and informal business” refers to a broad range of enterprises in the developing world. The most numerous of these enterprises are sole proprietorships, often home-based, temporary, or part-time. Beyond the sole proprietor, the boundaries of the small and informal enterprise space are blurry. For example, the European Union defines microenterprises as having up to 10 employees, small enterprises as having between 10 and 49 employees, and medium enterprises as having between 50 and 250 employees (European Union, 2003). In the development community, the definition of a microenterprise is sometimes capped at 5 or fewer employees. Doing so further contrasts the smallest firms with small and medium enterprises (SMEs), which, although less numerous than microenterprises, are more likely to be formal, dynamic, stable, or growing concerns. Formality is a second delineation. Some enterprises pay taxes, keep a payroll, and hold bank accounts. Others do not, and comprise what some governments call the ‘informal sector’ (Mead & Morrison, 1998). A third delineator is revenue, which, although often difficult to measure among informal sector, can be a proxy for enterprise complexity and/or ICT behaviors. Researchers and practitioners often employ all three delineators in order to separate the experience of the ‘smaller’ businesses from their larger counterparts. We define small and informal businesses as those non-agricultural businesses with five or fewer employees. This broad category includes the development community’s ‘ideal’ of a microenterprise (e.g., underfunded, informal, relatively simple), but also includes a few more prosperous enterprises, as well as self-employed professionals. It excludes SMEs from the analysis and discussion.

The small and informal business category is important because it contains more enterprises than other kind of non-farm business. In India, for example, there were at least 44 million non-agricultural unincorporated/proprietary enterprises in 1999. Of those, 36% were sole proprietorships, and 64% had five or fewer employees (National Sample Survey Organization, 2000). These millions of enterprises are found in urban and rural areas alike. Even if they are not the primary engine of national growth, small and informal enterprises are important for broad-based economic development, and for many households’ livelihoods (Mead & Leidholm, 1998).

2.1 ICT use in Small and Informal Businesses

In recent years, economic development practitioners have lauded the potential of ICTs to increase the productivity and vitality of small and informal businesses. For example, optimistic stories describe rural artisans (UNDP, 2005) or small manufacturers (Cloete, Courtney, & Fintz, 2002) using the internet to sell products to American suburbanites, and of farmers using text messages to check crop prices (King, 2004). Efforts to frame ICTs as only part of the solution, and to illustrate other problems facing businesses, have kept the academic and policy dialogues on a more even keel (Humphrey et al., 2003; Moyi, 2003).

Perhaps the most comprehensive assessments of the ICT behaviors of both microenterprises (Duncombe & Heeks, 2002a) and SMEs (Duncombe & Heeks, 2002b) were conducted in Botswana by Duncombe and Heeks. Their reports illustrate that not all

microenterprises use ICTs in the same way, nor to the same degree. They employ a simple grouping mechanism based on ICT use to delineate non-ICT users, telephone-only users, and IT users of various intensities (non-networked PC users through intensive ICT users). Their work with Botswana's SMEs also clearly stresses the utility of the telephone, relative to the internet, and the importance of face-to-face meetings, relative to mediated sources.

Other more recent research has focused on mobile use by small and informal businesses. Samuel et al. (2005) highlight the importance of mobiles to microenterprises in South Africa, Tanzania, and Egypt; roughly 60% of the microentrepreneurs surveyed reported that the mobile had increased the profitability of the business. Esselaar and his colleagues found that the mobile phone was the most important ICT to SMEs and microenterprises across thirteen African nations (Esselaar et al., 2006). Research from Rwanda suggests that operators of small and informal businesses use mobiles to pursue a mix of business and personal motivations (Donner, 2004, 2006), and to extend the reach and responsiveness of their businesses (Donner, 2005).

Jagun et al. (2005) note potential problems with mobile use by microentrepreneurs, illustrating how unequal access among Nigerian fabric weavers offers advantages to some users, but also significant informational and competitive disadvantages to non-users. Molony's (2006) study of ICT use by Tanzanian microentrepreneurs finds more enthusiasm for the mobile telephone than for the internet, but also stresses the continued importance of the interpersonal, face-to-face interactions in building and maintaining trust between business.

The efforts by Duncombe and Heeks in Botswana and Molony in Tanzania assess ICT use relative to and in combination with face-to-face communication, thus keeping the focus on the entirety of an enterprise's communication environment. This paper builds on that work by shifting the focus to urban India. With its growing IT-enabled software and business process industries, India's experiences symbolize the importance of ICTs to the developing world. However, India remains a poor country, with an average per-capita 2006 GDP of only \$842 (Economist.com, 2007). A survey of small businesses in any of its cities will include more tailors and neighborhood shops than accountants and software entrepreneurs.

3. RESEARCH QUESTIONS

The research goals of this study are twofold. The first is to add to the perspectives forwarded by Duncombe and Heeks and Molony, by describing the current ICT practices of small and informal businesses in a way that explicitly compares mediated behaviors to non-mediated practices. The second is to test four hypotheses about how access to telephony structures the ways small and informal enterprises communicate with customers.

By focusing on relationships with customers, the analysis draws on two distinct literature streams. The first concerns how small businesses in developing world cultivate social capital and security by limiting their economic interactions to a subset of possible trading partners, with whom they can establish trust over time, or through interlocking relationships of friends and family. Clifford Geertz (1978) observed this phenomenon among Morocco's market bazaars. Similar themes have been raised by Marcel Fafchamps (2001) in his work in sub-Saharan Africa.

The second draws on established ways of thinking about the impact of telecommunications on society. The adoption of the telephone by industrialized societies in the twentieth century brought significant changes to the configuration of urban areas and suburbs, home and domestic spaces, and workplaces themselves (Castells, 1996; de Sola

Pool, 1977; Saunders et al., 1994). The mobile phone continues these changes; for people who may previously have not had a telephone before, it affords the same benefits of low-cost and real-time connectivity at a distance. At the same time, as a constant companion of the individual, rather than a fixture on a wall or street corner, it increases reachability even beyond that provided by the landline. By allowing for micro- and hyper- coordination of social and economic activities (Ling & Yttri, 2002), the mobile quickens the metabolism of cities (Townsend, 2000). Further, some argue that both the mobile phone and the Internet decouple places and relationships, allowing for the cultivation of more specialized ties at a distance (Wellman, 2002).

Previously unconnected, small and informal businesses with a new mobile phone might be caught up in the quickening metabolism, becoming more reachable, and engaging the same customers more frequently and productively (Donner, 2005). They might also change the shape of their customer set, attracting new/more customers to their goods and services (Donner, 2006). One way to differentiate between these possible changes is to explore the various properties of a business's set of customer relationships. They can be described in terms of size (number of customers), multiplexity (whether relationships are multidimensional or one-dimensional, limited to work, or advice, or friendship, etc, (Fischer et al., 1977)), familiarity, and geographic distance.

This survey asked small business owners about three of their customers: their 'best' customer, and the two last customers with which the respondent communicated, prior to the interview. The questions about the recent customers were added to more closely approximate a representative sample of customers. Respondents were asked to describe the nature of the relationship, how well they knew each customer, and whether the customer lived close to the location of the enterprise. In addition, respondents were asked to estimate how many total active customers their business had. Four hypotheses were tested:

- Enterprises with access to mediated communication technologies (landlines and mobiles) were expected to have less multiplexity amongst their relationships. In other words, we expected phone users be less likely to trade with friends and family, and more likely to trade with "business only" customers.
- Enterprises with access to mediated communication technologies were expected to report a higher proportion of transactions with customers unfamiliar to them. In other words, we expected phone users to be more likely to trade with weak ties than with a set of familiar customers.
- Enterprises with access to mediated communication technologies were expected to report a higher proportion of customers living outside the businesses' immediate neighborhood.
- Enterprises with access to mediated communication technologies were expected to report a greater number of customers, overall.

Of course, the tests of these relational properties had to account for differences between the businesses themselves. The sample combined suburban and urban settings, and survivalist businesses making \$75/month with more prosperous businesses. Both factors (locale and socioeconomic strata) were treated as controls in the analyses.

4. METHODS

A survey was carried out in one of India's largest cities, Hyderabad, and in one of its nearby suburbs, Sangareddi, a town of 50,000 people, by Hansa Research, a specialized survey research firm in India. Surveys were conducted by trained enumerators, based on face-to-face intercepts in both home and business settings in various parts of both municipalities.

Ideally, we would have been able to analyze a purely random sample, but as is often the case in developing countries (Casley & Lury, 1987), no comprehensive list of informal businesses was readily available. To approximate a representative sample, Hansa interviewed respondents in numbers proportional to their distribution across five tiers of socio-economic status, as elaborated by the firm in its nationwide "media readership survey".¹ The tiers - determined externally to this study - combined occupation titles (unskilled worker, skilled worker, petty trader, shop owner, businessman w/employees, clerical) with education/literacy levels. Though we are confident that the survey represents a broad cross section of small enterprises in Hyderabad: three significant barriers to generalizability come immediately to mind: the first is, of course, that we have focused on a relatively prosperous urban area and only one suburb, though the bulk of India is still rural. Second, the sample mirrors Hyderabad's distribution across Hansa's five socioeconomic strata, but we do not know whether small and informal businesses are distributed in this way across the population. Third, because of the face-to-face, roaming intercept method, the sample over-weighted small retail and service shops, at the expense of small, informal manufacturing endeavors, many of which are home-based, and hard to find. Nonetheless, the survey is adequate to provide a rough picture of the ICT and customer recruiting/retention behaviors of this group of businesses, and to support exploration of the nature of their mediated and non-mediated customer relationships.

5. RESULTS

5.1 Profiles of ICT use and Customer Relationship Behaviors

A total of 317 small businesses in Hyderabad (68%) and Sangareddi (32%), were interviewed for this analysis. Fifty-eight (58%) were sole-proprietors; 24% had one employee. Businesses with six or more full-time employees were excluded. Most were drawn from various services (55%) and from retail (39%). Most (78%) were stand-alone, the others were roaming (9%) or co-located with the home (12%). More than half (53%) of respondents had completed secondary school.

The businesses were truly small; most fit the classic development definition of a microenterprise (Mead & Leidholm, 1998), although some of the more prosperous businesses in the sample were better described as "small businesses" or professionals. As would be expected, few were full participants in the formal economy - only 10% of respondents reported having a tax identification number.

Table 1 provides details on the general distribution of income (after expenses) of the enterprises, across the five socioeconomic quintiles created by Hansa Research. The average enterprise in the sample earned a little over \$100 per month for its proprietor.

Overall	A (n=53)	B (n=59)	C (n=57)	D (n=62)	E (n=86)
\$1,404	\$2,689	\$1,720	\$1,208	\$1,069	\$769

Note: question was asked as monthly revenue, less expenses, in Rupees; conversion to dollars is as of March '07

¹ http://www.hansaresearch.com/IRS_2007_Brochure.pdf

Table 1: Yearly Business Income by Socioeconomic Strata (Job Title + Education)

Table 2 illustrates the use of various ICTs by businesses in the sample. More than 90% of respondents had a television at home. Roughly 25% had a landline, either at home or at work. As for newer “mediated communication devices”, 7% of respondents - concentrated in the two highest socio-economic strata - reported having a personal computer. A remarkable 59% of respondents reported owning a mobile phone. Ownership of mobile phones was greater than 60% for all but the poorest quintile of respondents.

	Percent of respondents reporting					
	Overall	A (n=53)	B (n=59)	C (n=57)	D (n=62)	E (n=86)
Mobile Phone	59.0	86.8	69.5	73.7	61.3	23.3
Home						
TV	92.1	92.5	96.6	91.2	83.9	95.4
Landline	25.2	62.3	27.1	24.6	19.3	5.8
PC	7.2	30.2	10.2	0	2.0	0
Work (for non-roaming businesses)						
Landline	23.9	47.2	40.4	16.1	20.4	1.5
PC	7.6	24.5	5.0	8.9	1.9	0

Table 2: ICT Use by Socioeconomic Strata

Table 3 details attributes of respondents’ best and two most recent customers - a total of 951 customers. We found no customer interactions initiated first by landline, mobile phone, or PC. In over 70% of the cases, first contact was made when the customer walked into the establishment. In another 16% of cases, customers were referred by a friend, family member, or another customer.

In a few cases - 5%, 8% among best customers - landlines were a primary channel for ongoing customer interactions. However, face-to-face interactions are the heart of almost all ongoing customer interactions, dwarfing any mediated channel. This is unsurprising, since (a) 40% of respondents had no phone and (b) respondents had the phone numbers recorded for only 30% of all the customers they described. Phone number capture was predictably higher among best customers, for whom the proportion was closer to 50%. But clearly, many customers, including all first-timers and many repeat visitors, come and go with very little formal information retained. For the respondents in this survey, business is face-to-face.

And yet, most respondents claimed to know those faces. 65% of respondents report knowing their best customer “very well”. Respondents used “not very well” to describe their level of familiarity with only 23% of all customers and only 3% of best customers. Familiarity and friendship were not synonymous: 60% of all customers and 47% of best customers were described as strictly business relationships. In terms of customer location, 85% came from the immediate neighborhood, or from a nearby part of the city. Business is not only face-to-face; it is local, and it is usually between people who know each other.

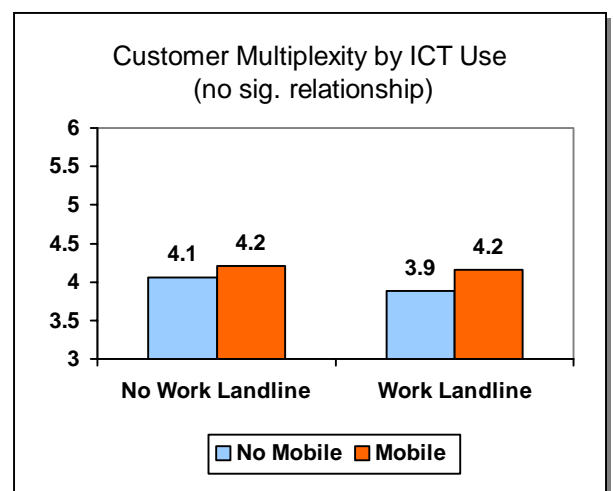
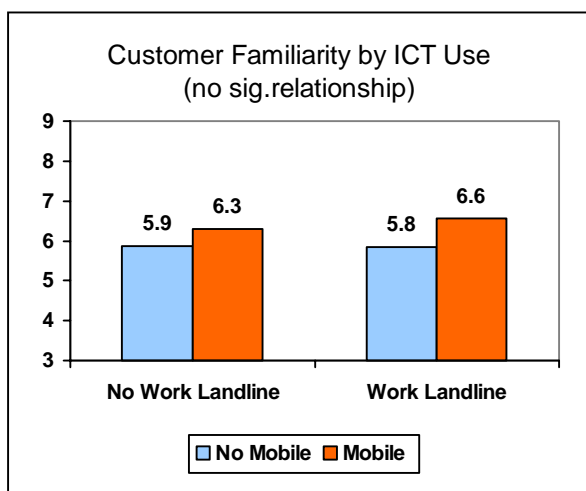
Although not mentioned in table three, two other observations from the survey reflect the informality of businesses. Fifty per cent (50%) kept books in their head, the other half on paper, with only 2% using electronic methods. Ninety-five per cent (95%) of establishments took only cash.

Attributes of 3 customers (1 best, 2 recent) for 317 respondents	All Customers (n=951)	Best Customer (n=317)	Others (n=634)	
How was first contact made with customer?	Walked in	72.8	67.8	75.2
	Referred	16.1	21.7	13.3
	Approached by business owner	10.6	10.1	10.9
	Called, SMS, or Email	0	0	0
How would you say you most often communicate with the customer?	Face-to-face	96.9	96.9	96.9
	Landline	4.8	8.2	3.2
	Phone Booth	1.5	2.5	0.9
	Mobile	1.4	1.3	1.4
Do you have a record of the customer's phone number?	30.5	49.5	21.0	
How well you know the customer?	Not well	23.7	2.8	34.1
	Somewhat	45.1	31.9	51.7
	Very well	29.8	65.3	12.0
Is the relationship "strictly business"?	62.1	47.0	69.7	
Where does the customer live?	In neighborhood	40.6	51.4	35.2
	Same part of city	44.9	44.8	45.0
	Elsewhere	13.1	3.8	17.8

Table 3: Customer Relationships

5.2 Tests of Hypotheses

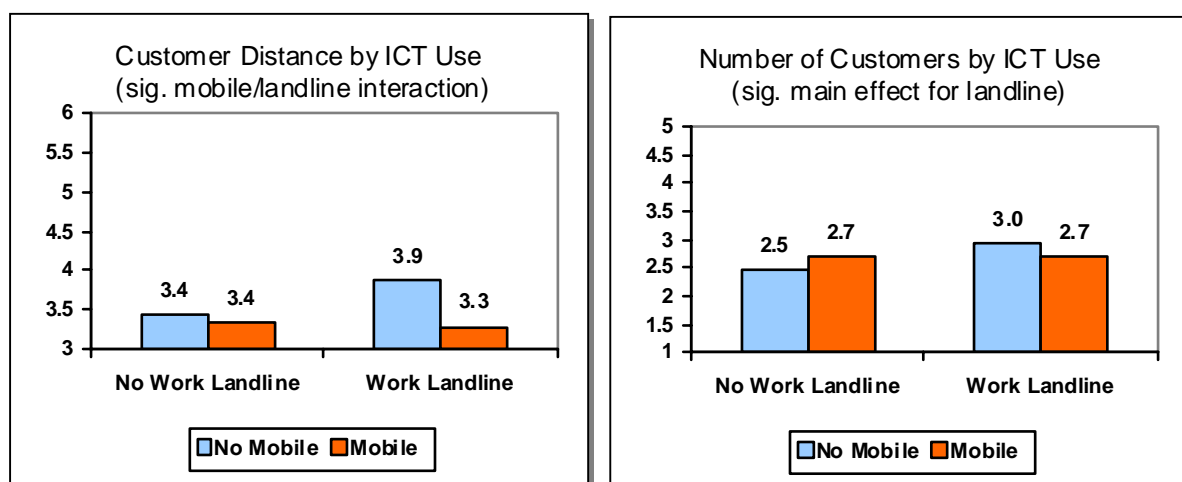
Analysis of variance (ANOVA) was used to test the hypotheses about changes to the configuration of customer relationships. With the exception of the dependent variable, the ANOVAs were identical. Detailed results from all four tests are in the appendix.



Multiplexity was represented on a scale from 3 to 6. Respondents were assigned one point for each relationship described as “strictly business”, and two points for each described as also friend or family. After controlling for socioeconomic strata (using a five-level version of the Hansa Research stratification variable), and location (Hyderabad vs. Sangareddi), there were no significant main effects for landline or mobile phone ownership on multiplexity. The interaction was also non-significant. In other words, the test provided no evidence that businesses with telephones had customers who were any more likely to be described as “strictly business”.

Familiarity was represented on a scale from 3 to 9. Respondents were assigned one point for each relationship described as unfamiliar, two for each described as “somewhat familiar”, and three for each “very familiar” relationship. After controlling for socioeconomic strata and location, there was no significant main effect for landline ownership. The interaction was also not significant. There was a small, significant main effect for the impact of mobile phone ownership on perceived familiarity of customers $F(1,307) = 10.4, p < .01$, two-tailed. However, this was in the opposite direction as was hypothesized—those with mobiles reported higher levels of familiarity with customer—thus the null hypothesis was not rejected, and the results of this test are inconclusive (Lehrera et al., 2007). As a whole, the model was a fairly weak predictor of familiarity, as the overall R^2 was a modest .118.

The **customer distance** variable was created from a question asking respondents to report (if known) whether each customer lived, relative to the location of the business. As per table 3, customers living elsewhere in the city, or further afield, were considered customers from “elsewhere”. Respondents were given one point for each customer living in the same area, and two for each living elsewhere, resulting in a scale on the distance variable from 3 to 6. The overall R^2 for the model was a small .061, meaning the model has little explanatory power. There was a significant interaction effect between mobile and landline ownership: $F(1,307) = 6.0, p < .05$, two-tailed. The relatively few businesses with a landline and without a mobile had the highest proportion of customers from elsewhere. On its own, the landline term was not significant. The mobile term was significant at $F(1,307) = 6.1, p < .05$, two-tailed; but this relationship was not in the hypothesized direction (the observed pattern was that those with a mobile had fewer distant customers), thus, as was the case with familiarity and multiplexity above, the results are inconclusive.



The final ANOVA evaluated ICT use and number of customers. Respondents had been asked to estimate the number of active customers, as “less than 10” “10 to 50” “51-100”, “101-1000” or “more than 1000”. The resulting 5-level ordinal variable was used as the

dependent variable. Neither the mobile term nor the mobile-landline interaction were significant. The work landline term was significant: $F(1,315) = 12.3$, $p < .01$, two-tailed, meaning this analysis supports the hypothesis that landline owners have more customers. Compared to the other models, the overall R^2 for this model was a stronger .365.

As an interesting aside, note that in all four models, the location of the interview was a significant covariant—as might be expected, respondents in the suburb were more likely to report multiplex relationships, and to be more familiar with their customers, to have local customers. The suburban businesses reported more customers, on average. Socioeconomic strata was not a significant covariant in any of the models.

6. DISCUSSION

As an input to a discussion about the role of ICTs in small and informal businesses, the descriptive results are complex - in a good way. On the one hand, we see a remarkable penetration of the mobile phone into the smallest businesses in urban India. Upwards of 60% penetration in all but the lowest quintile of urban businesses is something that would have been unimaginable even a decade ago. All indications are that penetration of mobile telephones will continue to rise among small and informal businesses.

And yet, the businesses clearly remain fixtures in their neighborhoods, and are supported by face-to-face interactions with local customers. There was little evidence of businesses transacting with customers from outside the city limits, and not a single instance of exporters in the sample. Shopkeepers and service people are familiar with most of the customers, but they don't capture many details about their interactions with them. Most do not retain phone numbers, fewer still track individual transactions. The informality that defines most of these businesses (no books, no taxes, and cash-only transactions) extends to customer attraction and retention. A focus on the supplier side might have yielded different results and more formalized (or mediated) relationships. But as far as customers go, many of these businesses survive only when customers physically come to them.

Therefore, the first theme of this discussion is to underscore the importance of examining the totality of the information and communication behaviors of small and informal businesses. If we had just asked about ICT use, the overwhelming importance of the face-to-face would not have come through. This is not to say that mobile phones are not helping these businesses; research suggests that they do help some businesses, some of the time (Donner, 2005, 2006; Samuel et al., 2005), and it's clear that small and informal business owners are voting with their wallets and investing in handsets. However, by their own reports, entrepreneurs' businesses still depend on face-to-face interactions, even if the mobile or landline is present.

The descriptive data on the structure of customer relationships is also complex. By this analysis's calculations, roughly 40% of customers and 60% of best customers are also considered friends or family. Is 40% 'enough' to suggest that trust benefits which accrue to friendship and family ties characterize the commercial relationships of these small businesses? Or shall we focus on the other half - those customers with whom respondents have a "strictly business" relationship? This data reminds us that customer relationships are heterogeneous.

6.1 Telephony's Impact on Customer Relationships

From here on, the discussion focuses primarily on mobiles, the ICT with the widest adoption among small and informal businesses. This particular analysis yields relatively little new

information about the impact of mobile use on these businesses. Three of the four hypotheses—that telephony leads to less multiplexity, less familiarity, and greater dispersion among customers - were not supported². The only clear observable relationship was between landline use and total number of reported customers. However, in the spirit of productively reporting inconclusive findings (Lehrera et al., 2007) the analysis does merit some further discussion.

The research hypotheses were informed by previous research with Rwandan microentrepreneurs (Donner, 2006), which had uncovered some evidence of new ‘weak’ ties in the networks of mobile owners. Though this study was not designed as a direct re-test, we did expect to see echoes of this weak ties effect reflected in a higher observed proportion of customers described as distant and/or “strictly business” among mobile owners. Whether or not these similar patterns are actually manifesting among the Hyderabad firms we spoke to, these ‘echoes’ are not observable via the hypothesis tests reported here. Furthermore, since almost all the customers described by respondents were acquired via walk-ins or referrals, the descriptive data does not support the assertion that mobile use is directly helping most small and informal business owners attract new customers.

Of course, failure to disprove null hypotheses are nothing more than that, and this paper should not be interpreted as a negation of any relationship between mobile use and the shape of a businesses’ customer set. Instead, the analysis’s primary contribution may be as an indicator of avenues for further refinement of tests and concepts. Three paths for additional research are apparent.

A first approach would be to look more carefully at the link between mediated relationships and face-to-face transactions; Molony’s (2006) ethnography in Tanzania is a guide here, describing how the mobile was favored for some transactions, but face-to-face generally ruled the day. So much so, in fact, that perhaps the lack of observable relationship between telephony and the nature of enterprises’ customer sets was the relative unimportance of mediated versus face-to-face communication. Nevertheless, it may also be possible that the mobile phone has a role to play in accelerating and deepening relationships that are still face-to-face at their core. In this case, a research frame of mobile-mediated versus face-to-face interactions should be replaced by one which examines synergies and interactions between them. To support customer relationships, the channels may be complementary rather than competitive (Chaffee, 1982); more questions about this management of a communications repertoire (Haddon & Vincent, 2005) might help improve our sense of how mobiles function in these small business settings and whether, controlling for other factors, mobile-enabled (amplified?) customer relationships are more profitable, trustworthy, or secure.

A second task is to explore the microeconomic impact of mobile use among small and informal businesses, based on measures of productivity and income. However, a single cross-sectional survey may not be the best way to examine the impact of mobile phones on businesses’ incomes. Nor is self-report - where respondents are asked whether the mobile helps them earn more money - necessarily sufficiently reliable. Even adequate pre- and post-measures are notoriously difficult to gather among a population that, as can be seen from the discussion above, isn’t well known for keeping good financial records. A notable models for this line of research comes from the fishing sector in Kerala, India (not microenterprises per

² There was a significant interaction term in the distance analysis: businesses with a work landline and no mobile had the highest proportion of longer-distance customers. Perhaps the causality is reversed than what was implied in the hypothesis—that those enterprises with more success maintaining customer relationships over a distance, via a landline phone, had less motivation to purchase a mobile.

se, but sharing some similar properties). Using weekly surveys of boats landing at ports in Kerala over a five year period, Jenson (2007) finds that mobile phones clearly improve the stability of prices commanded by fishermen.

Jenson's work with fishermen is doubly-illuminating. The rigor, and patience, of the methodology is itself a source of guidance, but so is the study's the focus on a single sector, which allowed for particularly tailored questions and focused hypothesis. By contrast, the heterogeneity of activities among the small and informal business sector, in general, presents additional difficulties for ICT researchers. Thus, the final line of research might be to question whether the "benefits" of ICTs, and mobiles in particular, apply equally to all kinds of small and informal businesses, and, if not, to develop a better taxonomy of the properties of businesses which are more likely to benefit from the various functions of ICTs. For example, taxi drivers might value micro-coordination, wholesalers may value more accurate price information, and others (perhaps a shoe-shine kiosk or roaming knife sharpener) may not be able to find benefit in ICT use at all. This last line of analysis, perhaps in combination with the other suggestions (customer-amplified relationships, focus on profitability) might help the research community further refine how it describes the roles (not role) of ICTs in small and informal enterprises.

7. CONCLUSION

The results of the interviews with 317 small and informal businesses in urban India found that face to face customer interactions well-outpaced mediated interactions, even among those firms with access to mobiles, landlines, or both. When people argue that mobiles will help close the digital divide, the technology's usefulness to small and informal enterprises is often one of the primary implied benefits (e.g., (Economist, 2005)). However, as this discussion has pointed out, some work remains before we can claim to understand precisely how these benefits translate into profits or productivity. Helpful anecdotes and ethnographic studies are starting to surface from around the world, suggesting that mobiles are being used by some small and informal businesses in very productive ways, but it might take longer for the impact of mobiles to be felt by the majority of small businesses, and the impact might not be as significant as many of these anecdotes would suggest. If the interactions of these tiny businesses remain primarily face-to-face, with the mobile offering an augmentation, rather than a radical transformation, of how these businesses operate, then changes in income might be less evident. This is an important question, as many are looking to mobiles to have a positive impact the livelihoods of hundreds of millions of households around the world. Though this small paper has done more to frame questions for future studies than to resolve any debates, we hope that others will join the inquiry.

8. APPENDIX A: ANOVA SUMMARY TABLES

Dependent Variable: Multiplexity

Source	Type III Sum of Squares	DF	Mean Square	F	P
Corrected Model	39.5	5	7.9	5.23	.000
Intercept	193	1	193	128	.000
SEC (Strata)	.001	1	.001	.000	.997
Urban vs Suburban	36.8	1	36.8	24.4	.000
Landline (Work)	.036	1	.036	.024	.877
Mobile	2.13	1	2.13	1.41	.236
Landline*Mobile	.386	1	.386	.256	.613
Error	446	309			
Total	5879	315			
Corrected Total	505.7	314			

R Squared = .078

Table A1: ANOVA Summary Table for Effects of Landline and Mobile Use on Multiplexity

Dependent Variable: Familiarity

Source	Type III Sum of Squares	DF	Mean Square	F	P
Corrected Model	74.03	5	14.8	8.04	.000
Intercept	558.5	1	558.5	303	.000
SEC (Strata)	4.56	1	4.56	2.48	.117
Urban vs. Suburban	48.19	1	48.19	26.2	.000
Landline (Work)	6.85	1	6.85	3.72	.055
Mobile	19.08	1	19.08	10.36	.001
Landline*Mobile	.524	1	.524	.284	.594
Error	554.5	301	1.842		
Total	123001	307			
Corrected Total	628.5	306			

R Squared = .118

Table A2: ANOVA Summary Table for Effects of Landline and Mobile Use on Familiarity

Dependent Variable: Distance

Source	Type III Sum of Squares	DF	Mean Square	F	P
Corrected Model	12.65	5	2.53	3.93	.002
Intercept	314.4	1	314.4	489	.000
SEC (Strata)	1.24	1	1.24	1.94	.165
Urban vs Suburban	5.88	1	5.88	9.15	.003
Landline (Work)	1.71	1	1.71	2.67	.104
Mobile	3.89	1	3.89	6.05	.014
Landline*Mobile	3.84	1	3.84	5.97	.015
Error	193.5	301			
Total	3770	307			
Corrected Total	206.1	306			

R Squared = .061

Table A3: ANOVA Summary Table for Effects of Landline and Mobile Use on Distance

Dependent Variable: Number of Customers

Source	Type III Sum of Squares	DF	Mean Square	F	P
Corrected Model	109.9	5	22.0	35.5	.000
Intercept	22.64	1	22.64	36.6	.000
SEC (Strata)	.082	1	.082	.132	.717
Urban vs. Suburban	103.6	1	103.6	167.5	.000
Landline (Work)	7.62	1	7.62	12.3	.001
Mobile	.004	1	.004	.006	.939
Landline*Mobile	.908	1	.908	1.47	..227
Error	191.1	309	.619		
Total	2488	315			
Corrected Total	301.0	314			

R Squared = .365

Table A4: ANOVA Summary Table for Effects of Landline and Mobile Use on Number of Customers

9. APPENDIX 2: SEC GENERATOR FROM HANSA RESEARCH

	Illiterate	Literate but no formal edu.	School up to 4 years	School 5-9 years	School SSC/ HSC	Some college but not grad	Grad. / post grad - general	Grad./ Post grad - prof'nl
Unskilled workers	E2	E2	E2	E1	D	D	D	D
Skilled workers	E2	E1	E1	D	C	C	B2	B2
Petty traders	E2	D	D	D	C	C	B2	B2
Shop owners	D	D	D	C	B2	B1	A2	A2
Businessmen/industrialists with number of employees:								
- None	D	C	C	B2	B1	A2	A2	A1
- 1 – 9	C	B2	B2	B2	B1	A2	A1	A1
- 10+	B1	B1	B1	A2	A2	A1	A1	A1
Self employed professional	D	D	D	D	B2	B1	A2	A1
Clerical/salesman	D	D	D	D	C	B2	B1	B1
Supervisory level	D	D	D	C	C	B2	B1	A2
Officers/executives -junior	C	C	C	C	B2	B1	A2	A2
Officers/executives - middle/senior	B1	B1	B1	B1	B1	A2	A1	A1

Table B1: SEC Classifications, by Household's Chief Wage Earner

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