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Accounting for Self-employed Workers in the Informal Services Sector

Insights from the Cycle-rickshaw Rental Market in a City in Central India

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Preliminary draft. Do not quote without permission.

Abstract

Drawing on a field study of the cycle-rickshaw sector in the city of Bilaspur in central India, this paper examines conceptual and empirical issues relating to the informal services sector. While wage and self-employed workers in manufacturing enterprises have received considerable attention both in large-scale surveys and micro-studies, less is known about labor arrangements in services sectors such as transport. In the sample from Bilaspur, more than 80 percent of drivers rented their cycle-rickshaw from garages, matching data from other Indian cities. Further, using a multi-dimensional measure of migration status, a large proportion were found to be temporary and commuter migrants. This paper highlights the role of such informal rental markets in providing capital to self-employed workers in the context of weak state enforcement of contracts, and presents a simple analytical model that formalizes the fundamental tension that drives contract governance in a rental market in the presence of migrants. On the empirical side, a broader argument is also made for combining qualitative and quantitative methodologies in grounded field studies to identify aspects of market structure and migration dynamics that elude large-scale quantitative surveys.

Keywords: Urban informal sector, Contract enforcement, Rural-to-urban migration

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1 Introduction

This paper draws on a field study of contract enforcement in the informal rental market for the cycle-rickshaw. The cycle-rickshaw, also known as a pedicab in other countries, is a ubiquitous form of non-motorized para-transit in many cities across South Asia. The driver either owns the rickshaw he drives, or as is more common, rents it from a garage, a roadside establishment that owns anywhere from two to a hundred or more cycle-rickshaws.¹ After paying a periodic rental fees, the driver retains his earnings, while the garage pays for all maintenance and, if required, for storage of the cycle-rickshaw when it is not in operation. Data, where it is available, suggests that such rental arrangements supply cycle-rickshaws to more than half of all rickshaw drivers in a variety of cities.² The present field study found that more than 80 percent of drivers rented their cycle-rickshaws from garages in the city of Bilaspur in central India. While few rigorous estimates of sector size as a whole are available, either on a national or city level, one relatively well-grounded estimate puts the number of cycle-rickshaws in the Delhi region alone at a 100,000 (Kurosaki, Sawada, Banerji, and Mishra 2007).

While informal labor markets particularly in the manufacturing sector have been the subject of considerable policy concern, informal markets for productive capital such as that for the cycle-rickshaw have received far less attention. Partly this is a function of the difficulty in obtaining a conceptual handle on such markets. For policy and analytical purposes, how best can we understand these informal rental markets? The predominant policy stance has been to see the cycle-rickshaw rental market, for instance, as essentially comparable to a labor market, with the rickshaw driver being an exploited proletarian subject to the petty capitalist garage owner. It is not surprising then that municipal law in several Indian cities refuses to allow legal recognition to the garages and instead attempts to restrict rickshaw ownership to the drivers

¹This paper uses the term rickshaw driver or cycle-rickshaw driver in preference to the standard 'rickshaw puller' to distinguish the cycle-rickshaw from the infamous hand-pulled rickshaws of Calcutta. Also 'driver' is a closer translation of the Hindi term *chalak*.

²For example, in Patna, the figure is 90 percent (Singh 2000). In Kanpur, 95 percent of drivers are reported to rent (Shukla 2000). Also, for the area around Delhi's National Capital Region, see Jan Parivahan Panchayat (2003). Although figures for this study are reported for states rather than particular cities or localities, ownership ranges from a low of under 15 percent for Delhi to over 47 percent in the small sample in Rajasthan state.

themselves.³

This study argues for considering the informal rental market, despite certain complicating features, as analogous to informal credit markets. In practical terms, such rental markets serve as a source of cheap credit for migrants, under conditions where such credit is not otherwise easily available.⁴ Focusing on the credit analogy highlights issues of contract enforcement in the presence of pervasive migration and in the absence of a third party, i.e., the state. While both the role of migration and contract governance in the informal sector have been studied in isolation, the cycle-rickshaw rental market offers a unique laboratory for considering the interaction of these migration and contract governance issues. I consider several stylized features of the cycle-rickshaw rental market suggested by the qualitative and quantitative data. Then to fix notions, in this paper I present a simple analytical model that formalizes the fundamental tension that drives contract governance in a rental market in the presence of migrants in the particular context of the cycle-rickshaw rental market.

After establishing a conceptual approach for understanding informal rental markets, I turn to empirical issues. Although this study was focused primarily on issues of informal contract enforcement in the cycle-rickshaw rental market, the associated data collection exercise nonetheless threw up a range of challenges both peculiar to the cycle-rickshaw rental market as well as more generally applicable to larger scale surveys of informal enterprises and labor. Given the borderline legal status of the garage under municipal codes, available sampling frames for garages can be incomplete. Not only are garages sometimes reluctant to divulge the scope of their enterprise, census attempts can also be frustrated by the fluid nature of their operations, whether due to seasonal effects or recycling of equipment parts.

The rickshaw driver side presents another host of sampling issues due to the mobile nature of the occupation. This is not simply a matter of a lack of fixed workplace; instead the cycle-rickshaw sector also contends with considerable geographic and occupational mobility.

³In Bilaspur, the applicable law at the time of the study was the Madhya Pradesh Ordinance no. 20 of 1984 which mandated that subject to certain minor exceptions, 'No person shall keep or ply or hire a cycle-rickshaw... unless he himself is the owner thereof'. This law and others like the Bihar Cycle Rickshaw Act of 1979 Singh00 are versions of the 1960 Cycle Rickshaw Bye Laws of Delhi (Menon 2000).

⁴While a survey of this literature is beyond the scope of this paper, for a comprehensive recent treatment of these issues, see for example (BenYishay 2009)

The role of temporary, seasonal and commuter migrants, even though easily missed in quantitative surveys, helps shape significant aspects of the market structure and operations. The salience of migration dynamics in this sector, and the challenge they pose to representative sampling, suggests that studies of other informal sector markets may similarly fail to account for such mobility. Household-based sampling approaches both in small case studies as well as larger national-level surveys may prove problematic because many temporary migrants are of no fixed address (Chamratrithirong, Archavanitkul, Richter, Guest, Thongthai, Boonchalaksi, Piriathamwong, and Vong-Ek 1995; Lucas 2003). In this paper, I draw upon the approach and findings of the present study as well as on emerging literature on sampling mobile populations to propose ways to account for migrants particularly in case studies of informal markets.

More broadly, my study also serves as an argument for more systematic use of qualitative methods in the study of informal sector markets. Several of the most important features of the cycle-rickshaw sector such as the role of temporary seasonal and commuter migrants emerged through qualitative interviews with garage owners and in focus group discussions with rickshaw drivers. Moreover, this study was also able to make use of qualitative techniques to set the stage for quantitative surveys.

The structure of this paper is as follows. I first highlight findings and conceptual insights from the present study and later turn to empirical questions. This unconventional structure, by placing findings ahead of methodology, helps put the empirical and methodological discussion in context. Accounting for informal service sector activities, especially in high mobility sectors such as transport can be notoriously difficult (Bloem and Shrestha 2000; Bhalla 2003; Shetty 2007). By highlighting features of the sector that sometimes escape quantitative surveys, this approach allows retrospective consideration of more effective methods and study designs.

In the first section, I survey studies of the informal services sector to outline existing conceptual understandings and size estimates of the informal services sector in general, and rental services in particular. In the next section, I briefly describe the study design as a preliminary to outlining some of the stylized features of the cycle-rickshaw rental market that emerged from the study. I then propose a conceptual approach to the informal rental market through a sim-

ple analytical model that incorporates some of the stylized features described in the previous section, within a framework analogous to credit markets. The next part of the paper turns to empirical issues, focusing on the challenges of data collection in this sector as well as offering possible solutions to these issues on sampling and methodological integration.

2 Informal Transport Rental Services in Sectoral Data and Case Studies

What is known about the size and vitality of the informal services sector? What kinds of contractual relations are recognized and accounted for in the literature? What do we know in particular about informal rental markets and the informal transport services sector both from national size estimates and micro studies?

In accounting for the teeming diversity and conceptual intractability of informal sector activities, a continuing challenge continues to be the reconciliation of data and trends obtained from macro-economic national-level surveys and the picture that obtains from small-scale micro-studies. Part of the problem lies in the difficulty of mapping conceptual categories from one scale to the other. While on the one hand a field researcher studying a particular market on the ground cannot access data uncovered by large-scale representative surveys, the difficulty also applies in the other direction. Thus, national level statistical exercises are unable to benefit from the richness and insight resulting from micro-studies. Locating the coverage of transport rental services sector in India's national level data on the unorganized sector shows the complications of translating across scales.⁵

The literature does, however, well recognize the data collection and coverage issues presented by the unorganized services sector more generally and transport sector more specifically. One relatively comprehensive study, Bhalla (2003) points out that “the smallest, and possibly, the poorest, family operated 'own account' enterprises and workers, particularly those which

⁵In the Indian context, the organized-unorganized contrast corresponds to the formal-informal dichotomy (Sakthivel and Joddar 2006).

are operated from within residential premises and those operating without any fixed premises at all,” are most likely to be left out of enterprise survey of the kind conducted by the NSS through the 1990s. While the services sector has been robust contributor to the growth rate over the 1990s-2000s decade, the database has been recognized to be weak in respect of *the unorganized segment* of the services sector, particularly when it comes to workforce estimates and estimates of value added per worker based on enterprise surveys (Shetty 2007). Nonetheless, Shetty (2007) cites data showing that the share of the unorganized sector in the NDP generated in the services sector over 1993-94 through 2002-03 declined by about 6 percent to roughly 47 percent.

The most authoritative and recent estimates of gross value added by industry group are provided a sub-committee constituted by the National Commission for Enterprises in the Unorganized Sector (NCEUS) (Krishnamurty, Raveendran, et al. 2008). Comparing NSS 55th (1999-2000) and 61st round (2004-05) data for the transport sector, they also note that the share of the unorganized sector declined from over 57 percent to just under 45 percent of the total sectoral gross value added GVA. Still the unorganized transport and storage sector’s contribution to GDP grew at a healthy 7 percent, albeit less than half that for the organized sector. Nonetheless, employment elasticities for unorganized transport and storage far exceeded those of the organized segment of the industry. For each percent increase in GVA, the unorganized segment saw an increase of 0.86 percent in employment, and the organized segment only 0.07 percent.

One author to speak directly to trends in the non-motorized transportation sector’s contribution to GDP in India over the 1980s and 1990s is Bhalla (2003), who cites NSSO-CSO data for 1979-80, 1983-84, 1988-89 and 1993-94 to argue for the increasing mechanization of road transport both in rural and urban areas.⁶ While in urban areas, the absolute numbers of non-mechanised enterprises and workers both declined, in rural areas there was a relative decline in these variables thanks to the explosive growth in urban transportation. According to Bhalla (2003), this shift has occurred within the context of a rapid expansion of the transport and

⁶For a fuller discussion of Indian data sources on the unorganized sector, see Bhalla (2009).

services sector activities more generally at the expense of unorganized manufacturing, most noticeably in rural but also in urban areas. This shift is part of series of secular transformations occurring in the unorganized non-farm sector, including a movement of enterprises and employment from rural to urban areas, as also a decline in the relative importance of family operated own account enterprises and workers, and a corresponding rise in the share of larger units employing one or more regularly hired workers.

The 55th round of the NSS survey for the first time covered an organized sector category on “renting of machinery and equipment without operator.” The estimate for the year 1999-2000 was Rs. 1,407 crore in the new series (Krishnamurty, Raveendran, et al. 2008) (p. 24). By making adjustments to how gross value added is calculated using the NSS 57th round Enterprise Survey, the estimates for the GDP contribution of non-mechanised road transport have also been updated by more than 4,000 crores to almost Rs. 10,000 crores (Krishnamurty, Raveendran, et al. 2008) (p. 21-22). It does not appear however that either of these changes - the addition of a new category and adjustments in calculations - necessarily incorporate the transport rental services. The NCEUS Sub-committee on the Contribution of the Unorganised sector to GDP, however has made a series of recommendations for estimating the impact of informal services sector activities more rigorously into national income estimates.

2.1 Informal Rental Services in Case Studies

While national-level data describe a state of decline or omission as far as the transport rental services sector is concerned, what do micro-studies have to say? Smaller-scale studies have also been slow to recognize the existence of a rental market, particularly in the informal transport sector. While evidence of such informal rental markets exists in other para-transit modes of public transportation such as the auto-rickshaw (Roy and Mohan 2003), it is thin and scattered. One survey of auto-rickshaw drivers administered in Delhi by the organization *Sanjha Manch* found that only 65 percent owned their auto-rickshaws. Although the *Sanjha Manch* survey did not describe the rental process, there is considerable anecdotal evidence of a rental market (Narang 2008). Another older source cites an ownership rate of 51 percent among

auto-rickshaw drivers on average across seven cities (Shimazaki and Rahman 1995).

Nor is this oversight restricted to studies in India. For instance, a comprehensive World Bank-sponsored study of financing arrangements in Bangladesh's informal sector is striking in its omission of the transport services sector and associated rental markets (Islam, Von Pischke, and de Waard 1994), especially since it carries a section on the services sector and a case study on the cycle-rickshaw manufacturing industry. In light of the vibrant and well-studied cycle-rickshaw sector in that country, this exclusion is particularly puzzling (Gallagher 1992).

There are few Indian studies to compare with the comprehensive approach of Gallagher (1992) on the Bangladesh cycle-rickshaw sector. A 2000 issue of *Labour File* included journalistic reports from a number of North Indian cities including Delhi, Kanpur and Patna (Menon 2000; Singh 2000; Shukla 2000). Further discussion of the Delhi scenario comes in a reporting campaign carried out by the journal *Manushi* (2001) and summarized in Mitra (2002). While most of this reportage focuses on the impact of the regulatory framework on the livelihood of the rickshaw-pullers, the Jan Parivahan Panchayat's two-year study of the cycle-rickshaw sector actors represents the largest such sectoral survey undertaken, comprising cycle-rickshaw drivers, garage owners, mechanics and users in four state areas falling within Delhi's National Capital Region (Jan Parivahan Panchayat 2003). However, the data presentation and analysis of this study reside primarily within an activist or advocacy paradigm.

Although many of these studies have been of a journalistic or activist nature, they have provided the impetus for more academic research. An excellent example is a recent pilot study of cycle-rickshaw rental market was conducted by a team of Japanese and Indian researchers in North-East Delhi over winter 2005-06 (Kurosaki, Sawada, Banerji, and Mishra 2007). This study both cites and reveals the limitations of official Municipal Corporation of Delhi (MCD) data on the sector. As they point out, after increasing at roughly 6,000 a year over the period 1995-96 to 1999-2000, and reaching a high of 70,000, the number of cycle-rickshaws in Delhi declined precipitously over the next two years to 15,000. By 2003-04, however, the number had sprung back up to 50,000.

Like Devey, Skinner, and Valodia (2003) in the macroeconomic South African context,

Kurosaki, Sawada, Banerji, and Mishra (2007) conclude that these startling fluctuations reveal no more than the flaws in official data. Instead they estimate roughly 100,000 cycle-rickshaws operating in Delhi in 2005-06. Note that these estimates are significantly lower than the figures cited by Kishwar (2003) and Mitra (2002) and more recently by the economist Bibek Debroy (2008).

A major contribution of the Kurosaki, Sawada, Banerji, and Mishra (2007) pilot study is its recognition of the rental market, and the role of temporary migrants. Starting with informal conversations with cycle-rickshaw drivers in the area, the final survey included a sample of 80 rickshaw drivers - 35 of whom were seasonal migrants from the countryside - and 26 garage owners.⁷ The authors found very high variability in earnings for all drivers - renters, owners, migrants and non-migrants - but interestingly, they estimate that owner-drivers' return to labor is lower than that for renter-drivers. The cost of ownership in a key driver in the analytical model of the cycle-rickshaw rental market presented below and Kurosaki, Sawada, Banerji, and Mishra (2007) confirm the conceptual approach in this paper in interesting ways. Despite its pilot nature, their study provides rich data on earnings and costs for rickshaw drivers and garage owners.

The next sub-section considers the literature on the role of migration in the informal sector, a theme that is central to the present study.

2.2 Temporary Migration and the Informal Sector

In spite of pioneering anthropological accounts by Breman (1993, 1996) that provided a longitudinal view of circular migration in rural Gujarat, both national-level data and studies of seasonal and cyclical migration in the Indian context remain sparse. An estimate by the National Commission on Rural Labour (NCRL) cited by Dev (2002) puts the number in rural areas alone at more than 10 million circular migrants. As Srivastava and Sasikumar (2003) explain, the two major data sources on population mobility in India - the Census and the National Sample Survey (NSS) - underestimate temporary, seasonal and circulatory migration because

⁷Kurosaki, Sawada, Banerji, and Mishra (2007) use the terms rickshaw puller and rickshaw owner-contractor.

worker mobility is difficult to measure using the categories of population mobility. They also argue that migration is a multi-dimensional process, and as rural and urban economies become ever-more interlinked, it is becoming more and more complex. According to one recent survey, only thirteen countries formally recognition of non-permanent mobility in their national population data Bell (2003). A sense of the magnitudes involved can be obtained from a pioneering study of this type - Thailand's National Migration Survey - which estimated the wet-season and dry-season populations of Bangkok differ by as much as 9 percent (Chamratrithirong, Archavanitkul, Richter, Guest, Thongthai, Boonchalaksi, Piriathamwong, and Vong-Ek 1995).

Micro-studies, particularly those with a policy perspective have been more attentive to the phenomenon of temporary migration. While the importance of occupational and geographic mobility, particularly temporary and commuter migration, in the livelihood diversification strategies of the poor is increasingly recognized (Ellis 1998; Dev 2002; Banerjee and Duflo 2007; Deshingkar 2006; Deshingkar and Grimm 2004), most studies of the phenomenon focus on the causes and determinants of such migration and on their impact in sending areas, through remittances and other mechanisms (Sabates-Wheeler and Waddington 2003; Guest 2003; Abril and Rogaly 2001). Even in countries in South East Asia and Africa where the importance of temporary migration streams have received attention or are too remarkable to neglect (Hoang, Tacoli, and Dong 2005; Guest 2003; Bigsten 1996; Collinson, Tollman, Kahn, Clark, and Garenne 2003; VanWey 2003), available empirical and analytical perspectives focus on sending markets.⁸ Many of these studies shed important light on the motivations of temporary migrants and on their mobility patterns. For instance, Lucas (2003) considers how target savings compares as an economic explanation for circular migration, and offers an analytical approach to understanding “the simultaneous choice of location for living and for working” (p. 17).

At the other end of the migration spectrum, a number of studies have looked at outcomes for migrants in the informal sector. In particular, Banerjee (1983b), Banerjee (1983a) and Banerjee

⁸When it comes to micro-studies in the Indian context, the Deshingkar and Start (2003) study of seasonal migration of villages in Andhra Pradesh and Madhya Pradesh and Haberfeld et al. (1999) study of rural Rajasthan are useful.

and Bucci (1994) have looked at the role of networks in job search strategies of migrants, and Mitra (2004) and Mitra (2006) focus on occupational mobility and long-term outcomes for migrants in the informal sector. While these studies provide insight into the absorption of migrants into informal sector activities, they do not quite consider how migrants in turn impact these markets or account for the diversity of contractual relations within the sector.

I attempt to situate this paper at the intersection of these literatures, by looking at the role of migration, understood as a multi-dimensional process, in a market for productive capital. Temporary migration in particular has implications of seasonality, network linkages as well as institutional arrangements for receiving economies.

The following sections describe the findings and conceptual model generated by the present study. A few aspects of this discussion are worth noting in advance. First, I attempt to place contract governance issues in the presence of migration at the center of my analytical approach. By focusing on these aspects, this approach is able to highlight the sophistication of informal markets in inducting long-term and temporary migrants. On the empirical end, the integration of qualitative and quantitative data helps paint a more complex picture of market structure on the garage side of the rental market. Further, instead of viewing migration as a binary variable, my analytical and empirical approach views it as continuum, allowing for a richer picture. My study took the multiple aspects of migration seriously and analyze the migrants' distance from the place of origin, the frequency of visits home and the length of time since migration, since all of these have different implications for participation in the cycle-rickshaw rental market.

3 Understanding the cycle-rickshaw rental market

The predominant policy and theoretical paradigms for informal sector livelihoods have looked at these issues through the lens of labor relations. Indeed questions of labor protections for workers in the informal sector have been central both to definitions and policy discussions of the sector (Bangasser 2000; Trebilcock 2005). The availability of labor protection is central to the recently incorporated definitions of informal employment in the international arena (Huss-

manns 2004) as well as in India (NCEUS 2008).

Analytical perspectives beginning from the basic Harris-Todaro model have similarly privileged a 'jobs' approach to informal sector livelihoods (Fields 1975). While self-employed or out-workers in manufacturing and retail sectors have been studied to some extent, and are key to operational definitions of informal enterprises (OECD 2002), the employment-based paradigm has sometimes obscured the wealth of institutional arrangements in the informal sector. Indeed the difficulty of enforcing labor protections can be seen as part of a wider issue with rights and contract enforcement in the informal sector. Difficulty of contract and regulation enforcement underlies all transactions in the informal sector. The absence of the state as a third party enforcing contracts impacts not only the regulation of labor conditions but also other forms of market transactions.

Recognizing the complexity of contract choice and contract enforcement in the informal sector also allows the deployment of the tools of new institutional economics. I argue that these tools can prove fruitful from both a policy perspective and in analytical terms.

From a policy perspective, an understanding of the institutional rules of the game operating in informal markets can help leverage regulation in the most effective directions. For instance, several features of the cycle-rickshaw rental market as well as the analytical formalization presented below suggest why a policy enforcing driver ownership may prove counter-productive, particularly in the presence of pervasive migration. While authors such as Kishwar (2003) have argued for the long-standing interdependence of garage owners and drivers, qualitative interviews conducted as part of this study also uncovered a 'rickshaw to the driver' campaign that failed in Madhya Pradesh in the 1980s (Sood 2008).

In theoretical terms, principal-agent models with asymmetric information can be particularly powerful in explaining contract choice. Indeed, one of the earliest formalizations of an informal rental market applies to the similar context of the Filipino jeepney market, where Hayami, Kikuchi, and Otsuka (1986) relate contract choice to the transaction costs of contract enforcement. They find that share contracts obtain where close personal relations between the jeepney owner and driver allow for efficient enforcement of the contract as in small rural com-

munities. When transaction costs associated with share contracts increase with urbanization, rental contracts come to dominate. While resource allocation across both types of contracts is equally efficient, the difference in risk sharing leads to differences in income distribution. As Singh (2002) might argue in the context of daily labor markets, the rental contract certainly serves to shift income risk onto the rickshaw driver. However, while the rental contract addresses moral hazard issues resulting from unobservability of effort, it does nothing to ameliorate the risk of default on the rented equipment or on the rental payment faced by the garage. For instance, in 10 garages selected through stratified sampling in the Bilaspur study, anywhere from 5 to 35 percent of renting drivers did not pay their rental fees on agreed schedule and limited liability was a standard feature of the garage-driver transaction (Sood 2008).

Given the near universality of rental contracts in the cycle-rickshaw rental market, the focus of interest in the present study shifted to partner choice. I was especially interested in how the risk of default and theft by garages was negotiated under conditions of free entry by new agents, i.e, migrants, given that third party enforcement is not an option. Hayami, Kikuchi, and Otsuka (1986) conjecture that contract enforcement costs and moral hazard issues would be lower if personal ties are strong. The widely-noted importance of networks in entry into informal sector activities is predicated on this notion (Banerjee 1983a; Fafchamps 2001). However, what allows absorption of migrants with relatively weak network ties into the market, particularly in the absence of any apparent screening mechanisms of the type described in the literature (Aleem 1993; Mingmaneeakin, Nettayarak, Pinthong, Poapongsakorn, Satsanguan, Siamwalla, and Tubpun 1993)?

This question can be seen as part of a broader challenge in characterizing the institutional environment for the urban informal sector. It is not clear what governance structure applies: rule-based or relation-based? Relation-based governance is defined by low fixed transaction costs and high marginal transaction costs (since information is local and enforcement usually bilateral). On the other hand, rule-based governance has a high fixed transaction cost structure based on public information and third-party enforcement (Li 2003; Greif, Milgrom, and Weingast 1994; Greif and Laitin 2004).

Given that rule-based governance is highly problematic in the setting of the urban informal sector, given the weak legal infrastructure, the literature on agrarian relations seemed a better approximation. Issues relating to risk of default have been modeled in the agrarian relations literature in two ways - through interlinked markets for capital and labor and by the phenomenon of credit islands, wherein the existence of a 'personalized relation' between borrower and lender allows the lender to exert "monopoly power". However, other predictions of the monopolistic credit market model such as rate dispersion do not quite seem to hold (Basu 1997). The relative constancy of the rickshaw rental rate across the Bilaspur market, roughly around Rs. 15-20 per day as of the time of this study, represents something of an empirical puzzle. How are the "personalized relations" posited in rural credit markets complicated by the presence of migrants? What mechanisms evolve to deal with default risk under conditions of pervasive migration?

A large literature also examines contract enforcement in the context of micro-enterprises, particularly in the manufacturing sector where the legal apparatus is weak or non-existent. Fafchamps (2001) shows that relation-based governance in this scenario often leads to the salience of ethnic networks. The market for agricultural land is frequently the setting for much of the contract choice literature, where the risk of default on rental is common (Hayami and Otsuka 1988; Hayami and Otsuka 1993; Stiglitz 1974; Stiglitz 1987a; Stiglitz 1987b).⁹

The present study considered how these contract enforcement issues impact participation in the cycle-rickshaw rental market among garage-owner, and migrant and non-migrant drivers. In my model, the choice between anonymous or relation-based contracting thus corresponds to the choice of migrant versus resident partners. *Ex ante*, I expect greater trust between garage owners and drivers who are from the city, compared to migrants. Nonetheless, the qualitative and quantitative evidence suggests that garages did not discriminate on the basis of price or ration while renting to migrant drivers. Another way to understand this dichotomy is using the terminology of Basu and Bell (1991), if migrants are the captive segment for garage-owner and the resident rickshaw-drivers are the contested segment, then the migrant's cost of defaulting

⁹Also see the model in Allen (1985).

can be higher than the resident's. Effectively, the migrant lacks transferable 'reputational capital'. This restricts him to transacting with a single or very few garage owners. In turn, this increases the garage owner's bargaining power in transactions. In contrast, the resident has reputational capital built up with a larger number of garage owners, allowing him to transfer across garages and concurrently increasing his bargaining power vis--vis each garage owner. I formalize this notion through a differential penalty which is higher for migrants than for residents. As a result, the model predicts that the cost of defaulting is higher for migrants than for residents. Since the garage-owners realize this, they prefer to rent to migrants, especially those with stronger attachment to their place of origin.

My model suggests that relationship-based governance mechanisms are flexible enough to allow the absorption of new agents. By looking at the characteristics of the participants in informal rental markets, I am able to deduce how contract enforcement operates in counter-intuitive ways to include a larger variety of agents. This is in contrast to other studies, particularly those of African manufacturing, which have focused on some of the growth-limiting implications of ethnic networks.¹⁰

Before I lay out the analytical framework, the next section establishes the most noticeable empirical regularities that appeared in the field data.

4 Features of the Cycle-rickshaw Rental Market

I describe the methodological design of this study, as well as its limitations in greater detail in the second part of this paper, but here note that this section draws on four primary sources: (1) semi-structured interviews with garage owners and rickshaw drivers chosen through theoretical sampling, (2) focus group discussions with cycle-rickshaw drivers in two major slum settlements in the city, (3) a garage study of rental transactions at a randomly selected sample of ten garages, (4) a survey administered to over 800 rickshaw drivers chosen through an intercept sampling approach. The discussion here is necessarily broad and informal. Working papers

¹⁰For example, see Biggs, Raturi, and Srivastava (2002)

examine the data in greater detail.

What ‘stylized facts’ or empirical regularities can be said to apply to the cycle-rickshaw rental market? Data from this study as well as others suggests that following were particularly important. It is worth noting at the outset, that several of these features may have been missed in the absence of qualitative evidence. For instance, a household survey of slum settlements would have missed many temporary and commuter migrants, and an enterprise survey restricted to the off-season would have failed to recognize the effect of seasonal fluctuations in demand on garage operations. Qualitative interviews also helped elicit cost and market structure data from garages. I address the need to systematically integrate such qualitative data into field studies of the informal sector in the second part of this paper.

As an informal market for capital, as I have argued above, the rural credit market provides a framework for understanding the rickshaw rental market. It is possible to see the transaction between the cycle garage and the rickshaw driver as a credit transaction, with the rickshaw as the principal amount of the loan and the rental being the interest amount. The rickshaw rental market shares with the rural credit market the informality of contracts and issues of enforcement in the presence of imperfect information. Similar to the rural credit market, issues of moral hazard and asymmetric information come into play, in part due to the high variance and uncertainty in rickshaw driver earnings (Binswanger and Deininger 1997). Yet the features described below also indicate areas of substantive difference, and suggest how the relation-based governance structures of rural credit accommodate urban growth.

4.1 Migration

In a series of critiques of the existing legal framework for the rickshaw sector, (?) and Kishwar (2001) have argued that newly-arrived migrants are the prime beneficiaries of the easy availability of rickshaws. The empirical evidence on this claim in the literature appears to be mixed. Mitra (2004) for instance in a study of occupational patterns of Delhi slum dwellers found no migrants who had been in Delhi fewer than six-seven years engaging in ‘transport’. Though Mitra does not clarify the kinds of activities included in ‘transport’, given the size of

the cycle-rickshaw sector in Delhi, it should be a significant component. On the other hand, the Jan Parivahan Panchayat team (2003) found that a remarkable 42.9 percent of Delhi rickshaw-drivers in their sample listed rickshaw pulling as their ‘first job’. Further 98 percent of these rickshaw drivers were migrants. For the NCR as a whole, only 80 percent of rickshaw drivers were migrants and 49.5 percent of the entire sample listed ‘first job’ as rickshaw-pulling.

The initial qualitative component of this study, particularly semi-structured interviews with garage owners and focus group discussions with rickshaw drivers revealed the importance of migrants on the demand side of the rickshaw rental market. While Kishwar (2003) speaks to the significance of rural-urban migration of a more permanent nature, conversations on the ground showed the critical effect that seasonal and circular migrants and even commuters have on patterns of demand in the market. Kurosaki, Sawada, Banerji, and Mishra (2007) were also quickly led to distinguishing between resident cycle-rickshaw drivers and temporary migrant drivers.³

Qualitative data also revealed some of the paths or chains of migration migrants followed (Banerjee 1983b).¹¹ Seasonal migrants from the tribal-dominated Shahdol and Mandla districts of nearby Madhya Pradesh and from a few villages in Orissa were especially prominent in interviews with garage owners. In addition, daily and weekly commuters from the rural area surrounding Bilaspur formed a large chunk of rickshaw drivers. However, often these drivers were associated with particular garages or groups of garages. For instance, over half of the rickshaw drivers renting from one of the larger garages in the 10 garage study sample were commuters from a nearby village. Similarly a group of ‘residential’ garages that provided basic living accommodations were favored by seasonal drivers from nearby Madhya Pradesh districts. In contrast, garage study data also showed that garages located near large slum areas had higher proportions of non-migrants renting (Sood 2008).

¹¹Banerjee (1983b) defines chain and serial migration as - “movements characterized by . . . interactions between migrants and destination-based contacts” especially as it pertains to labor migrants. The pattern of assistance included boarding and lodging and monetary help but most importantly help with job search in at least three-fourths of newly-arrived migrants.

4.2 Costs of ownership

As Kishwar (2003) and others have suggested, in this study too, migrants provide a significant proportion of the demand for rented cycle-rickshaws. Although the low ownership rates have been typically ascribed to credit constraints, this study suggested that the costs of ownership can be substantial, given the high levels of wear and tear the cycle-rickshaw sustains over its running life. Another set of ownership costs relate to storage, and these can particularly affect temporary and commuter migrants.

Since few garage owners maintain daily accounts, estimates of costs of maintenance came from interviews with a major cycle-rickshaw manufacturer in the city, two larger garages that combine cycle-rickshaw assembly with rental and repair services, as well as other garages included in the garage study that employed cycle-rickshaw mechanics. Garages cover repair and maintenance expenses for the rickshaws they rent. The table above provides the range of costs quoted by interviewees. To get a sense of the depreciation rates on the cycle-rickshaw, note that sources in the study and elsewhere suggested that over a period of roughly six years, maintenance costs can equal the initial purchase price of a cycle-rickshaw. Larger garages are able to ameliorate some of this cost by recycling spare parts across rickshaws and assembling new cycle-rickshaws.¹

Kurosaki, Sawada, Banerji, and Mishra (2007) also offer a particularly rich discussion of cost structure for renters, owner-drivers and garage owners. They show that maintenance costs for garage owners and drivers that own their own rickshaw are roughly the same, but also conclude that this means that the net earnings difference between renters and owners does not favor ownership.

Cost data in the present study relies on careful attention to qualitative evidence, but it broadly matches Kurosaki, Sawada, Banerji, and Mishra (2007) in magnitude.

The costs of storage implicit in the risk of theft can also affect smaller garages and rickshaw drivers. Only the largest garages rent or own private premises for cycle-rickshaw storage. A large majority encroach on public roadside or neighborhood space. However, this renders the cycle-rickshaw particularly vulnerable to theft of spare parts, as several garage owners

pointed out. While Bilaspur residents may live in cohesive slum settlements where such theft is relatively rare, temporary and commuter migrants are particularly affected by these storage costs.

4.3 Seasonality

One side effect of high levels of migrant participation is in seasonal fluctuations in the demand for rickshaws. These fluctuations coincide substantially with the agricultural season. According to garage owners, the period of the present study, December- February, coinciding with the Rabi harvest, was a period of relatively low demand. Indeed the garage study also uncovered less than full uptake of cycle-rickshaws during this period, particularly among garages that catered to commuter and seasonal migrants.

Conversely, the months of September through November during the Dussehra-Dipawali season see high level of demand for rickshaws. According to interviewees, both garage owners as well as rickshaw drivers, demand for rickshaw services is particularly high in these months because of festival traffic. In this period, many garages rent out rickshaws on day and night shifts. Even so in focus group discussions, rickshaw drivers complained that they were unable to rent during this 'high season' as due to the massive increase in demand from seasonal migrants.

Though the time bounds on the present study study made it difficult to document the seasonal pattern quantitatively, this suggested that the rickshaw rental market functions with extended periods of market disequilibrium, of either excess demand or excess supply.

4.4 Market Structure

In the absence of high capital requirements and a strictly enforced regulatory apparatus, garages operate in near-competitive conditions. In Bilaspur, the applicable Madhya Pradesh Ordinance No. 20 of 1984 is enforced weakly or not at all. All rickshaws must have a permit from the Office of Rickshaws and Tongas of the Municipal Corporation of Bilaspur (MCB), and

thus garage information is available to the Municipal Corporation and compiled in a limited manner. Some of the small garages were found to be operated by retirees and even government functionaries as a side business. Indeed, the MCB should be able to use the garage information available to it to enforce the regulation; that it does not do so suggests that the regulation has been in effect allowed to lapse. Table 1 provides representative estimates for the capital requirements for purchasing and operating a rickshaw from this study's site. Similar figures are cited for other cities where data is available.

The great majority of garage owners however make a much smaller capital commitment. In its NCR study, for instance, the Jan Parivahan Panchayat team (2003) found that only some three percent of the sample of garage owners owned more than a hundred rickshaws and a full 51 percent owned less than twenty rickshaws. An even starker pattern obtains in Bilaspur where as Table 2 shows, half of all garages own less than 12 rickshaws. A size distribution of this nature suggests the ease of entry.

Land rental is a substantial cost, applicable to larger garages. Smaller garages often encroach on roadside pavements or other government land. Indeed the Jan Parivahan Panchayat team (2003) also found that only 23.7 percent of the sample of garage owners from across the NCR rent the land for their garage. The fixed costs of entry into the rickshaw rental business seem minimal and several tiny garages were operated as a side business by individuals with day jobs.

In qualitative interviews, garage owners mentioned these competitive conditions as a significant factor in pricing and operational decision-making. While a number of garages included in the garage study actively recruited commuter migrants, some of the smaller ones had poached drivers from neighborhood competitors. The emergence of residential or hostel garages was also explained by the owners of these garages in terms of the need to provide additional services to attract migrant drivers.

4.5 Trust, reputation and networks

Various features of garage functioning suggest that garages have adapted to the disequilibrium and competitive market conditions by expanding the set of acceptable transactors to include renters from outside the community, including seasonal migrants. The predominance of such seemingly high-risk transactions, with agents from outside the network, seems counterintuitive, particularly in light of the claim made by a number of non-migrant rickshaw drivers in focus group discussions that during the high season, they were rationed instead of migrant drivers.

Other studies of the cycle-rickshaw sector suggested that the ‘guarantor’, in linking the garage owner and the new rickshaw driver, serves as the mediator for these network effects (Jan Parivahan Panchayat 2003; Gallagher 1992; Kurosaki, Sawada, Banerji, and Mishra 2007). The present study however discovered an infinitely more complicated picture with regard to recruitment and contract enforcement mechanisms. While resident drivers rarely needed such guarantors, migrants were more likely to need a formal introduction. However, the role of the guarantor turned out to be merely putative. Not all migrants go through such a guarantor, or ‘introducer’, and no legal liability is involved for the ‘introducer’ if default occurs. Indeed, one garage owner pointed out that even in case of theft, the guarantor cannot be held responsible.

Unlike other models of relation-based governance which rely on information sharing among agents within a network, the Bilaspur cycle-rickshaw rental market did not appear to support such mechanisms (Greif 1993; Fafchamps 2001; Fafchamps 2002). How then were bad agents excluded from transactions?

The implicit function of social networks was especially important, but in ways not completely documented in the literature (Banerjee 1983b; Banerjee 1983a; Banerjee and Bucci 1994; Mitra 2004). Following Greif and others (Greif 1993; Greif 1989; Fafchamps 1996), this study attempted to operationalize concepts of reputation and risk in the context of the cycle-rickshaw rental market. How are these effects transmitted in the present context? ‘Trust’ and associated network effects operate counter-intuitively in contract enforcement and governance structures in Bilaspur’s cycle-rickshaw market.

Essentially it is possible to distinguish, as the model below shows, between an *ex ante*

versus *ex post* notion of trust. Thus while an in-network resident rickshaw driver is *ex ante* more trustworthy, the migrant faces a higher penalty for default, and this forces greater effective trustworthiness.

5 Analytical Framework

This section develops a two-sided model of rental contract participation that attempts to establish a more formal basis for understanding the most important stylized aspects of the cycle-rickshaw market itself. It is also hoped that an analytical model of this type can serve to motivate conceptual models of contractual relations within other informal sector activities which are not easily understood through a labor market lens. From a more pragmatic point of view, establishing a more formal footing for conceptual approaches, say to street vendors, can also clarify which backward and forward linkages to look for when estimating sector size. Last but not least, this formalization allows for incorporating the role of migration into models of informal markets. While a large empirical literature has looked at the causes and determinants of migration, whether permanent or temporary, the impact of such migration in receiving informal sector activities is less well-understood. The model presented here recognizes the challenges of contract governance under conditions of continuing migration.

A key feature of this model is that migrant status is modeled as a continuous variable to allow for variation in the degree of attachment to the place of origin seen in the data. I further argue that ownership of the rickshaw imposes costs, and these are higher for migrants than residents. This model distinguishes between an *ex ante* and *ex post* concept of risk through a differentiated penalty on default for migrants and residents. This distinction offers insight into how relation-based contract enforcement mechanisms operate in an urban context with the influx of new agents without pre-existing network affiliation (Fafchamps 1996).

I argue this risk is moderated by countervailing factors. To understand why garages would transact with commuter and seasonal migrants, say that a rickshaw driver's entry into the rental contract is regulated either through referrals by mutual acquaintances or a direct network affil-

iation with the garage owner (Sood 2008; ?). To the extent that migrant rickshaw drivers have a smaller network of such acquaintances, they are restricted to a much smaller set of garages from where they may hire a rickshaw. As a result, defaulting at any given garage may bar the migrant's access to the cycle-rickshaw rental more comprehensively than it would a resident rickshaw driver with a larger network of potential referrals. This cost is formalized here through a differential penalty based on migrant status that is known to both garage owners and rickshaw drivers. The conceptual framework combines these *ex ante* and *ex post* notions of default risk.

The framework predicts a single rental rate in the presence of default risk and migrants. The evidence on explicit price discrimination on the basis of migrant status is decidedly mixed. This is not because the 'migrant-ness' of the rickshaw-driver is not *ex ante* evident to the garage-owner, which would make price discrimination difficult. Interview data shows that garage-owners indeed have prior information about the migration status of the rickshaw-drivers they transact with, though it is not perfect. To the extent that 'migrant-ness' is not a binary indicator, the degree of 'migrant-ness' may not be easily gauged. For instance, a driver may not disclose the number of visits he makes to the place of origin. Nonetheless, garage-owners do appear to be broadly informed about on which drivers are commuters or seasonal participants in the rickshaw market. While explicit rental rates are often fixed by rental period, as (Geertz 1978) suggests, garage-owners do in fact also allow for bargaining on a range of other parameters that may indicate some form of price discrimination, for instance, rebates, payment periods, and rental periods. But even garage-owners who admitted to offering rebates on the basis of length of association did not list migrant status as a cause in price discrimination. Moreover, if as I argue, the penalty for default serves to moderate *ex ante* risk, the costs of renting to migrants may match the costs for residents, allowing for arbitrage opportunities to emerge. Near-competitive conditions on the garage side ensure that explicit rent differentials are not sustainable in the long run.

Interestingly, in their pilot study in North East Delhi, Kurosaki, Sawada, Banerji, and Mishra (2007) also did not find a statistically significant difference in the daily rental fees paid by migrants and non-migrants.

An equilibrium with self-selection is shown to arise in this model in which for any given rental rate, migrants are more likely to participate in the rental contract than residents.

5.1 Rickshaw-driver's problem

In this section, I consider the rickshaw driver's problem. Given a rental contract, the rickshaw-driver functions essentially as an entrepreneurial agent, i.e., the comparative returns from renting versus an alternative occupation determine his participation in the contract, the relevant alternative for this purpose being ownership of the cycle-rickshaw. Following Hallagan (1978), I focus attention on the relative returns from owning versus renting, assuming labor input or effort choice is fixed.

In addition to the purchase price P , the rickshaw-driver who buys the cycle-rickshaw incurs a cost $C(m)$, where m is a measure of the 'migrant-ness' of the rickshaw-driver. Assume that $0 \leq m \leq 1$, with $m = 1$ representing the pure migrant and $m = 0$ representing the pure resident. I expect that $C(0) > 0$ and $C'(\cdot) \geq 0$, and $C''(\cdot) \leq 0$.

The cost $C(m)$ can be conceptualized in several ways. Most intuitively, it can be seen as the cost of storing the cycle-rickshaw, which is higher for migrants. It can also be seen as the rupee cost equivalent for the psychic attachment to the cycle-rickshaw market, foregoing possibilities of alternative employment.¹²

It is also worth considering 'migrant-ness' in greater detail. I model it as a continuous variable rather than discrete. On the one hand, this formalization allows for analytical tractability and can be easily extended to the case where 'migrant-ness' is a discrete variable. More pertinently, empirical evidence indicates that 'migrant-ness' is a multi-dimensional variable that reflects a matter of degree rather than kind. Thus for example, while some long-time residents retain village ties, other recent migrants have severed all connections to their place of origin. Closer ties to the place of origin may increase storage costs during visits home for instance, as well as allow a continuing connection to the rural and agricultural economy. The empirical

¹²Note that the costs of ownership also include the costs of maintenance, and depreciation, which interview data, discussed elsewhere, suggest are substantial. However, since they are not expected to vary with migration status, they are parametric to $C(m)$.

analysis parses the multiple dimensions of migrant status measured in variables such as annual visits to the place of origin and years in the city.

The rental rate is R . If the cost of ownership is incurred in the present period, the rickshaw-driver will choose to buy the cycle-rickshaw if

$$P + C(m) \leq R \quad (1)$$

I argue that since $C(1) > C(0)$, an equilibrium can exist with an R^* such that $P + C(0) < R^*$ and $P + C(1) > R^*$. Further, if $C''(\cdot) \leq 0$, there exists a unique $m^* > 0$ such that $P + C(m^*) = R^*$.

5.2 Garage-owner's problem

Consider that risk of default is perceived to be a function of the rickshaw-driver's type, $\theta \in [0, 1]$, where higher θ corresponds to higher levels of dishonesty.¹³

While the garage-owner can observe m , he cannot observe θ . Instead, he conditions his expectations of θ on m i.e., $\theta(m)$. It is reasonable to assume that θ is an increasing monotonic transformation of m , i.e., $\theta'(m) \geq 0$. This captures an *ex ante* notion of risk, i.e., migrants are more likely to be dishonest.

Alternatively, consider the benefit from defaulting, which is also the corresponding loss to the garage-owner, written as $B(\theta(m))$. Arguably the benefits from defaulting would be higher for a migrant because he can take a stolen rickshaw to a market in another city. On the other hand, the universe of possibilities available to the resident is more limited since he is restricted to the local market. $B(\cdot)$ can be expected to be a non-decreasing function of θ such that $B(0) = 0$ and $B(1) = b > 0$.

If the rickshaw-driver is caught, he suffers a penalty $L(m)$, where $L'(m) \geq 0$. Without loss of generality, assume that $L(0) = 0$. In effect, $L(m)$ is the discounted present value of future losses. Like Lindbeck, Nyberg, and Weibull (1999), I express this loss in the present period. I assume that $L(m)$ is known by both garage-owner and rickshaw-driver.

¹³Although I will not be able to directly observe θ in the data, I include it in the theoretical model for completeness.

Note that I need not assume that $L(m)$ is imposed by the garage-owner; indeed it is socially incurred and includes the transaction costs of finding a new garage and establishing a relationship with the new garage-owner, which can be expected to be higher for migrants. Thus, $L(m)$ does not require information-sharing or collective action since it can be a decentralized outcome of the referral mechanism that mediates entry into the market (Fafchamps 2001; Fafchamps 2002).

The rickshaw-driver then faces two sets of decisions:

1. He rents

$$P + C(m) \geq R \quad (2)$$

2. If he has rented, he defaults if

$$L(m) \leq B(\theta(m)) - R \quad (3)$$

Then knowing the rickshaw-driver's problem, the garage-owner maximizes his profits:

$$\max_R R - EB(\theta(m)) \quad (4)$$

such that the participation constraint (2) and the no-default constraint (3) hold.

For simplicity, I solve for the case when $\theta(m) = m$, i.e., the type of the rickshaw driver is perfectly known.¹⁴ Assume that all second-order conditions for equilibrium hold. Then solving these equations for equilibrium yields $R^* = P + C(m^*)$, i.e., the optimal rate of rental and the migrant who is just indifferent between renting and owning is simultaneously determined.

First, consider the polar cases. Say equilibrium occurs at $m^* = 0$, i.e., the rickshaw-driver is a resident. Then, the associated penalty incurred by the driver $L(0)$ is 0.

However, in this case, $R^*(0) = P + C(0)$ which is weakly less than $P + C(1)$ by the monotonicity condition on $C(\cdot)$. Looking at the conditions derived, an equilibrium obtains where R is low enough to attract both migrants and residents.

¹⁴The results are straightforwardly generalized to the case where I have a monotonic increasing θ .

Now, say $m^* = 1$, i.e., the rickshaw-driver is a perfect migrant. Then, the lower bound on the garage-owner's profits is $L(1)$. Further,

$$R = P + C(1) \geq P + C(m) \text{ for all } m \text{ and} \quad (5)$$

$$P + C(1) \geq P + C(0) \quad (6)$$

In this case, we have a stable equilibrium with only perfectly migrant rickshaw drivers participating. Therefore, for any $m = m^*$, and given the penalty function $L(\cdot)$, an R^* can be found such that

- $m > m^*$ participate in the rental contract, and
- $m < m^*$ do not participate.

This result can be straightforwardly extended to the case where $\theta(m)$ is an increasing and monotonic function of m .

There are two notable directions in which this model can be extended. First, although this static, one-period framework captures repeated interactions in the penalty function, learning about types in the rental transaction may occur over time, changing perceptions of trustworthiness and possibly the differential penalty. Perceptions of trustworthiness beliefs about the risk of default based on migrant type, $\theta(m)$ may also differ among garage owners. This would allow for sorting of migrant types across garages. The empirical evidence suggests that garages do indeed sort in this way, with some catering exclusively to migrants, and others predominantly to residents. Data from interviews with garage owners also offers instances of geographic clustering among rickshaw drivers.

A working paper tests this analytical framework using survey data from a sample of Bilaspur rickshaw drivers. In this paper, however, I next discuss the empirical challenges that hinder and approaches that can help account for the economic contribution of garages and the participation of migrant workers.

6 Methodological and Empirical Issues

The central challenge in an informal sector field study of this type lies in developing a baseline dataset as well as a deeper understanding of the institutional structures in this market. For instance, the governance structures that allowed for contract enforcement in the cycle-rickshaw rental market were especially unclear. As Udry (2003) argues, these conditions necessitate iterative field research, with an emphasis on the generation of insight and hypotheses about the economic environment under study. Further, Rao (2002) has suggested, the weakness of existing literature on the market meant the data collection process had to allow for surprise. Indeed, the cycle-rickshaw rental market and informal sector markets in general meet many of the criteria specified by Rao and Woolcock (2004) as requiring a combination of qualitative and quantitative approaches.

- In developing a survey questionnaire that takes account of local conditions and overcomes the biases and preconceptions of survey-developers far from the site
- Where survey administration is difficult, as with marginalized communities
- Where the infrastructure for administration of large-scale surveys does not exist
- In understanding process, as against outcomes

Indeed, I argue that the example of the present study shows that informal sector studies stand to benefit immensely from integration of qualitative and quantitative methods, as has poverty research more generally.¹⁵ The next sub-section describes the study design in greater detail.

6.1 Study Design

The first order of business in undertaking the field study in Bilaspur was isolating empirical regularities and stylized facts about the governance structure in this informal sector mar-

¹⁵For an annotated bibliography of the fast-growing Q-squared literature, see da Silva (2006).

ket (Mookherjee 2005). I used a largely sequential and interactive qualitative and quantitative mixed methods design within which the quantitative component had priority (Caracelli, Greene, and Graham 1989). The qualitative component preceded survey design and implementation. The first weeks of the investigation were taken up by semi-structured interviews with garage owners and cycle-rickshaw drivers, as well as focus group discussions with groups of 15-20 rickshaw drivers at two different slum sites. At this stage, theoretical sampling, aimed at discovering consistent patterns guided my selection of respondents (Glaser and Strauss 1967).

Initiating these discussions helped me develop the central quantitative component of the study. The survey questionnaire was pilot-tested on a small sample of fifty respondents before administration. It was necessary to keep the questionnaire short since the interview was to be conducted at cycle-rickshaw stands. Nonetheless, the survey questionnaire was designed to capture elements of labor market mobility and attachment, as well as other variables on garage affiliation, in order to test the empirical regularities suggested by other data.

A large enough sample size was necessary for this survey as it was to be the basis for drawing broad empirical patterns in the market. Yet, in the absence of census or other baseline data on the cycle-rickshaw driver population to serve as sampling frame (Salant and Dillman 1994), obtaining a random sample presented a special challenge. The absence of baseline data was in a sense a barrier to further data collection. The importance of migrants and the high degree of labor market mobility suggested by the qualitative component meant that a small-scale household survey design would risk systematically missing migrants and commuters.

An additional issue was the physical mobility that is the nature of the rickshaw driver's occupation. Due to the nature of their work, rickshaw drivers are necessarily of no fixed address. This necessitated that the surveyors locate areas where rickshaw-drivers congregate between trips, using an intercept point sampling approach (Kalsbeek 1986; Kalton 2001; McKenzie and Mistiaen 2009).¹⁶ In an intercept point survey, individuals in the target group are sampled during set time periods at a pre-specified set of locations where they are likely to congregate. In this case, the survey team approached drivers waiting for customers at different times of the

¹⁶These are also called time-and-space sampling methods.

day over a week at a range of high-congregation locations. These included the railway station, the inter-state bus terminal and cycle-rickshaw stands located in major intersections and commercial areas chosen for their geographic spread over the city. A randomly selected sample of congregated drivers was then interviewed. A team of three investigators administered a short survey to 645 drivers in December 2003. In January 2004, the same team of investigators administered a longer survey to a smaller sample of some 176 respondents.

Analysis of this dataset was also facilitated by qualitative data obtained from focus group discussions that preceded the surveys. In particular, these discussions suggested that there was variation in attachment to the rickshaw labor market, some of it correlated with migrant status.

The central methodological innovation of this research was a garage study that combined elements of quantitative and qualitative observations. I studied specific rental transactions in a random sample of ten garages, stratified by size. Using a listing of garages provided by the Municipal Corporation of Bilaspur (MCB), four categories were defined: large (over 30 rickshaws), medium (16–30 rickshaws) and small (less than 15 rickshaws). An additional category of ‘residential’ or ‘hostel’ garages provided boarding and lodging to commuter migrants. An independent census of garages provided the final sampling frame, given the incompleteness of Obtaining survey responses from both the cycle-rickshaw driver as well as the garage owner to a specially developed questionnaire at the time of the transaction (in the morning when rickshaw drivers picked up their rickshaws and around 4–5 pm when they returned) allowed me to pick up and probe less tangible aspects of the garage functioning that were not revealed in response to survey questions, such as attitudes to use of coercion, as well as variations in payment period and default rates.

6.2 Empirical Issues and Approaches

Issues in implementing this study were in themselves indicative of market characteristics. For instance, many of the garages, particularly the smaller and medium ones, on the original MCB-provided list were found to have gone out of business over the course of the year. One of the largest in the sample and in the city sold a large fraction of his cycle-rickshaw stock to another

garage during the course of the study. Reported cycle-rickshaw stocks were found to be only approximate, both due to underreporting to avoid permit fees, as well as due to operational reasons such as recycling or loss of spare parts. The smallest garages were simply hard to trace because their cycle-rickshaws were rented for longer periods.

Such high rates of turnover, both on the garage and rickshaw driver sides, represent particular challenges for quantitative surveys. However, as a large and expanding literature demonstrates, qualitative methods can be particularly effective under these conditions (Sood 2008). The systematic integration of methods helped to better account for two aspects of the cycle-rickshaw rental market that had been missed by other studies of the sector. The first was market structure, which was elucidated by the garage study. While the garage study used random sampling of garages, the questionnaire and observation allowed for non-quantitative data to also be picked up. Qualitative data allowed for priors and hypotheses regarding market structure to be generated, in this way shaping questionnaire design and quantitative data collection. The rickshaw driver surveys then elicited information on the garages from which renters hired their cycle-rickshaws, allowing for establishing more rigorously the patterns of market structure. While current survey design recommendations for informal sector activities advocate year-round designs that can take account of seasonality, micro-studies often lack the time and monetary resources to undertake such comprehensive data collection (Husmanns 2007). Qualitative methods are then particularly useful for obtaining a sense of the broader trends that impact the sector due to seasonality.

A number of field studies of informal service sectors, like the present study, have used variants of intercept sampling approaches (Kurosaki, Sawada, Banerji, and Mishra 2007; Dasgupta 2003). While Kurosaki et al's (2007) pilot study methodology appears non-probabilistic, Dasgupta (2003) used a sampling frame based on a census she conducted in select areas. An emerging statistical literature has done much to put these sampling methods on a sounder footing (Kalsbeek 1986; Kalton 2001; McKenzie and Mistiaen 2009). Although a detailed survey of this literature is beyond the scope of this paper, note that even as guidelines for national level surveys of informal sector become ever more effective, micro-studies of particular informal

sector activities often struggle with budgetary and logistical constraints that make household surveys difficult. In this context, the findings of McKenzie and Mistiaen (2009) on the representativeness of intercept point sampling are particularly useful.

At the same time, measurement error also enters from sampling bias due to the cross-sectional nature of the data collection particularly in sectors that face considerable seasonality. If owners are more likely to stay within the profession, then a single cross-section survey will over-sample owners compared to renters, and residents relative to migrants.

7 Conclusion

This paper has attempted to contribute new approaches to both the analytical and methodological paradigms in the study of informal services sector activities. While drawing attention to the diversity of contractual relations within the informal sector, I have highlighted the application of the tools of new institutional economics to issues of contract governance. I have argued that contract enforcement issues underlie most transactions in the informal sector, given the weakness of the state enforcement apparatus and are not restricted to labor contracts.

On the methodological side, I have argued for greater integration of qualitative methods, particularly in field studies of the informal sector. These methods can be especially useful in the study of the institutional environment for informal sector enterprises, and in identifying patterns that may not be recognized in larger scale surveys. The migration dynamics in the cycle-rickshaw rental market became apparent first in the qualitative data before it could be tested through a survey of rickshaw-drivers. High levels of mobility among enterprises and workers affect services sector activities far more than manufacturing enterprises. I suggest that intercept point sampling approaches may represent a reasonable compromise between cost and representativeness, particularly for smaller studies.

While economists have approached the issue of institutional relations in the informal sector from various perspectives, this issue is particularly important from a transport policy perspective. As Kishwar (2001, 2003) has argued, garages are the backbone of the cycle-rickshaw

sector and the non-recognition of the rental contract directly affects the growth and vitality of the sector. Given the non-polluting and low-impact nature of this para-transit mode, as well as its use among relatively lower income groups (Tiwari 2002), technological advance in the sector requires buy-in of the garages. Similar concerns also apply to the auto-rickshaw sector, where even less is known regarding institutional arrangements.

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Table 1: **Capital requirements**

	Lowest	Highest
Monthly variable costs (Rs.)	150	300
Purchase price for new rickshaw (Rs.)	4000	5500
Purchase price for second-hand rickshaw (Rs.)	1500	4000

Notes: (1) Monthly variable costs include spare part maintenance and replacement costs but does not include mechanics salary or labor charges, even where applicable. Per month salary for mechanics hired by garage owners range from Rs. 1500-3000. (2) In absence of accounts, garage owners reported rounded numbers in all cases. Source: Interview data from Bilaspur.

Table 2: **Garage data**

	MCB data	Study data
Total garage rickshaws	2,658	3,738
Number of garages	130	176
Mean size	20.4	21.2
Largest	93	130
Median	12	12
Bottom quartile (size cut-off)	7	7
Top quartile (size cut-off)	30	30.5

Source: 2002-03 data from the Municipal Corporation of Bilaspur combined with survey data.

Table 3: Summary statistics on variables from survey data

	Obs.	Mean	Std. Dev.
<i>Place of origin</i>			
Bilaspur	302	38%	
District	244	31%	
Chhattisgarh	125	16%	
Outside Chhattisgarh	121	15%	
Age (years)	820	32.4	9.7
License (%)	645	26%	
Education (years)	818	3.4	3.6
Years driving	819	11.0	9.3
Months driving	768	11.3	1.9
Annual visits home	463	26.4	78.1
Age at arrival (years)	334	19.0	10.9
Years in Bilaspur	351	12.5	11.6
<i>Family occupation</i>			
Agriculture	72	42%	
Labor	59	35%	
Rickshaw	21	12%	
Others	18	11%	
<i>Caste</i>			
Christian	3	1%	
General	37	7%	
Muslim	12	2%	
Other Backward Classes	176	35%	
Scheduled Caste	181	36%	
Scheduled Tribe	89	18%	

Notes: Number of observations for the sample as a whole is 821. *Annual visits home, age at arrival and years in Bilaspur* reported only for migrant drivers. Other category of *Caste and religion* includes Upper Caste Hindu, Muslim and Christian drivers.

Source: Survey data