



途上国における貧困削減と制度・市場・政策  
比較経済発展論の試み

Poverty Reduction, Institutions, Markets, and Policies  
in Developing Countries:  
Toward a Theory of Comparative Economic Development

PRIMCED Discussion Paper Series, No. 28

**Unorganized Enterprises and Rural-Urban Migration  
in India:  
The Case of the Cycle Rickshaw Sector in Delhi**

**Takashi Kurosaki, Asit Banerji, S. N. Mishra, and A. K.**

**Mangal**

**July 2012**



HITOTSUBASHI UNIVERSITY

Research Project **PRIMCED**

Institute of Economic Research

Hitotsubashi University

2-1 Naka, Kunitatchi Tokyo, 186-8601 Japan

<http://www.ier.hit-u.ac.jp/primced/e-index.html>

# Unorganized Enterprises and Rural-Urban Migration in India: The Case of the Cycle Rickshaw Sector in Delhi

July 2012

Takashi Kurosaki,<sup>#</sup> Asit Banerji,<sup>\*</sup> S. N. Mishra,<sup>\*</sup> and A. K. Mangal<sup>\*</sup>

*Abstract:* In 2010/11, we conducted a survey of cycle rickshaw pullers and rickshaw owners located throughout Delhi, India. We drew a sample of 132 rickshaw owners (called *Thekedars*) and a representative sample of 1,320 rickshaw pullers. The survey results show that most rickshaw pullers in Delhi are short-term, temporary migrants. Most rickshaw pullers are poorly educated. The majority migrated from villages in the states of Bihar and Uttar Pradesh. Social networks that extend from places of origin to final destinations facilitate migration. More than 90% of rickshaw pullers operate rental rickshaws owned by *Thekedars*. Rickshaw pulling involves hard physical labor. On average, a rickshaw puller works 11 hours per day, over 27 days per month. We estimate the average daily earning to be Rs. 260. A typical migrant rickshaw puller may save more than Rs. 2,000 per month. He may send these funds to his village home. This is the migrant rickshaw pullers' contribution to rural poverty reduction. *Thekedars* provide the fulcrum upon which the whole cycle rickshaw transportation system of Delhi turns. In addition to the rental of cycle rickshaws to migrant rickshaw pullers, *Thekedars* manage the administrative and legal aspects of their rickshaw rental business throughout the year. Their occupational history shows that many of them became a *Thekedar* from low beginnings, including rickshaw pulling and rickshaw repair jobs. On average, a *Thekedar* owns 56 rickshaws, approximately two-thirds of which are rented on a daily basis. Pullers pay a fixed rental fee per day at an average rate of Rs. 34. Net of business expenditures, monthly rickshaw rental income per *Thekedar* is estimated at approximately Rs. 5,600 for small and medium *Thekedars* and Rs. 41,000 for large *Thekedars*. The internal rate of return on investment over 5-6 years of the working life of a rickshaw is estimated to range between 18% and 62% per year. Currently, the rules and regulations on the cycle rickshaw sector in Delhi are based on the principal of the *one-rickshaw, one-owner, one-driver, one-license* policy. However, this policy does not reflect the real-life situations we encountered in our survey. We recommend that *Thekedars* be endowed with legal entity status. This would result in the healthy development of urban transport in Delhi.

---

<sup>#</sup> Institute of Economic Research, Hitotsubashi University. 2-1 Naka, Kunitachi, Tokyo, 186-8603, Japan. Phone: 81-42-580-8363, Fax: 81-42-580-8333. E-mail: kurosaki@ier.hit-u.ac.jp, <http://www.ier.hit-u.ac.jp/~kurosaki/>.

<sup>\*</sup> Centre of Economic and Social Research (CESR), Delhi. J.R. Complex No. 4, HCMR Farms, Sewadham Marg, Mandoli, P.O. Nand Nagri, Delhi 110 093, India. Phone & Fax: 91-11-22344660. E-mail: cesr@bol.net.in, <http://www.cesr.in>.

We gratefully acknowledge funding for this study from JSPS Grant-in-Aid for Scientific Research (22223003).

## 1. Introduction

Despite rapid economic growth, India's persistent poverty and increasing regional inequality are serious concerns. According to the latest government estimate (Government of India, 2012a), the poverty head count ratios for 2009/10 were 33.8% in rural India and 20.9% in urban India. The combined ratio showed that 29.8% of the Indian population lived below the poverty line in 2009/10. This finding implies that more than 350 million persons were classified as poor. Unfortunately, policies that attempt to address the enormous problem of Indian income poverty have not yet achieved significant impacts.

In this report, we approach this problem through the study of the urban informal sector and rural-urban migration. Development economics contains a large body of literature devoted to the informal sector in cities and rural-urban migration (Williamson, 1988). As originally modeled by Todaro (1969), individuals will migrate if their expected earnings from migration will be higher than the amount they might earn prior to migration. Expected earnings after migration depend on the probability of finding jobs in the formal sector and the earnings differentials between formal and informal jobs in cities. When migrants decide to move, social networks play an important role. A growing body of empirical literature focuses on networks and occupational mobility (see, e.g., Munshi, 2011, and references therein). The literature has shown that restrictive traditional networks are in decay while new networks are in formation. In our research, we focus on cycle rickshaw pulling in Indian cities. This field is dominated by migrants from villages who rely on various types of networks to make their migration decisions (Deshingkar et al., 2006; Kurosaki et al., 2007).

Over the last decade, India's population grew at an average rate of 1.76% per year, resulting in the total population of 1.21 billion in 2011 (Government of India, 2012b). During the same period, the rural population grew at an average rate of 1.22%, while the urban population grew at a rate of 3.18% per year (i.e., at a rate of more than two-and-one-half times that of the rural population). As a result, urbanization has been growing rapidly: The urban population share has increased from 27.45% in 2001 to 32.20% in 2011. This rapid increase in the urban population includes the growth caused by rural migration to cities.

The reasons for migration are diverse. One important reason is economic necessity. Individuals move with the expectation of better opportunities (Todaro, 1969). As we can see in the figures provided above,<sup>1</sup> despite past rapid migration, the poverty head count ratio in urban areas remains at a lower rate than the poverty ratio in rural areas in India. Therefore, a poor migrant from a village might expect to

---

<sup>1</sup> The official estimates of poverty head count ratios in India are based on poverty lines adjusted for differences in the price level. For example, in 2009/10, on average, the poverty line in rural India was Rs. 672.8 per capita per month and that in urban India was Rs. 859.6 (Government of India, 2012a). Therefore, the urban-rural gap in the poverty rates reflects a real term difference rather than a nominal one. *Rs* refers to Indian rupees. At the time of our survey, US\$1 equaled approximately Rs. 45.

earn better income through employment in the city's formal or informal economic sector. Why does a poor, uneducated man move to town A rather than town B? Once he settles in town A, how does he find employment? These questions need to be explored within the context of migrants' social networks. These networks exist prior to migration and provide support during the process from initiation to completion. If a migrant is enterprising, he may change jobs, earn more money, accrue savings, and, eventually, set up his own small business. A migrant might invest in a tea-stall, *Paan* (betel leaf) shop, or vending or hawking service. Over time, he may bring his family from the village and settle down permanently as a resident of the city. On the other hand, he might return to his village if he experiences homesickness, if pressing conditions exist at home, or if he has earned enough money to supplement his family's income. We consider these migrants to be temporary, seasonal migrants who do not become city residents.

Delhi is the capital city of India. It is a microcosm of India's urban world. It shares all the migration characteristics described above. Delhi's population almost doubled between the censuses of 1941 and 1951. The population grew from approximately 918 thousand to over 1.7 million. This rapid population growth was primarily the result of a flood of migrants that migrated from Pakistan to Delhi during India's partition and independence in 1947. Over a span of 50 years (1951-2001), Delhi's population continued to grow at a rate of 5.0%-5.3% per year. However, over the last decade, the growth rate declined to approximately 2.1% per year (Government of India, 2012b).

This population expansion in Delhi has been accompanied by a continued increase in the number of automobiles. By the end of March 2011, Delhi had a stock of almost 7 million vehicles, 94% of which were private cars, jeeps, motorcycles, and scooters (Government of Delhi, 2012a). These figures imply one private vehicle per each three persons in the population. Between the months of March and April 2011, approximately 13,000 private cars, 20,000 motorcycles, and 5,000 scooters were registered with Delhi government's transportation authority (Government of Delhi, 2012b). This occurred despite the fact that Delhi Metro Rail covers (and is expanding) a track network of 190 km and transports 2 million passengers each day (Ramachandran, 2012).

The increasing density of motor vehicles on the roads may cause chaotic conditions. The number of non-motorized vehicles that share the roads may further amplify this chaos. The cycle rickshaw is the most important type of non-motorized vehicles. A cycle rickshaw is a type of bicycle that can carry passengers. It is propelled by a man who pedals the cycle. As we noted above, rickshaw pulling is one of a number of trades in which poor migrants from villages can engage when they arrive in cities. Some critics consider cycle rickshaw transportation to be an anachronism in the modern world. They may even consider rickshaw pulling to be an affront to human dignity. Supporters take a more positive view. They consider it a trade that provides income earning opportunities for impoverished individuals. Migrant rickshaw pullers in Delhi may transfer a portion of this income to their family that remains in their home villages. This transfer of funds may help to alleviate rural poverty to a certain degree. In addition, cycle

rickshaws are an environment-friendly mode of transportation. Unlike motor vehicles, they do not emit greenhouse gases. In recent years, questions about the regulation of cycle rickshaws in Delhi have become a hotly debated political issue. In Section 5 of this report, we will provide a detailed discussion of these policy issues. By way of introduction to these policy discussions, we must emphasize the complete absence of scientific data on the cycle rickshaw sector in Delhi. Neither the Court nor the regulatory body of the government has collected sufficient data on the number of cycle rickshaws that operate in Delhi, the ownership of these vehicles, or the number of rickshaw pullers who operate their vehicles in the city on any given day.

Because of the paucity of information on this subject, this research project has attempted to collect precise and accurate information on the cycle rickshaw sector in Delhi as a case study of the urban informal sector linked with rural-urban migration.<sup>2</sup> In a pilot survey conducted in North East Delhi that surveyed 80 rickshaw pullers between January and February 2006 (Kurosaki et al., 2007), we found that rickshaws were primarily owned by a group or class of people called *Thekedars*. This Hindi term nominally means an individual (contractor) who contractually agrees to provide laborers or materials for jobs. In the present case, the rickshaw owner does not serve as a contractor. Rather, he rents his rickshaws to rickshaw pullers on a daily basis. Thus, he earns rental income. His stock may range from only a few to a few hundred rickshaws. Although not representative of Delhi, our examination of the pilot study data helped us to formulate firmer hypotheses for testing at the scale of Delhi (Kurosaki et al., 2007). In June 2009, we tested our methodology to draw a representative sample in North East Delhi (CESR, 2009). From December 2010 through March 2011, we conducted the primary survey, which covered locations throughout Delhi. We collected detailed information on 1,320 rickshaw pullers and 132 rickshaw owners.

The purposes of this report are, therefore, to document the 2010/11 primary survey, to conduct descriptive analysis of primary data of the sample rickshaw pullers and rickshaw owners, to present evidence based on the representative data related to our hypotheses from the pilot survey, and to provide information for use in the current debate on urban transportation policies. We believe that a detailed account of rickshaw puller' migration process and the impact of the social network that supports their migration and employment should interest scholars who study migration. In addition, our study should interest scholars who research rural poverty, rural poverty's spillover into urban poverty, and urban-to-rural income transfers. Since very few empirical studies have been conducted on the urban informal sector based on scientific sampling, the findings in this report may contribute to better understanding of the urban informal sector and its relation to Indian rural-urban migration. Because of the sheer size of the

---

<sup>2</sup> An earlier, related project studied the informal waste collection sector in North East Delhi. The research team included one of the current authors (Hayami et al., 2006). This sector also employs many migrants. Similar to Kurosaki et al. (2007), Hayami et al. (2006) implemented a small-scale pilot survey. The results of the findings were to be tested at a later date using more representative data. See, also, Gill (2010) for another study on the informal waste collection sector in Delhi.

Indian economy and the importance of Delhi within it, our case study's findings may provide new insights on the urban informal sector literature in development economics in general.

We have organized this report in the following manner: In Section 2, we provide a brief description of the study area, our sampling strategy, and the resulting primary data. We then present our findings in the next three sections: rickshaw pullers, rickshaw owners, and policy issues. In the final section, we present our summary and conclusions.

## **2. Design and Implementation of the Survey**

### **2.1 Institutional Background**

During the 1940s, cycle rickshaws were introduced in Delhi as replacements for hand-pulled rickshaws. Since that time, cycle rickshaws have survived as a mode of transportation. They continue to grow in numbers despite the modernization of the city and the corresponding revolutionary changes in the transportation sector. The growth of this sector derives from the persistent niche demand for this mode of transportation. Delhi's modern sophisticated transportation system cannot conveniently meet this demand. A cycle rickshaw is ideally suited for short distance travel through narrow congested areas. In addition, individuals can hire them with little difficulty. Therefore, the growth of this sector has been demand-driven. It exists on the margin of the main transportation sector. It is interesting to note that the most advanced mode of transportation in Delhi, the Delhi Metro Rail, has increased the demand for cycle rickshaws (Kurosaki, 2012).

To collect representative data on the cycle rickshaw sector in Delhi, we utilized the administrative structure of Delhi described below. The National Capital Territory (NCT) of Delhi covers an area of 1,483 km<sup>2</sup>. This area is bounded in the north, west, and south by the state of Haryana, and, in the east, by Uttar Pradesh. The NCT is comprised of three statutory towns administered by the Municipal Corporation of Delhi (MCD), the New Delhi Municipal Council (NDMC), and the Delhi Cantonment Board (DCB), respectively. The MCD accounts for about 94% of the NCT area and more than 97% of the NCT population. Officially, cycle rickshaw operation is forbidden in areas under the administration of the NDMC and DCB.

Presently, there are twelve administrative *zones* in areas under the MCD.<sup>3</sup> Cycle rickshaws ply in all zones, except for the South Zone, possibly because of its hilly terrain and relatively low population density. Each MCD zone is divided into *wards*; each ward is divided into residential localities or *colonies*. Neither the number of wards in a zone nor the number of colonies in a ward is fixed. They are subject to

---

<sup>3</sup>The boundaries of MCD zones are not co-terminus with district boundaries. The NCT is divided into nine districts by the Government of Delhi.

change, usually upward, as new colonies crop up through redrawing of colony boundaries. The total number of wards increased from 134 in 2008 to 323 in 2009. Similarly, the total number of colonies increased from 198 in 2008 to 2,357 in 2009. The MCD classifies colonies for the convenience of house tax collection. A full list of colonies, organized by tax classification, is available on the Internet.<sup>4</sup>

For regulatory purposes, cycle rickshaws fall within the jurisdiction of the MCD. According to MCD statistics, the number of cycle rickshaws in Delhi increased rapidly during the late 1990s from a little over 46,000 in 1995/96 to over 70,000 in 1999/2000; however, the statistics show erratic trends since then, possibly because of the MCD's failure to keep correct records (Kurosaki et al., 2007). As explained in detail in Section 5, the official policy is to register one cycle rickshaw for one person and provide one driving license to the owner for that particular cycle rickshaw, while the majority of cycle rickshaws operate without proper driving licenses. In fact, migrant rickshaw pullers rarely know or care about Delhi's formal system of rickshaw transportation. They do, however, interact with entities known as *Thekedars*. A migrant rickshaw puller may first encounter a *Thekedar* when he rents a cycle rickshaw, operates it, returns it, and pays the rental fee to the owner in a timely manner. If such a rickshaw puller infringes on the law, he usually will inform his *Thekedar* who, in turn, will deal with the concerned MCD or police official.

**Table 2.1: Number of Rickshaw Licenses Issued in Delhi as of June 2011**

<b>Zone name</b>	<b>Number</b>	<b>(%)</b>
City	2,429	(2.9)
Central	1,959	(2.3)
South	0	(0.0)
Karol Bagh	1,980	(2.3)
Sadar Paharganj	2,000	(2.4)
West	14,000	(16.6)
Civil Lines	10,000	(11.9)
Shahdara (N)	17,109	(20.3)
Shahdara (S)	16,615	(19.7)
Rohini	7,854	(9.3)
Narela	3,197	(3.8)
Najafgarh	7,234	(8.6)
<b>Total</b>	<b>84,377</b>	<b>(100.0)</b>

Source: MCD zonal offices.

Despite the critical role played by *Thekedars*, they are not officially recognized as legal entities. Thus, they conduct their businesses in contravention of MCD regulations. As the regulatory authority for

<sup>4</sup> <http://www.mcdonline.gov.in/> accessed on July 22, 2010.

rickshaw transportation, the MCD only acknowledges the number of rickshaw licenses it has issued. According to the latest information reported in Table 2.1, the total number of cycle rickshaw licenses issued in Delhi is approximately 84,000. However, it is a common belief that many times more rickshaws than the number licensed are in operation (Kurosaki et al., 2007). Because of this gap between the official policy and the reality, no list of rickshaw pullers and owners is currently available.

## 2.2 Sampling Strategy

Due to the absence of a formal registry of the rickshaw pullers and *Thekedars*, we found the task of drawing a representative sample challenging. To address this problem, we adopted an *areal* approach (i.e., an area frame approach) based on the work of Minten et al. (2010). These authors surveyed informal street vendors in Delhi. In our areal approach, we used the administrative tiers in Delhi as the sampling framework. We designated the first tier as a zone. There are twelve zones in the MCD, out of which eleven are served by licensed rickshaw pullers. Thus, our present survey covered these eleven MCD zones. We randomly selected two wards from each zone and five colonies from each ward.

In preparation for this survey, which covered all locations in Delhi, we conducted in June 2009 a preliminary survey of rickshaw pullers in the Shahdara (N) Zone. We tested the sampling methodology and the questionnaire draft. The preliminary survey gave us confidence in the area frame approach to sampling and re-confirmed some of the findings of the 2005/06 pilot survey (CESR, 2009). Therefore, we adopted the areal approach. During the winter season of 2010/11, we conducted two surveys: one for rickshaw pullers and the other for *Thekedars*. For sampling purposes, we used the 2008 administrative divisions of wards and colonies.

We sampled rickshaw pullers in four stages. In stage one, we randomly selected two wards from each MCD zone. In stage two, we randomly selected five colonies from the list of colonies for each of the two selected wards. To sample rickshaw pullers in the sampled colonies, the field investigator conducted a quick census survey to establish the number of focal points in the colony and the number of rickshaw pullers that operated in each of these focal points. A focal point (i.e., a rickshaw stand) is the location where rickshaw pullers in a colony usually congregate and wait for passengers. In stage three, we randomly selected two focal points from the enumerated list. In stage four, we randomly selected six rickshaw pullers from the enumerated list. We then addressed our questions to this group of six individuals.

This sampling procedure implied a subtotal of 60 ( $12 \times 5$ ) rickshaw pullers in each selected ward and a subtotal of 120 ( $60 \times 2$ ) in each zone, resulting in a total sample of 1,320 rickshaw pullers ( $120 \times 11$ ). We implemented our sampling as planned. The interview dates of the rickshaw puller survey ranged from December 8, 2010, through February 25, 2011. In Table 2.2, we provide the zone-wise distribution



of the sampled rickshaw pullers. Based on this procedure, we developed an enumerated list of all focal points in each of the selected colonies. With this list, we could estimate the population number of rickshaw pullers working on a particular survey day by inversion of the estimated probability for each of sampled rickshaw pullers to be surveyed (see Subsection 2.3 below).

**Table 2.2: Distribution of Sampled Rickshaw Pullers and Rickshaw Owners in the Delhi 2010/11 Survey**

Zone name	Name of selected ward	Number of selected colonies	Number of selected rickshaw pullers	Number of selected rickshaw owners
City	(i) Nizamuddin	5	60	6
	(ii) Darya Ganj	5	60	6
Central	(i) Jangpura	5	60	5
	(ii) Sangam Vihar	5	60	7
Karol Bagh	(i) Dav Nagar	5	60	6
	(ii) Kishan ganj	5	60	6
Sadar Paharganj	(i) Pharganj	5	60	6
	(ii) Subzi Mandi	5	60	6
West	(i) Gurunanak Nagar	5	60	6
	(ii) Uttam Nagar	5	60	6
Civil Line	(i) Model Town	5	60	6
	(ii) Shastri Nagar	5	60	6
Shahdara (N)	(i) Nand Nagari	5	60	6
	(ii) Gokulpur	5	60	6
Shahdara (S)	(i) Kondli	5	60	6
	(ii) Preet Vihar	5	60	6
Rohini	(i) Saraswati Vihar	5	60	6
	(ii) Badli	5	60	6
Narela	(i) Bawana	5	60	6
	(ii) Alipur	5	60	6
Najafgarh	(i) Sagarpur	5	60	6
	(ii) Bijwasan	5	60	6
<b>Total</b>		<b>110</b>	<b>1,320</b>	<b>132</b>

Source: The 2010/11 primary survey (This source also applies to the tables that follow).

Initially, we intended to draw a random sample that would consist of two or three *Thekedars* from each of the colonies selected for the rickshaw pullers survey. However, we struggled with the absence of official lists of rickshaw owners and the technical difficulty involved in enumeration of the total number of *Thekedars* in a quick census survey. Thus, we felt that the search and hit approach was the only way to find potential interview candidates among the rickshaw owners in the selected colonies. However, the field investigators reported that, in several selected colonies, no rickshaw owners were in operation. In general, *Thekedars* operate in low-income colonies where space is available for rickshaw

parking. Thus, we instructed the investigators to visit additional colonies in the selected wards to search for rickshaw owners and conduct interviews. They conducted interviews, on average, at the rate of six per ward. Our efforts resulted in a sample of 132 for all locations in Delhi. The interview dates of the rickshaw owner survey ranged from December 23, 2010, through March 2, 2011. In Table 2.2, we provide the zone-wise distribution of the sampled rickshaw owners.

Upon completion of the survey of rickshaw owners, we discovered that we had omitted two key questions from the questionnaire: the number of rickshaw owners in the respondent's colony, and the number of rickshaws owned by these fellow owners. To answer these questions, we conducted a phone-inquiry in July 2011. We obtained information from 48 out of the 132 sampled rickshaw owners. In December 2011, we conducted a second survey that sampled 55 rickshaw owners (five rickshaw owners from each zone of the selected wards). When we combined the results of both surveys, we obtained a total of 187 sampled rickshaw owners in Delhi. Out of this sample, 103 respondents provided information about the number of rickshaw owners and rickshaws in their colonies.

### **2.3 Estimation of the Number of Cycle Rickshaws in Delhi**

We adopt three different concepts of the number of cycle rickshaws in Delhi. In Table 2.1, we show the first concept: the number of licensed cycle rickshaws. Unfortunately, this number may not be a true reflection of the actual number of rickshaws. The second concept shows the number of cycle rickshaws in operation in Delhi on any given day. We can statistically estimate this number by the application of the areal approach explained above, using the information contained in the enumerated list of all focal points in each of the selected colonies. The third concept shows the number of rickshaws owned by *Thekedars*. Given that the absolute majority of rickshaw pullers rent rickshaws from *Thekedars* (i.e., 91.3% out of the 1,320 pullers sampled in our survey; see Section 3) and most *Thekedars* rent out only a portion of their stock (the average utilization rate was about 67%; see Section 4), the number of rickshaws under the third concept should be much larger than that under the second concept.

In the Appendix, we provide the estimation procedure for the second concept. We calculated the sampling probability of the 1,320 sampled rickshaw pullers based on the enumerated list of all focal points in selected colonies combined with the information on the number of rickshaw pullers in each focal point. The sampling probability takes the same value for sampled rickshaw pullers belonging to the same focal point and it takes different values across focal points. The inflation factor, which blows up the sample to the population, is the inverse of the sampling probability. Because we randomly drew focal points, colonies, and wards, the population estimate we obtained is subject to sampling error. In the Appendix, we also describe how we calculated the standard error of the population estimate.

The estimation of the third concept proceeds as follows: From the 103 sampled observations of *Thekedars* who responded to the full list of questions, we calculated the colony-level average of the number of rickshaws owned by the sampled *Thekedars* and the colony-level average of the reported number of *Thekedars* in the surveyed *Thekedar*'s colony. In calculating these averages, we adjusted for the probability that each colony may not have any *Thekedars* (rickshaw pullers in those colonies rent rickshaws from *Thekedars* who live in nearby colonies). By multiplying these two averages and then multiplying that result by the number of colonies in the selected ward, we obtained the estimate for the number of rickshaws owned by *Thekedars* in each of the selected wards. By multiplying this estimate by the number of wards, we obtained the population estimate for the number of rickshaws owned by *Thekedars* in Delhi. Because this estimation procedure is crude, based on the small number of observations, and the areal adjustment is *ad hoc*, the population estimate is not statistically reliable. We were unable to calculate its standard error, either.

**Table 2.3: Estimated Number of Cycle Rickshaws in Delhi, 2010/11**

Zone name	Estimated number of rickshaw pullers based on the areal approach				Estimated number of rickshaws owned by <i>Thekedars</i>
	Number	Standard error	95% confidence interval		
			Lower bound	Upper bound	
City	5,490	678	3,957	7,023	25,443
Central	4,998	374	4,153	5,843	15,662
South	0	0	0	0	0
Karol Bagh	4,064	330	3,318	4,810	15,668
Sadar Paharganj	2,089	187	1,666	2,513	9,598
West	22,370	1,366	19,280	25,460	104,154
Civil Lines	5,115	293	4,452	5,777	36,238
Shahdara (N)	12,712	1,675	8,923	16,501	76,494
Shahdara (S)	11,400	1,463	8,090	14,710	63,648
Rohini	9,610	1,019	7,304	11,915	49,112
Narela	6,671	347	5,885	7,457	6,469
Najafgarh	19,760	1,654	16,018	23,503	39,475
<b>Total</b>	<b>104,279</b>	<b>3,421</b>	<b>97,491</b>	<b>111,068</b>	<b>441,960</b>

Note: We estimated the population of rickshaw pullers by application of the areal approach (see Appendix for details). We estimated the number of rickshaws owned by *Thekedars* based on the *Thekedar* dataset described in the text.

In Table 2.3, we show the estimated number of cycle rickshaw pullers and the number of cycle rickshaws owned by *Thekedars* in Delhi. The estimated population of rickshaw pullers is 104,279. This figure is 24% greater than the number of licenses issued (Table 2.1). The standard error is relatively

small with a 95% confidence interval from 97,491 to 111,068. However, the point estimate may be an underestimate if we consider the findings from our previous studies (Kurosaki et al., 2007; CESR, 2009). There may be several reasons for underestimation. The most likely reason may lie in the possibility that our quick census survey of focal points was incomplete. This may have resulted in an underestimation of the number of rickshaw pullers in selected colonies.

We estimated that the population of rickshaws owned by *Thekedars* in Delhi is 441,960. This number is larger than the number of licenses issued by a factor of 5.2. The point estimate is not very different from our expectations, which were based on our pilot and preliminary surveys (Kurosaki et al., 2007; CESR, 2009). However, for the reasons mentioned above, the point estimate is not statistically reliable.

The relative magnitude of these estimates seems reasonable. The number of rickshaw pullers in operation in Delhi on any given day is larger than the number of licenses issued; the number of rickshaws owned by *Thekedars* is larger than the number of rickshaw pullers in operation. The geographical distribution of our estimates also seems reasonable. The number of rickshaw pullers in operation in Delhi and the number of rickshaws owned by *Thekedars* demonstrate that the West Zone has the largest number of cycle rickshaws. Both sets of estimates indicate that the top five zones where cycle rickshaws concentrate include West, Shahdara (N), Shahdara (S), Rohini, and Najafgarh. This list of rickshaw-concentration zones agrees with our observations in the field. Therefore, we conclude that our tentative estimates shown in Table 2.3 are relatively well-aligned with the reality of the situation in Delhi.

As we will discuss in Section 5, in their judgment of 2010, the Delhi High Court set aside the MCD's rules and regulations for rickshaw transportation in Delhi. In April 2012, the Supreme Court upheld the High Court's judgment. During the course of the High Court hearings, the Court inquired about the number of rickshaws in existence in Delhi. Figures ranging from 500,000 to 800,000 were quoted without scientific basis. Our point estimates of the existence of 104,000 rickshaw pullers and 442,000 rickshaws owned by *Thekedars* are lower than these guesstimates.

In the three sections that follow, we will describe in greater detail the characteristics of the sampled rickshaw pullers and owners who comprise the estimates presented in Table 2.3. In our descriptive tables, we will report the simple, unweighted statistics of our sampled observations. For the rickshaw owner data, this is the only option available because we were unable to calculate the sampling probability. For the rickshaw puller data, we can alternatively calculate the weighted statistics using the sampling probability. However, the characteristics we will describe in the next section are robust to weighting. The results based on weighted statistics are available on request.

### 3. Characteristics of Rickshaw Pullers and their Rickshaw Plying Business

#### 3.1 Social and Demographic Characteristics of Rickshaw Pullers

In general, the sampled Delhi rickshaw pullers originally migrated from native villages. In Table 3.1, we classify their migration status by the use of four criteria. First, 99% have a permanent address outside Delhi (i.e., in their home villages). Second, 93% do not hold ration cards. Third, 91% do not possess election identity cards. In total, these characteristics demonstrate that the rickshaw pullers' native villages are their home bases. It is likely that their ration cards and election identity cards were issued in their native villages. Fourth, 73% send money to their native villages. However, some rickshaw pullers do not send money with any regular periodicity. Rather, they carry their savings with them when they return to their native villages at the end of their stays in the city. If we employ a stricter definition that combines all four criteria, we find that 68% of the sampled rickshaw pullers can be considered temporary migrants. As we can see in Table 3.15, in 64% of the cases, rickshaw pullers live alone in the city. In some cases, one or two family members may join them. These characteristics show that these rickshaw pullers are not greatly involved in city life. They temporally come to work and earn additional income.

**Table 3.1: Distribution of Sampled Rickshaw Pullers by Migration Status**

Item		Number	(%)
1. Permanent address			
1a.	In Delhi	18	(1.4)
1b.	Outside Delhi	1,302	(98.6)
2. Possess a PDS ration card in Delhi or not			
2a.	Yes (more settled)	86	(6.5)
2b.	No (less settled)	1,234	(93.5)
3. Possess an election ID card in Delhi or not			
3a.	Yes (more settled)	117	(8.9)
3b.	No (less settled)	1,203	(91.1)
4. Send money to own village home or not			
4a.	No (more settled)	361	(27.3)
4b.	Yes (less settled)	959	(72.7)
5. Most restrictive definition of a migrant that combines Nos. 1-4*			
5a.	Settled	420	(31.8)
5b.	Migrant	900	(68.2)
<b>Total</b>		<b>1,320</b>	<b>(100.0)</b>

Note: Over time, some migrants may become permanent residents of Delhi. Residency is proved by possession of a PDS ration card, an election commission ID card, etc. Provision of an election ID card is based on submission and acceptance of the following items as proof of residence: house rent receipts, electricity receipts, ration cards, or bank account passbooks.

\* Under the most restrictive definition, a rickshaw puller is classified as a *Migrant* (5b.) if he meets all four of the following criteria: he possesses a permanent address outside Delhi (1b.); he does not possess a ration card for the Public Distribution System in Delhi (2b.); he is not registered for election in Delhi (3b.); and he sends remittance to his family in his home village (4b.). Otherwise, he is classified as *Settled*.

**Table 3.2: Location of Permanent Address by State**

State	Number	(%) of total	(%) excluding Delhi
Assam	1	(0.08)	(0.08)
Bihar	679	(51.44)	(52.15)
Delhi	18	(1.36)	
Haryana	5	(0.38)	(0.38)
Himachal Pradesh	1	(0.08)	(0.08)
Jharkhand	9	(0.68)	(0.69)
Madhya Pradesh	48	(3.64)	(3.69)
Nepal	5	(0.38)	(0.38)
Punjab	3	(0.23)	(0.23)
Rajasthan	11	(0.83)	(0.84)
Uttar Pradesh	499	(37.80)	(38.33)
West Bengal	41	(3.11)	(3.15)
<b>Total excluding Delhi</b>	<b>1,302</b>		<b>(100.00)</b>
<b>Total</b>	<b>1,320</b>	<b>(100.00)</b>	

The data on rickshaw pullers' places of origin clearly indicates the migratory nature of their lives (Table 3.2). Our survey shows that 90.5% of rickshaw pullers whose permanent address is outside Delhi originally migrated from Bihar (52.2%) or Uttar Pradesh (38.3%). The next highest contributors to the rickshaw pullers' population in Delhi migrated from Madhya Pradesh (3.7%) and West Bengal (3.1%). When we further disaggregated the data on place of origin, we found that the majority of migrants from Bihar originally came from the following districts: Banka, Begusarai, Bhagalpur, Darbhanga, Kathiar, Khagaria, Muzaffarpur, Saharsa, Samastipur, and Sitamarhi. Migration was relatively evenly distributed among these districts. However, Darbhanga and Samastipur had a relatively larger concentration of migrants. We found a similar pattern in the case of Uttar Pradesh. The majority of migrants originally came from six districts: Baharaich, Bareilly, Badayun, Gonda, Hardoi, and Shahjahanpur. Distribution was relatively even among these districts.

**Table 3.3: Distribution of Sampled Rickshaw Pullers Based on Religion and Caste**

Religion/Caste		Number	(%)
<b>1. Hindu</b>			
1a.	SC	214	(16.2)
1b.	ST	115	(8.7)
1c.	OBC	601	(45.5)
1d.	Others	144	(10.9)
1.	Subtotal	1,074	(81.4)
<b>2. Non-Hindu</b>			
2a.	Muslim	244	(18.5)
2b.	Other religion	2	(0.2)
<b>Total</b>		<b>1,320</b>	<b>(100.0)</b>

Although an overwhelming majority of rickshaw pullers is Hindu (81.4%), a substantial minority is Muslim (18.5%). Among Hindus, 16.2% belong to Scheduled Castes (SC). In addition, 8.7% of the total belong to Scheduled Tribes (ST). An additional 45.5% belong to the category of Hindu OBCs (Other Backward Classes). Thus, the proportion of sampled rickshaw pullers that belong to the backward sections of the Indian society (SC, ST, Hindu OBC, and Muslim) amounts to 88.9% (Table 3.3).

**Table 3.4: Educational Achievement of Rickshaw Pullers by Religion and Caste**

Religion/Caste		Illiterate	Primary	Middle	Secondary & above	Total
<b>1. Hindu</b>						
1a.	SC	83 (38.8)	78 (36.4)	39 (18.2)	14 (6.5)	214 (100.0)
1b.	ST	61 (53.0)	32 (27.8)	13 (11.3)	9 (7.8)	115 (100.0)
1c.	OBC	260 (43.3)	232 (38.6)	65 (10.8)	44 (7.3)	601 (100.0)
1d.	Others	60 (41.7)	63 (43.8)	11 (7.6)	10 (6.9)	144 (100.0)
1.	Subtotal	464 (43.2)	405 (37.7)	128 (11.9)	77 (7.2)	1,074 (100.0)
<b>2. Non-Hindu</b>						
2a.	Muslim	131 (53.7)	97 (39.8)	12 (4.9)	4 (1.6)	244 (100.0)
2b.	Other religion	1 (50.0)	0 (0.0)	0 (0.0)	1 (50.0)	2 (100.0)
<b>Total</b>		<b>596 (45.2)</b>	<b>502 (38.0)</b>	<b>140 (10.6)</b>	<b>82 (6.2)</b>	<b>1,320 (100.0)</b>

Note: Figures in parentheses are percentage to the row totals.

Considering their low standing in Indian society, we might not have expected a high level of educational achievement from these individuals. In fact, our results show that 45.2% of rickshaw pullers are illiterate; 38% studied up to the primary level (i.e., about five years of schooling). Thus, we can see that 83.2% of these individuals are illiterate or only minimally educated. As we can see in Table 3.4, only 10.6% of these individuals studied up to the middle level (i.e., about eight years of schooling). Only 6.2% studied up to the secondary level (10-12 years of schooling). Among the subcategories, the incidence of illiteracy is highest among ST and Muslim rickshaw pullers: More than 50% of each of these two groups are illiterate. SC rickshaw pullers as a group have the lowest incidence of illiteracy (38.8%). In the areas of middle and secondary education, the performance of SC rickshaw pullers is comparable to all other groups. This result may be due to endogenous selection made by the SC population to become rickshaw pullers, because the educational performance of the comparable SC population is worse than the educational performance of Hindu OBCs and other Hindus based on nationally representative data such as the National Sample Survey (NSS). The educational achievements of Muslim rickshaw pullers are

worse than all other groups in the areas of middle and secondary education. This pattern is similar to results found in the nationally representative NSS data. In addition, the high incidence of illiteracy among other Hindus may also be attributable to the endogenous selection.

### 3.2 Migration and Migration Networks

The predominant reasons that inspire migration to the city are poverty and lack of earning opportunities in the villages. Our data demonstrates that almost 60% of migrant rickshaw pullers chose to migrate to Delhi because of the lack of opportunities to earn higher income in their villages. More than 20% of the respondents noted the following additional reasons for migration: the lack of enough income to meet emergency situations, such as the death of the only or the main bread winner for the family; illness or accident in the family; crop failure or other kinds of unforeseen events like natural disasters (e.g., floods and droughts) which might cause severe setback to the family assets and income and require more than ordinary financial resources. Although these additional reasons may be less important quantitatively, in most poverty-related studies, they tend to be the major cause for families to consider migration (Tables 3.5 and 3.6).

**Table 3.5: Reasons for Rickshaw Pullers' Decisions to Migrate to Delhi**

Reasons		Number	(%)
1.	For work, because of family's low income in the village	767	(58.95)
2.	For work, because of emergencies such as bad events/accidents in the family	279	(21.45)
3.	Because of social needs such as daughter's marriage etc.	43	(3.31)
4.	To pay family debts	101	(7.76)
5.	Both (1) & (2)	106	(8.15)
6.	Both (1) & (4)	1	(0.08)
7.	Others	4	(0.31)
<b>Total</b>		<b>1,301</b>	<b>(100.00)</b>

Note: We excluded observations to which this question was not applicable or to which no response was given. Therefore, we reduced the total number of observations to 1,301.

**Table 3.6: Emergency Reasons for Rickshaw Pullers' Decisions to Migrate to Delhi**

Emergency Reasons		Number	(%)
1.	Death/Serious disease/Injury to working members	247	(64.16)
2.	Destruction of property by natural hazards	16	(4.16)
3.	Poor crop harvest	57	(14.81)
4.	Large fall in crop prices	58	(15.06)
5.	Business failure	3	(0.78)
6.	Theft	4	(1.04)
<b>Total</b>		<b>385</b>	<b>(100.00)</b>

Note: This question applied to rickshaw pullers who belong to categories 2 and 5 in Table 3.5 (i.e., those rickshaw pullers who decided to come to Delhi because of emergencies). Therefore, the total number of observations is 385.



We do not have direct estimates for household income of origin households in the villages. However, we were able to formulate a reasonable idea of subsistence levels through examination of the following economic conditions. Table 3.7 shows that, in the land holding status of our sample, 60.0% of migrant rickshaw pullers belonged to families without any land to cultivate. Thirty households, or 2.3%, of rickshaw pullers owned no land but they cultivated land rented from landowners.

**Table 3.7: Land Holding Status of Migrant Rickshaw Pullers' Households of Origin**

<b>Land holding status</b>	<b>Number</b>	<b>(%)</b>
No land owned, no land operated by the household	784	(60.03)
Operating own land	492	(37.67)
Operating rented land under lease	13	(1.00)
Operating rented land under sharecropping	17	(1.30)
<b>Total</b>	<b>1,306</b>	<b>(100.00)</b>

Note: We excluded observations to which this question did not apply. Thus, the total number of observations is 1,306.

In general, land holding size among those households of origin that engaged in farming was small. As we can see in Table 3.8, the majority of farm households belong to the category of the smallest holding (less than or equal to two Bighas<sup>5</sup>). If we designate the threshold of five Bighas (i.e., one acre) as the minimum size of a meaningful land holding for subsistence purposes,<sup>6</sup> we can see that about 89% of the rickshaw pullers' households are landless or operate as marginal farmers (i.e., they farm on land less than or equal to five Bighas). Not surprisingly, our survey shows that 89% of households of origin were unable to produce sufficient food from their cultivated land to meet their family's food requirements.

Table 3.9 indicates that 78% of households of origin did not earn sufficient income to meet their food requirements. Approximately 96% of households of origins reported that they lacked sufficient funds to send their children to school. Approximately 98% stated that they were unable to meet their health/medical expenses. Although we do not mention it in this table, our data indicates that 85% of households of origin had, other than the migrant rickshaw puller, no additional family member who was employed outside the home. This implies that the family may be solely dependent on the migrant rickshaw puller's earnings.

<sup>5</sup> Bigha is not a standard measure of area. It varies from region to region. In western UP districts, 5 Bighas = 1 acre. Therefore, 1 Bigha is 0.2 acre or 0.08 hectare.

<sup>6</sup> For different purposes, for example, to designate an economically viable farm, an upper threshold of 15 or 25 Bighas should be employed as the minimum amount.

**Table 3.8: Size Distribution of Operational Land Holdings of Households of Origin**

Land holding size (Bigha)	Number (%)	Area cultivated in Bighas				Average size of operation in Bighas
		Owned	Rented	Share cropped	Total (%)	
Landless	784 (60.03)	0.0	0.0	0.0	0.0 (0.00)	0.0
Above 0, up to 2	209 (16.00)	286.8	8.0	6.9	301.7 (12.27)	1.4
2 to 5	167 (12.79)	631.0	9.0	27.5	667.5 (27.14)	4.0
5 to 10	108 (8.27)	855.6	50.0	29.0	934.6 (37.99)	8.7
10 to 15	31 (2.37)	402.0	0.0	12.0	414.0 (16.83)	13.4
Above 15	7 (0.54)	117.0	0.0	25.0	142.0 (5.77)	20.3
<b>Total</b>	<b>1,306 (100.00)</b>	<b>2292.4</b>	<b>67.0</b>	<b>100.4</b>	<b>2,459.8 (100.00)</b>	<b>1.9</b>

Note: We excluded observations to which this question did not apply. Therefore, the total number of observations is 1,306.

**Table 3.9: Situations of Households of Origin Prior to Migration**

Items	Yes	(%)	No	(%)
Question: Before you migrated to Delhi, did your family earn enough money for the following expenditures?				
1. Food	288	(22.07)	1,017	(77.93)
2. Children's education	47	(3.60)	1,258	(96.40)
3. Health and medical expenditures	25	(1.92)	1,280	(98.08)
4. Other household goods	748	(57.32)	557	(42.68)

Note: We excluded observations to which this question did not apply or for which no response was given. Therefore, the total number of observations is 1,305.

Migration has, by tradition, involved an informal process based on social relationships and networks. Our survey indicates that, for migrant rickshaw pullers, social networking at the village level plays a crucial role in facilitation of the process of migration from the village to the city. The social network has been effective in the provision of crucial information about prospects in trade; the provision of credit to prospective migrants (or the provision of information about available sources of credit); and the provision of information about possible social contacts in the city. This assistance helps smooth the process of migration for newcomers from villages. Once they have settled and, over time, grown accustomed to the urban experience, the erstwhile *new* migrants may become mentors for future migrants. This cycle plays a crucial role in the maintenance of important links between rural and urban areas.

In our survey results, we found that 66.3% of migrant rickshaw pullers initially obtained information about earning opportunities in Delhi from people who reside in their home village (Table 3.10). Apparently, these informants either had direct experience or had learned about migration from other sources. Two additional major sources of information were fellow villagers living in Delhi (8.5%) and relatives living in Delhi (13.8%). When we combined these figures, we found that 88.6% of migrants obtained their basic information about job opportunities in the city from their social network not only within their village but also from the fellow villagers who resided and worked in the city.

**Table 3.10: Sources of General Job Information for Migrant Rickshaw Pullers**

Particulars		Number	(%)
Question: Who provided information about job opportunities in Delhi?			
1.	Friends who live in Delhi	68	(5.23)
2.	People who live in home village	862	(66.26)
3.	People who live in Delhi who migrated from your village	111	(8.53)
4.	Relatives who live in Delhi	179	(13.76)
5.	Relatives who live in your home village	54	(4.15)
6.	Relatives who live in Delhi who migrated from your village	17	(1.31)
7.	Other sources	10	(0.77)
<b>Total</b>		<b>1,301</b>	<b>(100.00)</b>

Note: We excluded observations to which this question did not apply or to which no reply was given. Therefore, the total number of observations is 1,301.

Regarding the provision of job information to migrant rickshaw pullers in Delhi, almost 80% of migrant rickshaw pullers obtained information from people who lived in their home villages (53.1%), people who lived in Delhi who previously migrated from the same villages (14.8%), or relatives who resided in Delhi (10.7%) (Table 3.11). We must note that, when we asked present migrants whether they would be willing to provide information to prospective migrants about the earning opportunities in Delhi, 99% replied affirmatively. This willingness to provide information demonstrates the completion of the cycle where migrants begin to seek information at one stage and, eventually, end the cycle as mentors to prospective migrants.

The role of social networking does not end with the provision of job information to would-be migrants. In important ways, it also extends to work situations. Members of the network play a crucial role in the provision of personal surety with a *Thekedar*. It is on the basis of personal surety that the *Thekedar* may decide to rent his rickshaw to a migrant rickshaw puller. Members of the social network may assist newcomers in the search for accommodations as well. According to our data, 40%-50% of migrant rickshaw pullers found accommodations through the social network of fellow rickshaw pullers (Table 3.12).

**Table 3.11: Sources of Rickshaw Job Information for Migrant Rickshaw Pullers**

Particular Sources of Information		Number	(%)
Question: When you first became a rickshaw puller, from whom did you obtain information about the job of rickshaw pulling?			
1a.	Friends who live in Delhi (without more information)	50	(3.83)
1b.	Friends who live in Delhi whom you met after migration to Delhi	29	(2.22)
1c.	Friends who live in Delhi whom you knew prior to migration to Delhi	23	(1.76)
2.	People who live in home village	693	(53.14)
3.	People who live in Delhi who migrated from your village	193	(14.80)
4.	Relatives who live in Delhi	139	(10.66)
5.	Relatives who live in your home village	123	(9.43)
6.	Relatives who live in Delhi who migrated from your village	39	(2.99)
7.	Other sources	15	(1.15)
<b>Total</b>		<b>1,304</b>	<b>(100.00)</b>

Note: We excluded observations to which this question did not apply or to which no reply was given. Therefore, the total number of observations is 1,304.

**Table 3.12: Sources of Assistance in the Search for Migrant Rickshaw Pullers' Accommodations**

Particular Source of Information		Number	(%)
Question: Who assisted you in the search for your present accommodations?			
1a.	Friends who live in Delhi (without more information)	232	(17.79)
1b.	Friends who live in Delhi whom you met after migration to Delhi	88	(6.75)
1c.	Friends who live in Delhi whom you knew prior to migration to Delhi	52	(3.99)
2.	People who live in Delhi who migrated from your village	375	(28.76)
3.	Relatives who live in Delhi	66	(5.06)
6.	Relatives who live in Delhi who migrated from your village	30	(2.30)
7.	Other sources	9	(0.69)
8.	<i>Thekedar</i>	297	(22.78)
9.	Other rickshaw pullers	155	(11.89)
<b>Total</b>		<b>1,304</b>	<b>(100.00)</b>

Note: We excluded observations to which this question did not apply or to which no reply was given. Therefore, the total number of observations is 1,304.

The inclusion of *Thekedars* in the social network of rickshaw pullers is another important dimension of the migration process that is frequently ignored. A *Thekedar* often develops some affinity with rickshaw pullers. He may help them by the provision of accommodation in his shed and by the advancement of credit facilities. However, the *Thekedar's* attitude may not necessarily be based on an altruistic motive. In all likelihood, his business interests may dictate these relationships. His assistance may aid the development of good patron-client relationships between himself and rickshaw pullers. These good relationships are essential to smooth running of business.

Thus, our survey provides evidence that social networking plays a critical role in the successful migration process by (a) the provision of information about earning opportunities in the city; (b) the

provision of initial credit to new migrants; and (c) the facilitation of their settlement in the city by provision of assistance in the acquisition of work, accommodations, and additional social contacts. This phenomenon may explain why a concentration of migrants from the same region exists in Delhi. As an illustration of this, we can point to the large number of migrant rickshaw pullers from Bihar and Uttar Pradesh who have settled in Delhi.

### 3.3 Rickshaw Pullers' Work Patterns, Earnings, and Expenditures

Of the 1,320 rickshaw pullers we sampled, 91.3% (i.e., 1,205) operate rental rickshaws owned by *Thekedars*. The remaining 8.7% operate their own rickshaws. In all rental situations, the parties enter into contractual agreements that contain a fixed rent fee per day, paid daily when the rickshaw is returned. To avoid a rickshaw puller's possible disappearance with a rickshaw, the majority of *Thekedars* employ a surety man who substitutes for collateral. The rental rate ranges between Rs. 25 and Rs. 60 per day. According to sampled rickshaw puller data, the average rental rate is Rs. 37.6 and the median rate is Rs. 40 per day.

Rickshaw pulling involves hard physical labor under difficult conditions. In our survey, we found that rickshaw pullers generally worked long hours (Table 3.13). On average, the number of working hours per day is 10.6. The number of days worked during the 15 days preceding the date of enquiry is almost 13.8 days. In addition, our disaggregated data shows that 66.8% of the respondents worked between 10-13 hours per day. An additional 21.9% worked 8-9 hours a day. As for the number of days worked during the 15 days preceding the survey, 60.5% reportedly worked 14-15 days. An additional 36.5% reportedly worked for 12-13 days.

**Table 3.13: Number of Rickshaw Pullers' Working Hours and Working Days**

Particulars		Number	(%)
<b>A</b>	<b>Normal working hours per day</b>		
1.	6 or 7 hours	41	(3.11)
2.	8 or 9 hours	289	(21.89)
3.	10 or 11 hours	424	(32.12)
4.	12 or 13 hours	458	(34.70)
5.	14, 15, or 16 hours	108	(8.18)
	<b>Total</b>	<b>1,320</b>	<b>(100.00)</b>
	<b>Average [standard error]</b>	<b>10.59</b>	<b>[2.06]</b>
<b>B</b>	<b>Number of working days during the preceding 15 days</b>		
1.	Less than 8 days	0	(0.00)
2.	8 or 9 days	2	(0.15)
3.	10 or 11 days	38	(2.88)
4.	12 or 13 days	482	(36.52)
5.	14 or 15 days	798	(60.45)
	<b>Total</b>	<b>1,320</b>	<b>(100.00)</b>
	<b>Average [standard error]</b>	<b>13.76</b>	<b>[1.30]</b>

**Table 3.14: Daily Earnings Distribution from Rickshaw Pulling**

Earnings per day (Rs.)		Number	(%)
1.	Up to 100	0	(0.00)-
2.	101-200	407	(30.83)
3.	201-300	739	(55.98)
4.	301-400	156	(11.82)
5.	401-500	18	(1.36)
6.	>500	0	(0.00)
<b>Total</b>		<b>1,320</b>	<b>(100.00)</b>
<b>Average [standard error]</b>		<b>257.19</b>	<b>[68.12]</b>

The average earning per day for the sample rickshaw pullers is Rs. 257. The disaggregated data show that the largest proportion of rickshaw pullers (56%) earned between Rs. 201-300 per day, while the second largest group (31%) had earnings in the range of Rs. 101-200 (Table 3.14). According to our pilot study, the average daily earning five years ago was Rs. 110 (Kurosaki et al., 2007). Since we conducted the pilot survey in the Shahdara (N) Zone, we calculated the corresponding figure for the same zone from our current survey, which amounts to Rs. 251. In nominal terms, rickshaw pullers' daily earnings thus increased by 128% over the past five years. Based on official data from the consumer price index, the price level was about 1.65 times higher during the same period. Therefore, in real terms, rickshaw pullers' daily earnings increased by 38% over the past five years. This is a substantial rise, which reflects the improvement in earnings opportunities for rickshaw pullers in Delhi.

We will now compare these earnings with expenditures. We begin with a focus on housing expenditures. Living arrangements may differ substantially depending on whether or not a rickshaw puller lives with his family in Delhi. Table 3.15 identifies two types of rickshaw pullers' accommodation and summarizes the housing situation. Of 1,320 rickshaw pullers sampled, 36% live with their families. The majority of the rickshaw pullers we sampled live in rented accommodations. We calculated that 63% of the sampled rickshaw pullers live in rented *Pucca* (i.e., brick) houses. Approximately 15% live in rented *Jhuggi-Jhopadi* (i.e., slum) houses. An additional 79% live in rented accommodations. A very small number (i.e., 3.4%) have managed their own *Pucca* houses. The majority of these *Pucca* homeowners (i.e., 42 out of 45) live with their families. A small but significant number of rickshaw pullers (i.e., approximately 14% of the total) find accommodations in their *Thekedars'* rickshaw sheds or in other makeshift arrangements. All of them live alone. Some *Thekedars* may assist needy migrant rickshaw pullers through the provision of short term accommodations. This assistance also helps to build trust-based relationships between the parties.

**Table 3.15: Rickshaw Pullers' Living Arrangements in Delhi**

Living Arrangement		Living with family	(%)	Living alone	(%)	Total	(%)
<b>Type of living arrangement:</b>							
1.	In own <i>Pucca</i> house	42	(8.84)	3	(0.36)	45	(3.41)
2.	In own <i>Jhuggi-Jhopadi</i> (slum)	35	(7.37)	14	(1.66)	49	(3.71)
3.	In rented <i>Pucca</i> house	336	(70.74)	502	(59.41)	838	(63.48)
4.	In rented <i>Jhuggi-Jhopadi</i>	62	(13.05)	137	(16.21)	199	(15.08)
5.	In <i>Thekedar's</i> shed	0	(0.00)	165	(19.53)	165	(12.50)
6.	Live on footpath	0	(0.00)	18	(2.13)	18	(1.36)
7.	Live in temple	0	(0.00)	6	(0.71)	6	(0.45)
	<b>Total</b>	<b>475</b>	<b>(100.00)</b>	<b>845</b>	<b>(100.00)</b>	<b>1,320</b>	<b>(100.00)</b>
<b>Availability of latrine/bath facility</b>							
1.	Yes, but shared with others	286	(60.21)	442	(52.31)	728	(55.15)
2.	Yes, not shared with others	86	(18.11)	71	(8.40)	157	(11.89)
3.	No facility	103	(21.68)	332	(39.29)	435	(32.95)
	<b>Total</b>	<b>475</b>	<b>(100.00)</b>	<b>845</b>	<b>(100.00)</b>	<b>1,320</b>	<b>(100.00)</b>

In Table 3.15, we also examine the availability of latrine/bath facilities. In general, latrine/bath facilities are shared (i.e., 55% of the sampled pullers share facilities, including those rickshaw pullers who live with their families). However, the most depressing fact is that, in 33% of the sampled rickshaw pullers' accommodations, latrine/bath facilities are not available. Apparently, the rickshaw pullers use public facilities if they are available. Unshared facilities are provided in only 12% of sampled rickshaw pullers' accommodations. We fully expected to find this pattern of accommodation. As we noted previously, the overwhelming majority of rickshaw pullers are short term migrants from rural areas. They may not be interested in or resourceful enough to acquire permanent accommodations in the city.

We provide the individual rickshaw puller's average expenditure on food, house rent, and other items in Table 3.16. The table shows that major daily expenditures go to food and rickshaw rental fees paid to *Thekedars*. The major monthly expenditure goes to house rent. Without a doubt, food consumption expenditures are the most important indicator of the standard of living for poorer segments of the population. In particular, they are a significant indicator for those impoverished individuals who engage in hard physical labor. An individual rickshaw puller's average daily food expenditure amounts to Rs. 87. This figure equals about 34% of the rickshaw puller's average daily earnings. Although these figures indicate rickshaw pullers' food expenditure, we must note that they do not describe food consumption by family members of migrant rickshaw pullers who remain in the villages. In addition to food expenditures, Table 3.16 provides expenditure data on tea, snacks, alcohol, tobacco, gambling, and entertainment. It is heartening to note that rickshaw pullers spend only a negligible amount on gambling, tobacco, and alcohol.

**Table 3.16: Average Expenditures on Food and Other Items per Rickshaw Puller**

Items	Expenditure (Rs.)	
	Daily	Monthly
Food	86.99	2,609.70
Tea, snacks, <i>Paan</i> , etc.	15.86	475.80
Alcohol	-	27.75
Tobacco	-	41.20
Gambling	-	0.08
Entertainment	-	0.46
House rental	-	639.35
Rickshaw rental	37.58	1,034.33
Rickshaw repairs	-	18.56
<b>Total</b>	<b>140.43</b>	<b>4,847.23</b>

Note: The number of observations is 1,320. However, the category of rickshaw rental shows an average of over 1,205 rickshaw pullers who rent rickshaws from *Thekedars*.

Out of the total sample of rickshaw pullers (1,320), 1,037 pay house rent. The remaining 283 rickshaw pullers who did not pay house rent include those living in their own *Pucca* houses, in their own *Jhuggi-Jhopadi* (slum) houses, in *Thekedars'* sheds, or on footpaths or on temple premises (Table 3.15). The amount of house rent for the rent-paying 1,037 rickshaw pullers averages out to about Rs. 822 per month. The figure of Rs. 639.35 shown in Table 3.16 is the average for the total sample. Those who live in *Thekedar's* sheds, on footpaths, and on temple premises are temporary migrants who pay no rent.

Based on the information shown in Tables 3.14 and 3.16, we estimated a monthly surplus or saving for the average rickshaw puller. We report these results in Table 3.17. We list separate results for those rickshaw pullers who rented rickshaws and those rickshaw pullers who owned rickshaws. Note that the monthly average earnings of rickshaw-owning pullers are marginally lower than the earnings of rickshaw renters because rickshaw renters work more. However, rickshaw-owning pullers' expenditures are substantially less than those of renters because owners do not have to pay rickshaw rental fees. Therefore, the rickshaw-owning pullers' monthly savings (i.e., Rs. 2,965) are substantially higher than the savings of rickshaw renters (i.e., Rs. 2,413). Thus, the savings amount around Rs. 2,400 may be available for migrant rickshaw pullers to transfer to their village home.

**Table 3.17: Summary of Rickshaw Pullers' Monthly Earnings, Expenditures, and Savings**

Particulars	Average monthly amount per rickshaw puller(Rs.)		
	Owning a rickshaw	Renting a rickshaw	Total
Number of observations	115	1,205	1,320
Monthly earnings	6,777.8	7,260.4	7,218.4
Monthly expenditures	3,812.9	4,847.2	4,757.1
<b>Surplus or savings (earning-expenditures)</b>	<b>2,964.9</b>	<b>2,413.2</b>	<b>2,461.3</b>



**Table 3.18: Rickshaw Pullers' Earnings and Expenditures by Zone**

Name of Zone	Average daily earnings (Rs.)	Average daily expenditure on food (Rs.)	Average monthly house rent (Rs.)
Central	250.38	86.08	839.22
City	282.00	88.58	998.35
Civil Lines	213.42	85.33	878.91
Karol Bagh	285.75	83.98	477.53
Najafgarh	244.83	85.63	900.00
Narela	249.00	92.29	785.11
Rohini	261.67	94.67	798.95
Sadar Paharganj	259.33	89.29	843.21
Shahdara(N)	250.92	77.96	891.21
Shahdara(S)	276.92	87.13	679.04
West	254.88	85.94	925.81
<b>Total</b>	<b>257.19</b>	<b>86.99</b>	<b>822.56</b>

We found that variations in earnings and expenditures exist in different zones of the city (Table 3.18). In zones such as City, Karol Bagh, Rohini, Paharganj, and Shahdara (S), the zonal average earnings are higher than the overall average. The highest average earnings were reported for City (i.e., Rs. 282) and Karol Bagh (i.e., Rs. 286). The lowest average earnings were reported for Civil Lines (i.e., Rs. 213). In addition, we found considerable variations in average house rents across zones. The zonal distribution of food expenditure figures shows that the amounts for food expenditures are similar across zones. However, the zones of Narela and Rohini show higher expenditures than all other zones.

### 3.4 Rickshaw Pullers' Debt Conditions and Demand for Credit

We summarize the rickshaw pullers' debt profile in Table 3.19. Approximately half (47.4%) of the respondents reported that they were free of any debt obligations. Of the remaining 52.6% who reported debt obligations, more than 30% had debt that amounted to less than Rs. 20,000. The average loan amount for the total sample population was Rs. 21,095.

We found that rickshaw pullers borrowed funds for large expenditures such as housing (18.9%); social and religious ceremonies (38.0%); and medical treatment (23.1%), rather than for routine consumption needs (Table 3.20). It is important to note that ten rickshaw pullers reported that they had incurred debts due to their purchase of rickshaws. This finding suggests that a potential exists for government or NGO interventions to provide cheap credit to migrant rickshaw pullers.

**Table 3.19: Rickshaw Pullers' Outstanding Debt**

Debt (Rs.)		Number	(%)
<b>A)</b>	<b>Yes</b>	<b>694</b>	<b>(52.58)</b>
	below 10,000Rs	206	(15.61)
	10,000-19,999	193	(14.62)
	20,000-29,999	117	(8.86)
	30,000-39,999	69	(5.23)
	40,000-49,999	38	(2.88)
	50,000-59,999	32	(2.42)
	60,000-69,999	7	(0.53)
	70,000-79,999	12	(0.91)
	80,000 – 89,999	10	(0.76)
	More than 89,999	10	(0.76)
<b>B)</b>	<b>No</b>	<b>626</b>	<b>(47.42)</b>
<b>Total</b>		<b>1,320</b>	<b>(100.00)</b>

**Table 3.20: Purpose of Loan**

Purpose of Loan		Number	(%)
1.	Everyday needs of the household	52	(7.49)
2.	Purchase of durable consumption goods	29	(4.18)
3.	Housing expenditures	129	(18.59)
4.	Ceremonies	264	(38.04)
5.	Children's education	6	(0.86)
6.	Purchase of rickshaw	10	(1.44)
7.	Other investment purpose	18	(2.59)
8.	Medical treatment	160	(23.05)
9.	Funeral	23	(3.31)
10.	Other	3	(0.43)
<b>Total</b>		<b>694</b>	<b>(100.00)</b>

Note: The total number of observations is 694 because this question applies to rickshaw pullers who replied *Yes* to the question shown in Table 3.19.

However, not all rickshaw pullers prefer credit provided by microfinance institutions. In our survey, we asked each sampled rickshaw puller to rank six sources of credit/debt. We summarize these results in Table 3.21. Only 1.4% of the respondents ranked microcredit as their most preferred credit source. Only 10.5% ranked formal financial institutions as their most preferred source. ROSCAs (rotating savings and credit associations) were also not considered popular. In contrast, 41.9% of respondents ranked moneylenders as their most preferred source of credit. An additional 39.7% of respondents ranked friends and relatives as their most preferred source of credit. As we can see from these figures, respondents expressed a strong preference for simple types of credit provided by informal sources. We aggregated the rankings by the use of a preference score, which shows that friends and relatives attracted the largest share of preference scores (26.4%). Money lenders (25.9%) attracted the second largest share of preference scores. Our findings show that microcredit is the least preferred source of credit (10.0%),

closely followed by ROSCAs (10.9%). Preference scores for fellow rickshaw pullers and formal financial institutions fell in the middle between the highest and lowest scores.

**Table 3.21: Preference Ranking of Credit/Debt Sources**

Preference ranking <sup>1</sup>	Fellow rickshaw puller	Friends and relatives	Money-lenders	ROSCAs	Institutions that provide microcredit	Banks, cooperatives, and other formal institutions
1	39 (2.95)	524 (39.70)	553 (41.89)	43 (3.26)	19 (1.44)	138 (10.45)
2	161 (12.20)	505 (38.26)	350 (26.52)	38 (2.88)	111 (8.41)	159 (12.05)
3	535 (40.53)	116 (8.79)	163 (12.35)	135 (10.23)	161 (12.20)	210 (15.91)
4	136 (10.30)	81 (6.14)	119 (9.02)	578 (43.79)	232 (17.58)	174 (13.18)
5	189 (14.32)	59 (4.47)	44 (3.33)	362 (27.42)	162 (12.27)	506 (38.33)
6	260 (19.70)	35 (2.65)	91 (6.89)	164 (12.42)	635 (48.11)	133 (10.08)
<b>Total</b>	<b>1,320</b> <b>(100.00)</b>	<b>1,320</b> <b>(100.00)</b>	<b>1,320</b> <b>(100.00)</b>	<b>1,320</b> <b>(100.00)</b>	<b>1,320</b> <b>(100.00)</b>	<b>1,320</b> <b>(100.00)</b>
<b>Preference score<sup>2</sup></b>	<b>12.78</b>	<b>26.39</b>	<b>25.87</b>	<b>10.87</b>	<b>10.04</b>	<b>14.06</b>

Notes: Figures in parenthesis show percentage to the total.

1. *Preference ranking* is ranked so that first preference = 1, second preference = 2. The ranking continues until last preference = 6.
2. *Preference score* of a source is the weighted sum of the percentages of the respondents in a particular column. Weights are the inverse of the preference numbers. These figures are then normalized to make the row sum equal 100%. The score is an increasing function of preference. If all of the respondents chose the highest preferred ranking for a particular source (rank=1), then its preference score would equal the maximum value of 40.82%. If the responses were purely random, then the preference score would equal 16.67%. If all respondents chose the least preferred source (rank=6), then the preference score would equal the minimum value of 6.80%.

### 3.5 Rickshaw Pullers' Contributions to the Alleviation of Rural Poverty

The basic motivation for rural-urban migration finds its source in the differential levels of development between urban and rural areas. The most direct way for the rural population to share the fruits of development in urban areas is migration to the city to earn income there. In principle, this process can contribute to the reduction of the developmental gap between urban and rural areas to the extent rickshaw pullers are able to transfer a portion of their income to their home village after they have met the necessary expenses for rickshaw rental and self-maintenance in the city.

In the preceding subsections, we provided empirical evidence regarding the socioeconomic status of rickshaw pullers and their families in their native village. The evidence also provides a snapshot of the

social and economic dimensions of their work. Based on the average daily earnings of Rs. 257, we estimate that the average monthly earnings of a rickshaw puller who rents a rickshaw amounts to approximately Rs. 7,260. If we subtract the monthly expenditure of this group (i.e., approximately Rs. 4,837), their net income or saving in a month, on average, amounts to approximately Rs. 2,413. Similarly, on average, a rickshaw puller who owns his rickshaw may save approximately Rs. 2,965 per month (Table 3.17). Thus, if we estimate on the lower side, a rickshaw puller might save approximately Rs. 2,400 per month. He might, in turn, transfer this sum to his rural home. He might not transfer these funds every month. He might use one of several modes of transfer. Our data shows that a rickshaw puller might use a variety of methods to transfer funds: money orders; transfer by a friend or relative; or transfer by himself during a home visit. Because of the poor social and economic conditions that affect the family at home, the transfer of funds would substantially improve the family's living conditions.

In October 2011, the Planning Commission of the Government of India proposed that Rs. 32 and Rs. 26 per head per day, in urban and rural areas, respectively, should be the cut-off lines for the demarcation of the BPL population (*BPL* means *below the poverty line*) (*The Hindu*, March 20, 2012). These cut-off lines are based on the estimates of the Tendulkar Committee on Poverty Measurement. They correspond to the same poverty lines used in 2009/10 at Rs. 672.8 and Rs. 859.6 per head per month, in urban and rural areas, respectively (Government of India, 2012a). The Commission's proposal has aroused significant criticism and controversy among the concerned people (see, e.g., *The Hindu*, March 20, 2012). We must note that our data shows that an average Delhi rickshaw puller spends Rs. 103 per day on just food, tea, and snacks. This sum is well above the poverty line suggested by the Planning Commission for urban areas. In addition, we must note that the stipulated minimum wage under the Mahatma Gandhi Rural Employment Guarantee Scheme for unskilled agricultural workers is Rs. 105 and Rs. 120 in Uttar Pradesh and Bihar, respectively. The native villages of rickshaw pullers who migrate to Delhi are primarily located in these two states. Based on the evidence stated above, we believe that, because migrant rickshaw pullers can earn, on average, Rs. 257 per day, migration to the city has had a positive effect on their economic conditions.

One way to examine the impact of money transfers on a family that remains in the native village home is as follows. Suppose that a typical family consists of five persons (excluding the rickshaw puller) and this family lives at the official rural cut-off poverty line income of Rs. 26 per person per day. Thus, their monthly income equals approximately Rs. 3,900 ( $= 26 \times 5 \times 30$ ). If we add this sum to Rs. 2,400 (the money a rickshaw puller might potentially transfer), we see that the family's income may increase to approximately Rs. 6,300 per month. This increase will push the family far above the poverty line. We need to examine whether this type of transfer is sustainable so that the family can stay out of poverty forever, for there is always an element of uncertainty. The general lesson, however, is that migration by the rural poor to urban areas exerts a positive impact on rural poverty reduction.

#### **4. Characteristics of Rickshaw Owners and their Rickshaw Rental Businesses**

Rickshaw owners, or *Thekedars* as they are called by rickshaw pullers, are entrepreneur businessmen who own a stock of rickshaws that ranges from a few to several hundred rickshaws. *Thekedars* rent these vehicles to rickshaw pullers on a daily basis. The stock of cycle rickshaws is the main source of capital for their business. Their business income is derived from the rental fees charged to rickshaw pullers. *Thekedars* may also have other jobs. As a group, *Thekedars* function as a fulcrum upon which the whole cycle rickshaw transportation system of Delhi turns. They provide cycle rickshaws that are the basic input to the system. They also manage the administrative and legal aspects of the business. Unlike migrant rickshaw pullers, *Thekedars* run their businesses on a year-round basis. This allows them to maintain more stable businesses and relationships with the many stakeholders involved.

In the following subsections, we will describe *Thekedars*' social and economic backgrounds, the nature of their business establishments, the economics of their businesses, and their debt profile. For our analysis, we use a sample of 132 *Thekedars*. We collected this information from December 23, 2010 through March 2, 2011 (see Subsection 2.2 and Table 2.2).

##### **4.1 Social and Demographic Characteristics of Rickshaw Owners**

In our data, we found that 92 out of 132 owners (69.7%) replied that their only job is rickshaw rental. The remaining owners (30.3%) engaged in other occupations or businesses in addition to rickshaw rental. These other businesses included rickshaw repair, garment shops, and mobile shops. A total of 108 out of 132 owners (81.8%) replied that the rickshaw rental business is their primary job.

*Thekedars* are more settled than rickshaw pullers. As shown in Table 4.1, 78% of the sampled *Thekedars* possess ration cards; 86% possess electoral identity cards issued in Delhi. Nevertheless, a significant number (38%) of *Thekedars* send money to their native villages. Although the majority of *Thekedars* reside in Delhi, they have not severed connections with their rural villages. We find evidence of this in the low number of *Thekedars* whose permanent address is in Delhi. The distribution of permanent addresses (not shown here as a table) indicates that Bihar (32.6%) and Uttar Pradesh (28.8%) are the major places of origin, larger than those with permanent addresses in Delhi (25%). When we asked the sampled *Thekedars* to name their birthplace, 70% replied that they were born in a native village. Thus, we can see that *Thekedars* also possess a strong rural orientation.

Table 4.2 shows that 67.4% of *Thekedars* are Hindus; 24.2% are Muslims. Among Hindus, 17.4% belong to SC and 24.2% belong to OBC. Unlike rickshaw pullers, a larger percentage of *Thekedars* are Muslims or other Hindus.

**Table 4.1: Distribution of Sampled Thekedars by Migration Status**

Item		Number	(%)
1. Permanent address			
1a.	In Delhi	33	(25.0)
1b.	Outside Delhi	99	(75.0)
2. Possess a PDS ration card in Delhi or not			
2a.	Yes (more settled)	103	(78.0)
2b.	No (less settled)	29	(22.0)
3. Possess an election ID card in Delhi or not			
3a.	Yes (more settled)	113	(85.6)
3b.	No (less settled)	19	(14.4)
4. Send money to own village home or not			
4a.	No (more settled)	82	(62.1)
4b.	Yes (less settled)	50	(37.9)
5. Most restrictive definition of a migrant that combines Nos. 1-4			
5a.	Settled	124	(93.9)
5b.	Migrant	8	(6.1)
<b>Total</b>		<b>132</b>	<b>(100.0)</b>

Note: See Table 3.1.

**Table 4.2: Distribution of Sampled Thekedars by Religion and Caste**

Religion/Caste		Number	(%)
1. Hindu			
1a.	SC	23	(17.4)
1b.	ST	0	(0.0)
1c.	OBC	32	(24.2)
1d.	Others	34	(25.8)
1.	Subtotal	89	(67.4)
2. Non-Hindu			
2a.	Muslim	32	(24.2)
2b.	Other religion	11	(8.3)
<b>Total</b>		<b>132</b>	<b>(100.0)</b>

*Thekedars* display higher levels of education than rickshaw pullers. We expected this finding because their business demands greater acumen and resources than rickshaw pulling. As we can see in Table 4.3, almost 87.2% of *Thekedars* have achieved primary or higher levels of education. More than one third (34%) have achieved secondary or higher secondary levels of education. This involves ten to twelve years of schooling. However, we were surprised to learn that the OBCs, as a category, have the highest level of illiteracy. The other Hindus group, which includes relatively higher castes, has the highest number of people who have achieved secondary and higher secondary levels of education.

**Table 4.3: Level of Education of Sampled Thekedars by Religion and Caste**

Religion/Caste		Illiterate	Primary	Middle	Secondary	Higher Secondary & above	Total
1. Hindu							
1a.	SC	2 (8.7)	8 (34.8)	9 (39.1)	1 (4.3)	3 (13.0)	<b>23</b> <b>(100.0)</b>
1c.	OBC	9 (28.1)	8 (25.0)	4 (12.5)	7 (21.9)	4 (12.5)	<b>32</b> <b>(100.0)</b>
1d.	Others	1 (2.9)	6 (17.6)	11 (32.4)	8 (23.5)	8 (23.5)	<b>34</b> <b>(100.0)</b>
1.	Subtotal	12 (13.5)	22 (24.7)	24 (27.0)	16 (18.0)	15 (16.9)	<b>89</b> <b>(100.0)</b>
2. Non-Hindu							
2a.	Muslim	5 (15.6)	11 (34.4)	9 (28.1)	6 (18.8)	1 (3.1)	<b>32</b> <b>(100.0)</b>
2b.	Others	0 (0.0)	1 (9.1)	3 (27.3)	6 (54.5)	1 (9.1)	<b>11</b> <b>(100.0)</b>
<b>Total</b>		<b>17</b> <b>(12.9)</b>	<b>34</b> <b>(25.8)</b>	<b>36</b> <b>(27.3)</b>	<b>28</b> <b>(21.2)</b>	<b>17</b> <b>(12.9)</b>	<b>132</b> <b>(100.0)</b>

Note: Figures in parentheses are the percentage to the row totals.

#### 4.2 Role of Rickshaw Owners in the Cycle Rickshaw Sector in Delhi

In the previous section, we noted that rural-urban migration by rickshaw pullers is facilitated by social networks. We noted that *Thekedars*, directly or indirectly, form a part of these extended networks. Although they hold social and business hierarchy positions that are one notch above the positions held by rickshaw pullers, *Thekedars* share a number of common antecedents with rickshaw pullers. We believe that these similarities may help *Thekedars* empathize with rickshaw pullers.

Regarding *Thekedars*' previous occupational backgrounds (Table 4.4), we found that, prior to becoming *Thekedars*, over 37% of the sampled owners had engaged in rickshaw repair work (either employed by others or self-employed). An additional 8% had previously been rickshaw pullers. These facts indicate that *Thekedars* are familiar with the social class of rickshaw pullers and they have a good understanding of the nuances of the profession. Therefore, it is understandable that *Thekedars* might provide migrants with a rental rickshaw based solely on a personal guarantee from an individual known by the rickshaw puller who also enjoys the confidence of the *Thekedar*. In general, this individual may be a friend or a relative that migrated from the rickshaw puller's native village. Thus, this network enables a migrant to find work almost immediately upon his arrival in the city. Approximately 55% of *Thekedars* arrange accommodations for rickshaw pullers. Approximately 66% advance credit to rickshaw pullers, with or without a guarantee. These initial gestures of support help boost the newcomers' confidence and help them start work in the city. We must emphasize, however, that these social networks are not just

beneficial to rickshaw pullers. They also help rickshaw owners stabilize their businesses through provision of a steady stream of dependable rickshaw pullers to rent their rickshaws.

**Table 4.4: Main Occupation Prior to Becoming a Thekedar**

Particulars		Number	(%)
<b>A.</b>	<b>Employed by others</b>		
1.	Rickshaw repair	3	(2.3)
2.	Wage labor (mostly agricultural)	2	(1.5)
3.	Wage labor (mostly non-agricultural)	5	(3.8)
4.	Wage labor (agricultural & non-agricultural)	1	(0.8)
5.	Service (private)	8	(6.1)
<b>B.</b>	<b>Self-employed</b>		
1.	Rickshaw repair	45	(34.4)
2.	Rickshaw puller	10	(7.6)
3.	Shopkeeper (provision store)	4	(3.1)
4.	Vegetable vendor	1	(0.8)
5.	Tailor	2	(1.5)
6.	Transportation worker	4	(3.1)
7.	Agriculture	4	(3.1)
8.	Other business	18	(13.7)
<b>C.</b>	<b>Others</b>		
1.	Student	22	(16.8)
2.	Others	2	(1.5)
	<b>Total</b>	<b>131</b>	<b>(100.0)</b>

Note: Because one of the sampled *Thekedars* did not reply to this question, we reduced the number of observations to 131.

### 4.3 Characteristics of Rickshaw Rental Business

The distribution of rickshaw owners by the size of their stock size ranges from owners who maintain less than 10 rickshaws to owners who maintain more than 200 rickshaws (Table 4.5). The average size of ownership is 56 rickshaws. The majority of *Thekedars* own less than 50 rickshaws. Thus, they belong to the small and medium size class of rickshaw holdings. The remaining *Thekedars* belong to size classes that range from 51-60 rickshaws to more than 100 rickshaws. We deem this group (more than 50 rickshaws) as the large size class of rickshaw holdings.

Most *Thekedars* started in a small way. Initially, 56% of them owned as few as one to six rickshaws at the start of their businesses (Table 4.6). Regarding their occupational patterns prior to entry into the rickshaw business, we already found that a number of the owners had engaged in low paying activities. Therefore, we find it significant that many present-day rickshaw owners started their businesses with limited resources but their competence and abilities for enterprise helped them to break social and economic barrier to rise vertically and emerge as entrepreneur-businessmen.



**Table 4.5: Distribution of Rickshaw Owners by Current Stock Size**

Size class of rickshaws owned (number)	No. of rickshaw owners	(%)	No. of rickshaws owned	Average no. of rickshaws per owner
<11	3	(2.3)	23	8
11-20	16	(12.1)	268	17
21-30	21	(15.9)	565	27
31-40	28	(21.2)	1,080	39
41-50	17	(12.9)	819	48
51-60	15	(11.4)	882	59
61-70	8	(6.1)	555	69
71-80	4	(3.0)	315	79
81-90	5	(3.8)	445	89
91-100	7	(5.3)	700	100
>100	8	(6.1)	1,680	210
<b>Total</b>	<b>132</b>	<b>(100.0)</b>	<b>7,332</b>	<b>56</b>

**Table 4.6: Distribution of Rickshaw Owners by Initial Stock Size**

Size class of rickshaws owned (number)	Number	(%)
1 - 2	32	(24.2)
3 - 4	13	(9.8)
5 - 6	29	(22.0)
7 - 9	8	(6.1)
10 - 14	19	(14.4)
15 - 20	14	(10.6)
21 - 30	4	(3.0)
31 - 40	5	(3.8)
41 - 50	4	(3.0)
> 50	4	(3.0)
<b>Total</b>	<b>132</b>	<b>(100.0)</b>

An essential requirement of the rickshaw rental business is access to a parking facility (i.e., a stand) for rickshaws. This may consist of an open-air or sheltered facility (e.g., a shed). In either case, the *Thekedar* may rent or own the facility. Alternatively, he might park his rickshaws on public land such as parks or street corners. We will later discuss how the differences in facilities may affect business expenses. We now discuss the pattern of facilities (Table 4.7). The 132 sampled *Thekedars* operated 145 parking facilities or stands. Only nine of these facilities (6%) were sheds. Four *Thekedars* operated these nine sheds. Most of *Thekedars* (87%) operated one open-air stand. Only seven of the sampled *Thekedars* operated more than one open-air stand.

**Table 4.7: Number of Rickshaw Stands Operated by Thekedars**

Number of rickshaw stands operated		Number of respondents	(%)	Total open-air stands	Total shed stands
In the open	Under shed				
0	1	6	(4.5)	0	6
0	2	1	(0.8)	0	2
1	0	117	(88.6)	117	0
1	1	1	(0.8)	1	1
2	0	5	(3.8)	10	0
3	0	1	(0.8)	3	0
5	0	1	(0.8)	5	0
<b>Total</b>		<b>132</b>	<b>(100.0)</b>	<b>136</b>	<b>9</b>

**Table 4.8: Number of Owned and Rented Stands**

Number of stands			Number of respondents	Total		
Owned	Rented	Others		Owned	Rented	Others
0	0	1	36	0	0	36
0	1	0	30	0	30	0
0	2	0	2	0	4	0
1	0	0	55	55	0	0
1	1	0	4	4	4	0
1	2	0	1	1	2	0
2	0	0	2	4	0	0
3	2	0	1	3	2	0
<b>Total</b>			<b>132</b>	<b>67</b>	<b>42</b>	<b>36</b>

We provide the ownership pattern of rickshaw stands in Table 4.8. Of the total number of stands, 67 (46%) were owned, 42 (29%) were rented, and 36 (25%) were neither owned nor rented. This last group parked their rickshaws on public land. The majority of *Thekedars* owned just one stand. Similarly, the majority of those stands rented by rickshaw pullers consisted of just one stand. These figures may reflect the rising land values in the city. The pressure on public lands for use as rickshaw stands will continue to increase.

In Table 4.9, we show the monthly expenditures for the rickshaw rental business. Major items of expenditure include repair and maintenance of rickshaws, rent paid for rickshaw stands, MCD charges (e.g., licensing fees and fines), and other expenses. We must note that the item *Others* is substantial. It includes the costs of a variety of gratification payments made to MCD officials and the police so that the businesses run smoothly. It is important to note that monthly expenditures on this item increase with the size of business.

As we expected, the total expenditure per *Thekedar*, per month, increases with the size of business. The monthly expenditure for large owners (i.e., more than 50 rickshaws owned) amounts to Rs.

35,005. This figure equals more than twice the amount expended by small and medium owners (Rs. 14,093). For the sample as a whole, the average monthly expenditure amounts to Rs. 22,400. More than half of this amount is spent on the repair and maintenance of rickshaws.

**Table 4.9: Monthly Expenditures for Rickshaw Rental Business Operations**

Size class of rickshaws owned	Number of rickshaw owners	Monthly Expenditure per <i>Thekedar</i> (Rs.)							
		Rickshaw repair & maintenance	Rickshaw shed repair & maintenance	Rickshaw shed rental, open-air shed	Rickshaw shed rental, stand under shed	MCD charges	Service Tax	Others	Total
<11	3	3,833	-	-	-	667	200	1,000	4,900
11-20	16	5,750	1,000	1,700	-	1,045	-	3,600	9,538
21-30	21	9,405	1,300	2,500	-	1,667	750	4,853	14,481
31-40	28	11,071	3,000	2,340	3,000	2,900	1,167	5,208	17,621
41-50	17	14,265	-	2,200	3,000	2,080	1,180	7,994	23,924
51-60	15	16,607	-	5,000	-	3,591	567	8,008	24,987
61-70	8	18,500	5,000	4,000	3,000	6,333	1,750	7,094	31,031
71-80	4	23,250	-	4,000	-	2,000	1,000	10,750	36,250
81-90	5	20,900	-	2,500	-	1,500	3,000	8,667	27,800
91-100	7	25,714	3,000	5,000	8,000	2,333	1,000	9,929	39,071
>100	8	33,700	8,000	4,000	-	2,875	1,000	14,125	50,888
<b>All</b>	<b>132</b>	<b>14,360</b>	<b>3,400</b>	<b>2,741</b>	<b>4,250</b>	<b>2,387</b>	<b>1,115</b>	<b>7,014</b>	<b>22,418</b>

**Table 4.10: Monthly Earnings, Expenditures, and Income from the Rickshaw Rental Business**

Size class of rickshaws owned	Average No. of rickshaws per owner	Utilization rate (%)	Daily rental rate (Rs.)	Monthly Amount per <i>Thekedar</i> (Rs.)		
				Earnings <sup>1</sup>	Expenditures <sup>2</sup>	Income <sup>3</sup>
<11	8	52.17	30.00	5,450	4,900	550
11-20	17	69.90	32.50	12,917	9,538	3,379
21-30	27	67.08	32.14	18,859	14,481	4,378
31-40	39	65.22	33.39	27,576	17,621	9,954
41-50	48	62.23	33.53	33,549	23,924	9,625
51-60	59	63.49	37.67	48,941	24,987	23,954
61-70	69	68.65	33.75	48,650	31,031	17,619
71-80	79	79.05	36.25	68,263	36,250	32,013
81-90	89	65.17	33.00	57,200	27,800	29,400
91-100	100	62.05	34.29	63,829	39,071	24,757
>100	210	73.39	37.50	170,825	50,888	119,938
<b>All</b>	<b>56</b>	<b>67.37</b>	<b>33.90</b>	<b>43,175</b>	<b>22,418</b>	<b>20,757</b>

Notes: 1. Earnings = (Average No. of rickshaws per owner) x (Utilization rate) x (Daily rental rate) x 30.

2. Expenditure is taken from Table 4.9.

3. Income = Earnings – Expenditure.

A *Thekedar's* daily earnings depend on the number of rickshaws owned, the number of rickshaws rented out to rickshaw pullers, and the daily rent charged for each rickshaw. Our survey data shows that the number of daily rickshaw rentals varies seasonally during the year. Dividing the average daily rental over three seasons (i.e., summer, rainy, and winter) by the number of rickshaws owned, we arrive at the utilization rate. Then, we can calculate a *Thekedar's* monthly earnings, on average, to be a multiple of the number of rickshaws owned, the utilization rate, the rental rate per day, and the number of days in a month. We report the results of our calculations in Table 4.10. The average utilization rate is 67.4% and the average rental rate is Rs. 33. As we can see from the table, little variation in rental rates exists. This suggests the competitive nature of the rickshaw rental business.

As shown in Table 4.10, earning and income per *Thekedar* increase with the size of rickshaw holdings. Our results show that monthly earnings range from Rs. 13,000 to a high of Rs. 170,825 for those who own more than 100 rickshaws. The table appears to suggest a discontinuous jump in earnings and income between the size class of 41-50 and 51-60 rickshaws. We therefore assume a threshold of 50 rickshaws to separate large holdings and summarize our estimates for business earnings and income in Table 4.11. The average monthly earnings for small and medium enterprises is Rs. 19,670 per *Thekedar* and that for large enterprises is Rs. 76,285. The latter amount is almost four times larger than the monthly earnings for smaller enterprises. Monthly income for small and medium enterprises amounts to Rs. 5,577 per *Thekedar* and Rs. 41,280 for large enterprises. When we calculate income per rickshaw, we find that the size disparity remains. This may be due to the scale economy of several expenditure items. Monthly income for small and medium enterprises amounts to Rs. 199 per rickshaw. For large enterprises, monthly income amounts to Rs. 409 per rickshaw.

**Table 4.11: Income per Thekedar and per Rickshaw from the Rickshaw Rental Business**

Size class of rickshaws owned	Number of rickshaw owners	Average No. of rickshaws per owner	Monthly amount per <i>Thekedar</i> (Rs.)			Income per rickshaw
			Earnings	Expenditures	Income	
Small and medium enterprises (up to 50 rickshaws owned)	85	28	19,670	14,093	5,577	199
Large enterprises (more than 50 rickshaws owned)	47	101	76,285	35,005	41,280	409
<b>All</b>	<b>132</b>	<b>56</b>	<b>43,175</b>	<b>22,418</b>	<b>20,757</b>	<b>371</b>

Table 4.11 shows that the gross return from investment in a single rickshaw is Rs. 2,388 and Rs. 4,908 per year for small/medium and large enterprises, respectively. The average price of a new rickshaw found in our survey is Rs. 7,412 (the majority of the respondents quoted prices of Rs. 7,000 or Rs. 7,500). According to the sampled *Thekedar* respondents, the useful working life of a rickshaw ranges from five

to six years. Using these numbers, we can calculate the payback period of investment for small and medium enterprises to be three years ( $=7,412/2,388$ ). The payback period for large enterprises is 1.5 years ( $=7412/4908$ ). Thus, small and medium enterprises can earn a surplus for 2 to 3 years after the investment cost for a new rickshaw was recovered in the initial three years. Similarly, large enterprises can earn a surplus for 3.5 to 4.5 years after the investment cost was recovered in the initial 1.5 years. In terms of internal rate of returns (IRR), we estimate that the IRR is 18% for small/medium enterprises and 59% for large enterprises if we assume five years of a rickshaw's life. The IRR amounts to 23% for small/medium enterprises and 62% for large enterprises based on the assumed term of six years of a rickshaw's life. These rates are higher than institutional lending rates (8%-18%) but comparable to informal interest rates with collateral (15%-60%) or rates charged by self-help groups (SHG). They are generally lower than informal interest rates without collateral (48%-120%). Therefore, *Thekedars* receive moderate returns for their investments in rickshaws. This fact confirms the viability and competitive nature of the business. This finding also reconfirms our findings from the pilot survey (Kurosaki et al., 2007).

#### 4.4 Rickshaw Owners' Sources of Funds and Debt

Despite the viability and competitive nature of the rickshaw rental business, none of the sampled *Thekedars* relied on formal financial institutions to fund their investment in rickshaws. As shown in Table 4.12, 70% of *Thekedars* relied on their own savings. An additional 20% borrowed from moneylenders and 6% borrowed from their friends and relatives. No *Thekedar* reported reliance on microcredit institutions or formal financial institutions such as banks and cooperatives. The pattern of borrowing shown in Table 4.12 indicates a high level of solvency and self-reliance among the sampled *Thekedars*: They appear to fund their investments out of their own savings.

**Table 4.12: Funding Sources for Investment in the Rickshaw Rental Business**

Source of funds	Number	(%)
Personal savings	93	(70.5)
Loan from friends and relatives	8	(6.1)
Loan from moneylenders	27	(20.5)
ROSCAs	3	(2.3)
Institutions that provide microcredit	0	(0.0)
Banks, cooperatives, and other formal institutions	0	(0.0)
Shopkeeper	1	(0.8)
<b>Total</b>	<b>132</b>	<b>(100.0)</b>

Regarding the *Thekedars*' debt patterns (Tables 4.13 and 4.14), 57% of *Thekedars* are not in debt while 43% borrowed various amounts of money. The amount of debt is small, however. Only 10.6% borrowed more than Rs. 100,000. We also find it significant that the *Thekedars* stated that the most important reason to borrow funds was the purchase of rickshaws (74%). Moneylenders are the most

important source of funds (more than 60%), followed by friends and relatives (20%) (Table 4.15). Out of 57 sampled *Thekedars* with debt, five individuals reported that they had borrowed funds from formal institutions such as banks and cooperatives. These funds were borrowed for purposes other than the rickshaw rental business investment. However, we find it important that some *Thekedars* had access to formal financial institutions. In Table 4.16, we show the *Thekedars'* preferences for different sources of funds. The three most popular sources among rickshaw owners' potential sources of credit are ROSCAs (rotating savings and credit associations), formal financial institutions, and friends/relatives. As many as 27% of rickshaw owners listed ROSCAs as their most preferred source. This response contrasts sharply to the responses of rickshaw pullers who expressed little interest in ROSCAs. Fellow *Thekedars*, perhaps because of the wish to protect business secrets, received the lowest preference score.

**Table 4.13: Outstanding Debt among Rickshaw Owners**

<b>Amount (Rs.)</b>		<b>Number</b>	<b>(%)</b>
A)	Yes	57	(43.28)
	Below 10,000	2	(1.5)
	10,000-19,999	5	(3.8)
	20,000-29,999	11	(8.3)
	30,000-39,999	7	(5.3)
	40,000-49,999	3	(2.3)
	50,000-59,999	5	(3.8)
	60,000-69,999	4	(3.0)
	70,000-79,999	3	(2.3)
	80,000-89,999	3	(2.3)
	90,000-99,999	0	(0.0)
	100,000-	14	(10.6)
B)	No	75	(56.8)
<b>Total</b>		<b>132</b>	<b>(100.0)</b>

**Table 4.14: Purpose of Loan**

<b>Purpose</b>		<b>No. of Respondents</b>
House construction/repair	3	(5.3)
Ceremonies	6	(10.5)
Children's education	0	(0.0)
Purchase of rickshaw	42	(73.7)
Investment in shop	1	(1.8)
Medical treatment	5	(8.8)
<b>Total</b>	<b>57</b>	<b>(100.0)</b>

Note: Because this question applies to rickshaw owners who replied *Yes* in Table 4.13, the number of observations is 57.

**Table 4.15: The Amounts and Sources of Funds**

Sources of Debt	Number of Thekedars	Average amount of debt (Rs.)
Fellow <i>Thekedar</i>	0	-
Friends and relatives	12	72,500
Moneylenders	38	109,605
ROSCAs	3	136,667
Institution that provide microcredit	0	-
Banks, cooperatives, and other formal institutions	5	138,000
Other	2	155,000
<b>Total</b>	<b>60</b>	<b>107,417</b>

Note: This question applies to rickshaw owners who replied *Yes* in Table 4.13. Because three listed two different sources, the total number of respondents in this table is 60.

**Table 4.16: Preference Ranking of Credit/Debt Sources**

Preference number <sup>1</sup>	Fellow <i>Thekedar</i>	Friends and relatives	Money-lenders	ROSCAs	Institutions that provide microcredit	Banks, cooperatives, and other formal institutions
1	1 (0.8)	27 (20.5)	25 (18.9)	36 (27.3)	10 (7.6)	33 (25.0)
2	2 (1.6)	24 (18.2)	19 (14.4)	32 (24.2)	30 (22.7)	25 (18.9)
3	6 (4.6)	14 (10.6)	16 (12.1)	22 (16.7)	44 (33.3)	30 (22.7)
4	8 (6.1)	50 (37.9)	15 (11.4)	21 (15.9)	16 (12.1)	22 (16.7)
5	7 (5.3)	15 (11.4)	54 (40.9)	18 (13.6)	28 (21.2)	10 (7.6)
6	108 (81.8)	2 (1.5)	3 (2.3)	3 (2.3)	4 (3.0)	12 (9.1)
<b>Total</b>	<b>132 (100.0)</b>	<b>132 (100.0)</b>	<b>132 (100.0)</b>	<b>132 (100.0)</b>	<b>132 (100.0)</b>	<b>132 (100.0)</b>
<b>Preference score<sup>2</sup></b>	<b>7.85</b>	<b>18.40</b>	<b>16.97</b>	<b>21.24</b>	<b>15.44</b>	<b>20.10</b>

Notes: See Table 3.21.

## 5. Policy Issues

Based on the detailed information on cycle rickshaw pullers and owners provided in the previous sections, we will now discuss policy issues that surround the cycle rickshaw sector in Delhi. In the first subsection, we will discuss regulations for the sector and recent attempts made to change these

regulations. In the second subsection, we will present policy-related findings from our survey. In the third subsection, we will discuss the resultant policy implications.

### **5.1 Regulations for the Cycle Rickshaw Sector in Delhi**

In Delhi, the Municipal Corporation of Delhi (MCD) regulates the cycle-rickshaw transportation under the 1957 Act and the 1960 Bye-Laws framed under the Act. The 1960 Bye-Laws specify rules and regulations for plying a rickshaw in Delhi. The key provisions of the Bye-Laws, *inter alia*, relate to the rickshaw ownership, driving licenses, and punishments for violation of the Bye-Laws. Since passage of the Bye-Laws, the MCD has struggled to formulate policies to streamline this sector. Despite a number of sporadic efforts, the MCD has not yet created a credible policy structure for this sector. This may be due, in part, because the MCD's policies may not be attuned to the realities of the situation. In addition, the MCD's policies have evoked strong social protests and a series of adverse judicial pronouncements. We will discuss this in more detail below. Presently, the policy scenario remains uncertain. We believe it is likely that this situation will continue for some time to come.

The key provisions of the 1960 Bye-Laws have been contested in the court of law. Faced with the problem of rapidly increasing vehicular traffic, the MCD in the mid-2000s decided to phase out rickshaws in Delhi. The MCD felt that rickshaws were a cause of congestion because they often obstructed the passage of motor vehicles. As a first step, the MCD prohibited rickshaw plying in the main streets of the old city area. Beginning in 2007, the MCD ceased issuance of new licenses. It capped the total number of licensed rickshaws in the city at 90,000.<sup>7</sup> As we show in Table 2.1 in Section 2, the total number of licenses issued (i.e., 84,377) reflects this policy.

The cap policy provoked several NGO groups to move the Delhi High Court to set aside the MCD's decision. The plea stated that the MCD's decision was discriminatory because no such cap on motor vehicles exists. It continued that the decision went against the fundamental right of poor rickshaw pullers—the right to earn a living by a legitimate activity. After several hearings and a comprehensive review of the 1960 Bye-Laws, the High Court delivered its judgment on February 2, 2010. It accepted the petitioners' plea and set aside the MCD's decision. In addition, the High Court decoupled ownership and license to drive a rickshaw, which, according to the 1960 Bye-Laws, are rights vested in the same person. In the Court's view, under the right to property, any individual can own as many rickshaws as they can

---

<sup>7</sup> The idea of restricting the number of licenses has been the main thrust of the MCD policy towards the cycle rickshaw sector. Until 1975, the number of licenses sanctioned was only 750. Given an increase of unlicensed rickshaws, the MCD was forced to periodically increase the limit of the number of sanctioned licenses. In 1976, following a survey conducted at the request of the MCD, the limit was raised to 20,000; in 1993, the quota was increased to 50,000. The latest increase occurred in December 1998, when the limit on the number of sanctioned licenses was increased to 99,000. We were unable to find the basis for these numbers. We presume they may represent the MCD's perception of the desirable number of rickshaws on the roads of Delhi. They may bear little relationship to the actual numbers on the ground.



afford to purchase. Thus, by implication, the holder of a driving license need not be the owner of a rickshaw. The Court directed the MCD to prepare a comprehensive plan to streamline cycle rickshaw operations in Delhi. The MCD appealed to the Supreme Court of India against the High Court Judgment. The Supreme Court rejected this appeal in April 2012.

In June 2012, the High Court directed the MCD to begin the registration of cycle rickshaws in the city with utmost expedition. It also directed the MCD to make adequate arrangements for the collection of applicants' digital photographs and the recording of applicants' index fingerprints (i.e., for driving license applications) in the same manner as information is collected for applicants for motor vehicle licenses. Furthermore, the High Court directed the MCD to cease insistence on applicants' proof of residence in Delhi and proof of purchase of a cycle rickshaw. The MCD assured the High Court that it would issue a driving license to an applicant within two days of submission of an application (see, for example, "Express Newlines," *The Indian Express*, June 5, 2012).

Prior to the Delhi High Court's decision to set aside the 1960 Bye-Laws in February 2010, the MCD proposed provisions that would affect rickshaw operation and transportation. These provisions are worthy of discussion because they reflect the MCD's concerns and way of thinking about a number of vital issues that affect this sector. In addition, they provide us with a basis to form our own views on these issues. The basic provisions are as follows:

1. Similar to earlier notifications, the first provision stressed the need for a cap on the number of licenses issued. The immediate objective was to limit the number of rickshaws on the roads of Delhi. According to the provision, the number of cycle rickshaw licenses granted in a year would be fixed by the MCD at the beginning of each year "having regard to the desirability of eliminating cycle rickshaw plying for hire ultimately." The provision further stipulated that separate licenses would be issued for the vehicle as well as for the driver of the vehicle.

2. The second provision maintained the key policy of the 1960 Bye-Laws. It stipulated that only owners could drive cycle rickshaws. Each owner-puller would receive a single license for his cycle rickshaw. In addition, each owner-puller would receive a single driving license. The provision stated "no person shall keep or ply for hire a cycle rickshaw in Delhi unless he himself is the owner thereof and holds a license granted in that behalf by the MCD on payment of the fee." It further stipulated that the Commissioner might grant more than one license to a widow or to a handicapped person subject to a maximum of five licenses.

3. The third provision also maintained the basic policy of the 1960 Bye-Laws. It stipulated that cycle rickshaws could only operate within the jurisdiction of the zone where their licenses had been issued. The license of any cycle rickshaw puller caught operating in other zones would be revoked.

Apparently, this measure hoped to avoid a supply-demand imbalance within and between zones. It hoped to ensure that each zone would have sufficient cycle rickshaws to meet its needs and to avoid the operation of an excessive number of cycle rickshaws in any particular zone.

4. In addition to the structural elements mentioned above, the provisions proposed a host of instrumental measures to streamline the sector. The intention of these provisions was the progressive modernization of the urban transportation system. Some of the proposed measures included: (a) specifications of size, structure, and design of rickshaws; (b) specific standards for rickshaw pullers' driving skills and personal health; (c) issuance of photo ID cards with sensor chips; (d) permission for advertisements to be posted on rickshaws; (e) issuance of metal badges to be worn on licensed rickshaw pullers' arms; and (f) compulsory provision of fare charts by licensed rickshaw pullers in their vehicles.

Violations of the above regulations might invite rather harsh punishment that could include confiscation of the rickshaw by the police. The rickshaw would only be released after payment of a heavy fine. In some cases, punishment might even involve the rickshaw's deliberate destruction/mutilation to render it unfit for future use.

Presently, the status of these provisions is, at best, tentative. As we noted previously, both civil rights activists and the courts have questioned each proposal. To add to the prevailing confusion, since April 2012, the MCD has been under the process of trifurcation into North Delhi Municipal Corporation, South Delhi Municipal Corporation, and East Delhi Municipal Corporation. The division will require radical reorganization at every level. We must wait to see how the newly reorganized divisions will cope with the new policy environment. We do not yet know what their final decisions will be. Armed with our understanding of the above regulations, we will now discuss the real-life data found in our primary survey.

## **5.2 Field Realities and Opinions of Rickshaw Pullers and Owners**

### **5.2.1 Licensing Status and Procedure for Obtaining a Driving License**

In Table 5.1, we provide the number of rickshaws owned by *Thekedars* and licensed by the MCD. There is no particular association between the percentage of the number of licensed rickshaws and the number of rickshaws owned by a *Thekedar*. The percentage of licensed rickshaws takes the minimum value of 32.1% among *Thekedars* who own 11 to 20 rickshaws. It takes the maximum value of 93.7% among *Thekedars* who own 71-80 rickshaws. On average, 75.6% of rickshaws owned by *Thekedars* were licensed by the MCD, leaving 24.4% of rickshaws unlicensed.

**Table 5.1: Distribution of the Number of Rickshaws Owned and Licensed by the MCD**

Size class of rickshaws owned by owners	Number of rickshaw owners	Number of rickshaws owned by these owners	Number of owned rickshaws licensed	Percentage of licensed rickshaws (%)
<11	3	23	17	(73.9)
11-20	16	268	86	(32.1)
21-30	21	565	432	(76.5)
31-40	28	1,080	897	(83.1)
41-50	17	819	631	(77.0)
51-60	15	882	551	(62.5)
61-70	8	555	385	(69.4)
71-80	4	315	295	(93.7)
81-90	5	445	345	(77.5)
91-100	7	700	400	(57.1)
>100	8	1,680	1,505	(89.6)
<b>Total</b>	<b>132</b>	<b>7,332</b>	<b>5,544</b>	<b>(75.6)</b>

**Table 5.2: Names under Which Rickshaw Licenses Were Issued**

License in the name of	Number	(%)
Rickshaw puller	107	(94.7)
Family member	26	(23.0)
Relative	14	(12.4)
Friend	5	(3.8)
<b>Total</b>	<b>113</b>	<b>(100.0)</b>

Note: This question was not applicable to 19 *Thekedars* who did not own any licensed rickshaws. Therefore, we reduced the total number of observations to 113. Because of multiple answers, the sum of the percentage is larger than 100%.

We asked each of the sampled *Thekedars*: In whose name did you obtain the driving license for your licensed rickshaws? We provide their responses in Table 5.2. Almost 95% of the respondents stated that they obtained the licenses in the names of rickshaw pullers. Others obtained licenses in the names of family members (23.0%) and relatives (12.4%). Under the previous rules to obtain a license, a *Thekedar* would submit an affidavit that vouchsafed that the potential rickshaw puller, *X*, was a resident of Delhi. The *Thekedar* also had to submit the rickshaw's proof of purchase in his name because the rule required that the driving license could only be issued to the rickshaw owner. Under the new rules, these preconditions have been relaxed (see Subsection 5.1). The task for a *Thekedar* to obtain a license in the name of *X* is now much simpler. However, as an example, consider a case where *X* is a temporary, short-term migrant from Bihar. He may decide to return to his home village after six months. We must ask what will happen to his driving license. In all probability, he will hand it over to the *Thekedar*, providing the *Thekedar* had given him the license in the first place. In addition, no other rickshaw puller may use *X*'s license with *X*'s photo as proof of his license to drive. Therefore, the *Thekedar* may be in a bind. As

we have seen in all of these legal battles, the fact that the majority of rickshaw pullers are temporary migrants has never been given appropriate attention. Even the petitioners who fought the battle for poor rickshaw pullers never considered the fate of temporary migrants.

We asked each sampled rickshaw pullers if the rickshaw he drove on the interview date was licensed or unlicensed. We show their responses in Table 5.3. An overwhelming number of rickshaw pullers (93%) stated that they have no license for the rickshaw they operate. This may seem inconsistent with the sampled *Thekedars*' responses that 76% of their rickshaws are licensed. This is consistent, however, if we interpret the fact that *Thekedars* keep the license certificates themselves and do not risk giving them to migrant rickshaw pullers. After further questioning, we found that rickshaw pullers' responses confirmed our interpretation of this situation. As shown in Table 5.4. Almost all rickshaw pullers (98%) stated that they do not carry any token or certificate of license. However, we find it interesting that about 58% said they know that rickshaw pulling without a license is illegal. Yet, an additional 41% had no such knowledge. We find it most important that 76% of rickshaw pullers stated that, when *Thekedars* rented out rickshaws, they did not tell the rickshaw pullers whether the rickshaws were licensed or unlicensed. We wonder whether this situation may change under the new rule of licensing. We believe the answer is, in all likelihood, no. In all likelihood, a *Thekeदार* who procures a license in the name of *X* will not hand over that license to *X* if *X* is a migrant rickshaw puller.

**Table 5.3: Rickshaw License Status of Rickshaws Driven by Rickshaw Pullers**

<b>License</b>	<b>Number</b>	<b>(%)</b>
Under own name	28	(2.12)
Under others' name	5	(0.38)
No License	1,230	(93.18)
Don't know	57	(4.32)
<b>Total</b>	<b>1,320</b>	<b>(100.00)</b>

We asked each of the sampled *Thekedars* their opinions about the cycle rickshaw sector policy. Almost 97% replied that they would prefer their rickshaw rental business to be registered and endowed with legal status (Table 5.5). Overall, the provision of registration and legal status may (a) free the majority of *Thekedars* from problems with the MCD and Police (88%); (b) increase the legal security of their businesses (21%); (c) reduce tension (20%); and, perhaps, (d) eradicate potential opportunities for corruption by the MCD and Police (16%). These replies highlight the cost of distortion created by the current regulations. In addition, other replies emphasize the potential that the formalization will provide for *Thekedars* to expand their businesses (20%).

**Table 5.4: Rickshaw Pullers' Opinions of the Rickshaw License**

Questions/Answer	Number	(%)
<b>Q1. Do you currently carry any token/certificate of license?</b>		
Yes	25	(1.89)
No	1,295	(98.11)
Total	1,320	(100.00)
<b>Q2. Do you know that operation of an unlicensed rickshaw in Delhi is illegal?</b>		
Yes	772	(58.48)
No	539	(40.83)
No response	9	(0.68)
Total	1,320	(100.00)
<b>Q3. When you rented a rickshaw from a <i>Thekedar</i>, did he inform you of the rickshaw's license status?</b>		
Yes	292	(24.23)
No	913	(75.77)
Total	1,205	(100.00)

Note: Q1 and Q2 were applicable to all sampled rickshaw pullers (NOB=1,320). However, Q3 was applicable to only those who rented a rickshaw from *Thekedars*. Therefore, NOB=1,205.

**Table 5.5: Rickshaw Owners' Opinions about the Rickshaw Policy**

Particulars	Number	(%)	(%)
<b>Q. Would you like your rickshaw business to be registered and given a legal status?</b>			
No	4	(3.0)	
Yes	128	(97.0)	(100.0)
<b>If Yes, what are the reasons?*</b>			
Reduction in problems with the MCD and Police	113		(88.3)
Business expansion	25		(19.5)
Reduction of chances for corruption by the MCD and Police	21		(16.4)
We will be more secure if we have a legal status to operate the rickshaw rental business	27		(21.1)
We will have less tension as we manage our businesses	26		(20.3)
<b>Total</b>	<b>132</b>	<b>(100.0)</b>	

Note: \* Because of multiple answers, the sum of the percentage is larger than 100%.

### 5.2.2 Police Behavior towards Rickshaw Pullers

Police brutality towards poor rickshaw pullers (e.g., thrashing, beating, taking money, impound of rickshaw, etc.) has been a popular theme in the media. A similar picture of brutality was presented during the High Court proceedings. As a result, the Court appointed an Enquiry Officer (a retired district judge) to examine rickshaw pullers' complaints and take appropriate actions against erring officials from the police, the MCD, or any other department.

Our primary survey provides quantitative evidence for these events. We asked each sampled rickshaw puller a simple question: Have you ever been caught by the police for driving while unlicensed? If yes, what happened? We provide their answers in Table 5.6.

A surprisingly high percentage (75.6%) of the sampled rickshaw pullers said the police had never caught them for driving while unlicensed. The remaining 24.4%, who acknowledged police capture, received the following types of treatment by the police: 14.9 percentage points (or 61.2% of those caught) were released after scolding (*Dant-Fatkar* in Hindi). Only 5 percentage points (or 20% of those caught) were released after payment of bribe money to the policeman. A little over 2 percentage points (or 9.3% of those caught) stated that the police impounded their rickshaws. A similar number reported that their *Thekedar* rescued them. Thus, our data suggests that the police largely ignore unlicensed rickshaw operation. In those cases where the police did not ignore this behavior, rickshaw pullers reported fewer incidents of police brutal than reported in the media.

**Table 5.6: Police Behavior towards Rickshaw Pullers**

Particulars	Number	(%)	(%)
<b>Q: Have you ever been caught by the police for driving while unlicensed?</b>			
No	998	(75.61)	
Yes	322	(24.39)	(100.00)
<b>If Yes, what happened?</b>			
The policeman released you after scolding	197	(14.92)	(61.18)
The policeman took money and released you	66	(5.00)	(20.50)
The policeman impounded and removed the rickshaw	30	(2.27)	(9.32)
The <i>Thekedar</i> provided assistance	28	(2.12)	(8.70)
Other	1	(0.08)	(0.31)
<b>Total</b>	<b>1,320</b>	<b>(100.00)</b>	<b>(100.00)</b>

### 5.3 Policy Analysis

Our examination of the quantitative evidence presented in the previous subsection makes us question the appropriateness of the current policy scenario. We feel that the foundation for the MCD's policy stance toward this sector has, in general, been unfriendly, if not hostile. We are not sure, however, if the elimination of cycle rickshaws is desirable. It is unclear why the MCD continues to outlaw migrant rickshaw pullers who operate rented rickshaws and *Thekedars* who rent rickshaws to rickshaw pullers. By now, the MCD should have realized that the principle of one vehicle, one owner-driver, one license has never been imposed on any other sector of the economy. In the transportation sector, an individual may own any number of vehicles, cars, taxis, or buses. An individual may hire drivers for business purposes. Therefore, we must ask why such restrictions are selectively imposed on the cycle rickshaw sector. It is not surprising that the law courts have considered this a violation of the fundamental right to property.

The MCD has advanced the argument that this measure seeks the end of migrant rickshaw pullers' exploitation by the *Thekedar* mafia, who, by charging exorbitant rental fees to rickshaw pullers, extract a large portion of the migrants' hard-earned money. In our primary survey, we quantitatively show that this view does not conform to the ground reality. First, market forces generally fix the rental fees charged by *Thekedars*. In addition, it is apparent that *Thekedars* do not enjoy unbridled monopoly power. An average rickshaw rental fee of Rs. 34 per day which yields a daily earning of Rs. 260 does not appear exorbitant. In our estimation, the rental fee appears to be a fair charge for the services rendered by *Thekedars*. Second, rickshaw ownership is not every puller's dream. Migrant rickshaw pullers operate rickshaws only during slack agricultural seasons. It is important to note that, by making it compulsory for all rickshaw pullers to own their vehicles, the regulation would exclude migrant rickshaw pullers who, in general, are neither interested nor have the resources to buy their own rickshaws. If, however, the MCD seriously intends to create entrepreneurs out of rickshaw pullers, then a midway course should be adopted. Banks and microfinance institutions should offer cheap credit to those rickshaw pullers who desire ownership of rickshaws. Others who are disinterested in ownership should be allowed to continue with rickshaw rental.

When we consider the present state of the Delhi transportation system, we find it difficult to appreciate the MCD's intention to eliminate cycle rickshaws from the city roads. It hardly needs reiteration that the cycle rickshaw is a relatively popular mode of transportation among the people of Delhi. Therefore, we feel it is important that authorities understand that this mode of transportation, with all its flaws, has survived and grown despite the enormous growth and change in the city and despite the increase in modernization and sophistication of the transportation network. This survival and growth could only have occurred because of a certain niche demand for this type of transportation from certain segments of the population. We must also note that, despite the MCD's repeated attempts to restrict the number of licenses, there has been sustained growth in the number of "illegal" rickshaws in response to market demand. The proliferation of illegal rickshaws would not have occurred without sufficient demand and without the existence of earning prospects for rickshaw pullers. We can corroborate this fact with our finding of the substantial rise in the earnings of rickshaw pullers over the last five years (see, Subsection 3.3). Based on the previous discussion, we must ask whether it is appropriate for the authorities to restrict or deny a mode of transportation that meets the public's needs and demands.

One reason for the hostile stance of the MCD towards cycle rickshaws is that a cycle rickshaw is a slow, manually-driven vehicle that operates incongruously with the rest of the motorized transportation system in the city. Because it is slow, a cycle rickshaw may obstruct the smooth flow of traffic. This may result in congestion and pollution of the atmosphere. The logic of this argument is somewhat valid. However, we find that the situation looks different when we test it against the ground realities.

Cycle rickshaws in Delhi operate more frequently in less affluent parts of the city such as parts of Old Delhi, suburbs, semi urban areas, and small streets and lanes. For a number of reasons, public transportation is not easily available in these areas. Cycle rickshaws do not ply on major busy roads where different types of motorized vehicles dominate the traffic. When cycle rickshaws ply on some of the busier roads, they may get shoved to the margin by main line traffic. It has been recognized that the non-motorized sector, which includes cycle rickshaws, is tiny compared to the modern, motorized sector. Thus, the non-motorized sector makes negligible contribution to the twin challenges of traffic congestion and atmospheric pollution. Because of this, the Delhi Master Plan, 2021 places great emphasis on the maximum possible use of non-motorized transportation. According to the Environment Protection Control Authority's recent assessment, approximately one thousand motor vehicles are added daily to the roads of Delhi. The road space used on a per commuter basis by motorized vehicles (in particular, private cars), is several times the space used by humble bicycles or cycle rickshaws. When we consider the sheer differences in the physical size of vehicles, we find it obvious that cycle rickshaws cannot meaningfully be compared to motorized vehicles as potential causes of congestion. We believe that, in all likelihood, the cycle rickshaw sector is too small to matter.

In this context, we find that one important aspect of the problem is frequently overlooked. We suggest that it is important to realize that the problems discussed above are not just the result of the number of vehicles on the roads. These problems also result from the nature of vehicles and the quality of traffic management. In the specific context of Delhi, and, especially in less important parts of the city, traffic management has received minimal attention. In addition, no steps have been taken to check the emission levels of vehicles. Poor traffic management frequently causes avoidable clusters of traffic in busy, congested areas. This congestion increases the emission levels. In areas like business centers, some consider that cycle rickshaws may be adding to the confusion. In these cases, innovative traffic management might provide solutions to these problems. Effective solutions might include separation of different types of vehicles into different lanes of the road and, if necessary, placement of restrictions on the movement of traffic based on timing and on types and sizes of vehicles on designated roads. For example, certain types of vehicles might be barred from operation on certain roads during specific hours of the day. For traffic management to succeed, efficient policing of traffic is necessary so that the traffic rule violators can be quickly booked and punished. As we can see, the chaotic movement of traffic causes both congestion and atmospheric pollution.

#### **5.4 Concluding Remarks on Policy Issues**

Up until this time, the MCD has been unable to solidify its policy towards the cycle rickshaw sector. The highest courts in the land have negated the MCD's policy provisions. The MCD has yet to produce an amended version of their policies. We believe that the fault may lie with the MCD. Many of its policy proposals were unrealistic. Critics raised questions about the policies' rationality and



implementability. Therefore, in the present circumstances, because various proposals are still under discussion, we choose to make the following observations:

1. It is undesirable to apply an artificial cap on the growth of cycle rickshaws. The cycle rickshaw sector sustains itself on demand for a certain type of transportation in the city. This simple, unsophisticated vehicle is popular with the commuting public for short distance travel. The sector will survive as long as demand for this service persists. We believe this sector will survive and, perhaps, experience further growth. However, if demand for this service were to cease, or if a new and more suitable mode of transportation were to emerge, then cycle rickshaws will disappear in the way that other modes of transportation previously disappeared. Therefore, we believe that an artificial cap on growth is undesirable. We believe that, if such an attempt to cap growth occurs, it will only lead to the proliferation of illegally operated rickshaws. In addition, it may contribute to attendant problems such as corruption and bribery on the part of controlling authorities.

2. It is desirable to register all cycle rickshaws and legalize the rickshaw rental business. In our view, the solution to the above-mentioned problem lies in the licensing and/or registration of all cycle rickshaws on the road. If all rickshaws are licensed or registered, the controlling authorities can monitor the number of rickshaws in the city and place them under the control of the city's traffic system. We believe that the MCD policy to allow only owner-driven rickshaws and to issue only one license for each owner-driver is grossly unrealistic and non-implementable. If the intention behind this policy is to save rickshaw pullers from exploitation by *Thekedars*, then rickshaw pullers will be better served when *Thekedars* are recognized as legal entities. Our study provides evidence that *Thekedars* play a decisive role in the organization of this sector. They contribute to job creation for poor migrants from rural areas. In our survey, we found no evidence of migrants' exploitation by *Thekedars*. Rather, *Thekedars* engage in normal transactions of rental of a resource (i.e., cycle rickshaws). In so doing, they obtain a moderate return from these transactions. We believe that, if *Thekedars* were to cease to play this role, then the whole cycle of migration, generation of income, and transfer of income from the city to the countryside may come to a complete stop.

3. Emphasis should be placed on scientific management of road space and traffic movement. The cycle rickshaw sector may contribute to the reduction of congestion and pollution in the urban transportation section if allocation of road space and movement of traffic can be appropriately managed. The cycle rickshaw sector may play a useful role if it can find a niche in the overall transportation structure of the city. We believe that authorities must facilitate this process by provision of the necessary infrastructure. Many traffic experts suggest that, wherever possible, slow, non-motorized vehicles such as bicycles and cycle rickshaws should be provided with separate tracks and separate parking spaces. This may ensure that slow-moving vehicles will not interfere with fast-moving motorized vehicles. It may also ensure greater safety for cyclists and rickshaw pullers. Therefore, reasonable restrictions, such as the

restriction of slow-moving traffic from busy arterial roads or highways should not be rejected. We believe these restrictions may be necessary to ensure smooth flow of traffic on particularly busy roads. In addition, these restrictions may help to ensure the safety of commuters and rickshaw pullers.

4. It is undesirable to restrict the movement of rickshaws across zones. The current policy stipulates that a license must be issued for a particular zone. In addition, movement of rickshaws across zones is not allowed. This aim of this policy is to make the movement of rickshaws more orderly. However, implementation is difficult. It presents a number of problems for both commuters and rickshaw drivers. During travel from one point of the city to another, a commuter may have to change vehicles. This change (or changes) may cause a good deal of inconvenience, particularly if the person is old, sick, or burdened with heavy baggage. In addition, rickshaw pullers may be subject to harassment and penalization by traffic police if they carry passengers across zones. We believe these inconveniences may be unnecessary because human beings drive cycle rickshaws. Thus, rickshaw pullers are incapable of traveling long distances. More often than not, they tend to set natural limits on their areas of operation. If separate tracks can be identified for slow-moving vehicles, we believe that congestion can be avoided and the orderly movement of traffic may occur more consistently.

5. If the intention is to encourage rickshaw pullers to become owners, then, development of a credit scheme is required. If authorities seriously intend to transform poor rickshaw pullers who rent rickshaws from *Thekedars* into owner-entrepreneurs, we believe that authorities must find a way to provide rickshaw pullers with credit access. We believe that banks and microfinance institutions should offer rickshaw pullers cheap credit. However, as we found in our survey, not all migrant rickshaw pullers desire rickshaw ownership. Therefore, we suggest that those migrant rickshaw pullers who do not desire rickshaw ownership should have the option to continue to rent rickshaws.

At a more fundamental level, we contend that holistic planning is necessary for the total transportation system. Authorities must take into account the role played by each sector. Although the cycle rickshaw sector is small, it provides convenient transportation for short distance travel. In addition, the cycle rickshaw sector contributes a negligible amount to traffic congestion and the pollution load of the city.

## **6. Summary and Conclusions**

In this report, we documented the 2010/11 primary survey of rickshaw pullers and owners in Delhi, conducted a descriptive analysis of the sampled rickshaw pullers and rickshaw owners, and provided information useful for the current debate on urban transportation policies. Our survey covered all locations in Delhi where cycle rickshaws operate (i.e., eleven of the twelve zones under management

of the Municipal Corporation of Delhi (MCD)). We drew a sample of 132 rickshaw owners (*Thekedars*) and a representative sample of 1,320 rickshaw pullers. In this concluding section, we will summarize our findings on rickshaw pullers, rickshaw owners, and policy issues.

### **6.1 Summary of Findings on Rickshaw Pullers**

Most rickshaw pullers in Delhi are short-term, temporary migrants who originally migrated from villages in the state of Bihar and Uttar Pradesh. The overwhelming majority of the sampled rickshaw pullers (81%) are Hindus from a number of caste groups. A significant number of these rickshaw pullers (18%) are Muslims. About 45% of these migrants are illiterate. An additional 38% of these migrants have primary-level educations. If we combine these figures, we find that a total of 83% of rickshaw pullers are either illiterate or minimally educated. They migrate to Delhi to earn supplementary income for their families in their native villages. Their families' poverty operates as the push factor for migration. As many as 60% of the sampled rickshaw pullers originated in landless families. More than three-fourths of migrant rickshaw pullers reported that, prior to their migration, the families in the native villages had neither sufficient income to meet food requirement or to pay for children's education and medical expenses.

Social networks that extend from migrants' places of origin to their final destinations facilitate rickshaw pullers' migration. Our data quantitatively illustrates that a man who may be a returned migrant from Delhi and who may have even worked as a rickshaw puller can share all sorts of information with potential migrants. Similarly, a family friend may advance funds to cover travel expenses for relatives. In addition, a rickshaw puller from a native village who currently works in Delhi may help a newly arrived villager find accommodations. He may also stand surety for the newly arrived villager so that the new migrant can rent a rickshaw from a *Thekedar*. According to our survey data, 80%-90% of sampled rickshaw pullers obtained support and basic information about job opportunities, including the job information about rickshaw pulling, from persons in their social network in Delhi and in their native villages. We found that more than 90% of rickshaw pullers operate rental rickshaws owned by *Thekedars*.

Rickshaw pulling involves hard physical labor. On average, a rickshaw puller works 11 hours per day and over 27 days per month. The average earning per rickshaw puller per day is Rs. 257. A rickshaw puller, on average, spends Rs. 140 per day. The majority of this expenditure goes towards food (Rs. 87) and rickshaw rental fees paid to the *Thekedar* (approximately Rs. 38). Major monthly expenditures go toward house rent (Rs. 655). This includes rent paid for accommodations such as *Jhuggi-Jhopadi*, a *Thekedar's* shed, or for roadside or temple premises (although rental fees are usually zero for the last three categories). On average, a migrant rickshaw puller earns Rs. 7,260 and spends Rs. 4,847 per month. This leaves a monthly surplus or saving of Rs. 2,413. This amount may be available for transfer to the

rickshaw puller's home village. We consider this the migrant rickshaw puller's contribution to rural poverty reduction.

Let us suppose that a migrant rickshaw puller's family that remains in the village consists of five persons (excluding the rickshaw puller). Let us also suppose that the family lives at the official rural poverty line income of Rs. 26 per person per day (i.e., Rs. 3,900 per household per month). If we add to this the money transferrable by the rickshaw puller (i.e., Rs. 2,400), then, the family's income will increase to Rs. 6,300 per month. This increase will push the family far above the poverty line. We are not sure whether these transfers will be sustainable so that the family can stay out of poverty forever. There is always an element of uncertainty in these situations. The general lesson, however, is that migration by the rural poor to find work in urban areas has a positive impact on rural poverty reduction.

## **6.2 Summary of Findings on Rickshaw Owners**

In our survey, we found that rickshaw owners (*Thekedars*) provide the fulcrum upon which the whole cycle rickshaw transportation system of Delhi turns. They provide the basic input (i.e., cycle rickshaws) to migrant rickshaw pullers and manage the administrative and legal aspects of their rickshaw rental business on a year-round basis. Although they have characteristics similar to other residents of Delhi, the majority of *Thekedars* continue to maintain their rural connections. In comparison to rickshaw pullers, a larger percentage of *Thekedars* (24%) are Muslims. Almost all of the sampled *Thekedars* had achieved primary or higher levels of education. More than one-third had achieved secondary or higher secondary levels of education (10 to 12 years of schooling). Their occupational history demonstrates that, due to their entrepreneurial ability, many owners had surmounted lowly beginnings to become *Thekedars*. We found it quite remarkable that, prior to becoming *Thekedars*, over 37% of the sampled owners had engaged in rickshaw repair work (either employed by others or self-employed). An additional 8% had begun as rickshaw pullers. When we consider these humble beginnings, it is not surprising that 70% of the sampled *Thekedars* depended on their own savings for their investments in the rickshaw rental business. In addition, 57% had no outstanding loans.

On average, a *Thekedar* owns 56 rickshaws. However, the range of ownership is quite wide. At the lower end, some *Thekedars* own fewer than 10 rickshaws. At the upper end, some *Thekedars* own more than 100 rickshaws. The parking facility for the *Thekedar's* rickshaws (i.e., the stand) is an essential requirement for the business. The parking facility can be an open-air space or it can be a sheltered shed. It may be owned, rented, or rely on the use of public land such as parks, roadsides, lanes, etc. Our survey data shows that most of the sampled *Thekedars* (87%) operated a single open-air stand. Out of the total number of stands, 46% were owned, 29% were rented, and 25% were neither owned nor rented.

Major expenditure items for the rickshaw rental business include repair and maintenance of rickshaws, rental fees paid for a rickshaw stand, MCD charges (e.g., fees and fines), and other expenditures. The category of other expenditures includes all types of gratification payments to MCD officials and the police to allow the business to run smoothly. As we expected, the total monthly expenditure per *Thekedar* increases with the size of business as indicated by the number of rickshaws owned. According to our estimates, the average monthly expenditure per large-scale *Thekedar* is Rs. 35,000. This figure is more than twice the amount expended by small and medium *Thekedars* (Rs. 14,093). (We drew the threshold of size comparison at 50 rickshaws.) For the sample as a whole, monthly expenditure totaled Rs. 22,400 per *Thekedar*.

We estimate the income of each *Thekedar* by multiplying three factors: (1) the number of rickshaws owned; (2) the utilization rate of the rickshaws; and (3) the rental fee rate. The average utilization rate amounts to 67%. The average rental rate amounts to Rs. 34 per day. Net of expenditure, monthly income per *Thekedar* amounts to Rs. 5,577 for small/medium enterprises, and Rs. 41,280 for large enterprises. These estimates indicate monthly income per rickshaw of Rs. 199 for small/medium enterprises and Rs. 409 for large *Thekedars*. Overall, we estimate the average amounts to be Rs. 371 per month per rickshaw. Based on the monthly per-rickshaw income, we estimate the internal rate of return on investment over five to six years of the working life of a rickshaw to range from 18% to 62% per year. The rate of return is higher among large enterprises, indicating the existence of a scale economy. These rates of return accrued to *Thekedars* are comparable to informal interest rates with collateral in India, ranging from 15% to 60%. Therefore, investments in rickshaws bring *Thekedars* moderate returns. This confirms the viability and competitive nature of the business.

### **6.3 Policy Issues**

During our survey, we sought the opinion of rickshaw owners and rickshaw pullers about some of the MCD rules and regulations. In particular, we asked their opinions of driving licenses. We also collected information on rickshaw pullers' experiences with the police. Almost all sampled rickshaw pullers (93%) interviewed in the field did not possess licenses for their rickshaws. However, according to the sampled *Thekedars*, 76% of their rickshaws were licensed. The majority of these licenses were issued in the name of rickshaw pullers. We observed that, because rickshaw pullers are temporary migrants, *Thekedars* do not take the risk of giving the license certificates to rickshaw pullers. We believe that, in all likelihood, this practice will continue under the new and simpler licensing rules created under the direction of the Delhi High Court as long as the majority of rickshaw pullers remain temporary migrants. Almost all sampled *Thekedars* replied that they would prefer their rickshaw rental businesses to be registered and endowed with legal status. If this occurs, they will suffer fewer problems from the police. In addition, this change in status may reduce the chances of corruption. We found evidence of the competitive nature of the rickshaw rental business that supports the need for recognition of the rickshaw

rental business as a legal activity. We believe that the designation of *Thekedars* as legal entities may contribute to the healthy development of urban transportation in Delhi.

Police brutality towards poor rickshaw pullers is a recurring theme in the media. Our survey data reveals that the police never caught about 76% of the sampled rickshaw pullers, despite the fact that the majority of rickshaw pullers fail to carry driving licenses. Of the remaining 24% who had been caught, more than half were released after scolding. Overall, we observed that police behavior towards rickshaw pullers is not always brutal.

## References

- CESR [Centre of Economic and Social Research]. 2009. "A Preliminary Survey of Rickshaw Pullers in Delhi," mimeo, September, 2009.
- Deshingkar, P., Kumar, S., Chobey, H.K., and Kumar, D. 2006. "The Role of Migration and Remittances in Promoting Livelihoods in Bihar." Working Paper. London: Overseas Development Institute, December 2006.
- Gill, K. 2010. *Of Poverty and Plastic: Scavenging and Scrap Trading Entrepreneurs in India's Informal Economy*. New Delhi: Oxford University Press.
- Government of Delhi, 2012a. *Delhi Statistical Handbook, 2011*. Directorate of Economic and Statistics, Govt. of Delhi, India.
- , 2012b. "Number of Private and Common Passenger Vehicles in Delhi 2011." Delhi Transport Authority, Government of Delhi. [http://www.delhi.gov.in/wps/wcm/connect/doiit\\_transport/Transport/Home/Vehicle+Registration](http://www.delhi.gov.in/wps/wcm/connect/doiit_transport/Transport/Home/Vehicle+Registration).
- Government of India, 2012a. "Press Note on Poverty Estimates, 2009-10." Government of India, Planning Commission, March 2012.
- , 2012b. "Census of India 2011: Provisional Population Totals." Government of India, Registrar General & Census Commissioner.
- Hayami, Y., Dikshit, A.K., and Mishra, S.N. 2006. "Waste Pickers and Collectors in Delhi: Poverty and Environment in an Urban Informal Sector." *Journal of Development Studies* 42(1): 41-69.
- Kurosaki, T., 2012. "Urban Transportation Infrastructure and Poverty Reduction: Delhi Metro's Impact on the Cycle Rickshaw Rental Market." PRIMCED discussion paper no. 24, March 2012, Hitotsubashi University
- Kurosaki, T., Sawada, Y., Banerji, A., and Mishra, S.N., 2007. "Rural-urban Migration and Urban Poverty: Socio-economic Profiles of Rickshaw Pullers and Owner-contractors in North-East Delhi." COE Discussion Paper no. 205, Institute of Economic Research, Hitotsubashi University, Tokyo, February 2007.
- Minten, B., Reardon, T., and Sutradhar, R. 2010. "Food Prices and Modern Retail: The Case of Delhi." *World Development* 38(12): 1775–1787.
- Munshi, K. 2011. "Strength in Numbers: Networks as a Solution to Occupational Traps." *Review of Economic Studies* 78(3): 1069-1101.
- Ramachandran, M. 2012. *Metro Rail Projects in India: A Study in Project Planning*. New Delhi: Oxford University Press.
- Todaro, M. P. 1969. "A Model of Labor Migration and Urban Unemployment in Less Developed Countries." *American Economic Review* 59(1): 138–148.
- Williamson, J. G., 1988. "Migration and Urbanization," in: Chenery, H., and Srinivasan, T.N. (Eds.), *Handbook of Development Economics, Vol. I*. Elsevier Science, Amsterdam, pp. 425–465.

## Appendix. Estimation of the Number of Rickshaw Pullers in Delhi

The estimation of the population of rickshaw pullers plying in Delhi on any given day proceeds as follows: Let  $n_z^w$  be the number of wards in zone  $z$  and  $n_w^c$  be the number of colonies in ward  $w$ . We obtained these numbers from the MCD list of wards and colonies. From the enumerated list of all focal points in selected colonies combined with the information on the number of rickshaw pullers in each focal point, we obtained the number of focal points in colony  $c$ , denoted as  $n_c^f$ , and the number of rickshaw pullers in focal point  $f$ , denoted as  $n_f^p$ . In most cases, we randomly surveyed six rickshaw pullers from each of two selected focal points. However, in some cases, we were unable to find enough rickshaw pullers in the selected focal points. In such cases, we randomly selected rickshaw pullers from other focal points in the same colony. This brought the total sample size in the selected colony to 12.

This sampling procedure implies the following sampling probability,  $p_{zwcfi}$ , for a particular rickshaw puller in our sample. The subscripts are  $i$  for individual rickshaw puller,  $f$  for focal point,  $c$  for colony,  $w$  for ward, and  $z$  for zone. When  $k_f$  rickshaw pullers were surveyed in the selected focal point  $f$  and  $q_c$  focal points were selected in the colony  $c$ ,

$$p_{zwcfi} = (2/n_z^w) * (5/n_w^c) * (q_c/n_c^f) * (k_f/n_f^p). \quad (\text{A1})$$

As a reflection of our survey design, the sampling probability  $p_{zwcfi}$  takes the same value for all sampled rickshaw pullers that belong to the same focal point. The probability differs if focal points are different. The inverse of the sampling probability is the inflation factor, which blows up the sample to the population. Therefore, the sum of the inflation factor over the 1,320 sampled observations of rickshaw pullers is our estimate for the number of rickshaw pullers in Delhi on any given day.

Because sampled focal points, colonies, and wards were randomly drawn, the population estimate thus obtained is subject to sampling error. We calculated the standard error of the population estimate as follows: Since the sum of the multiplier is the population, the population estimate can be interpreted as a weighted average of a focal-point-level variable  $n_f^p$ , with the weight  $w_f$  given by

$$w_f \equiv (n_z^w/2) * (n_w^c/5) * (n_c^f/q_c), \quad (\text{A2})$$

inflated by the total number of focal points. Therefore, if we assume that the weight is non-stochastic,<sup>8</sup> the standard errors (SE) for the weighted average (with a focal point as the unit of observation) can be estimated using the standard formula.

One caution is that when SE is calculated in this way, it is necessary to correct for strata and clusters. In our case, the stratum is a zone, since we treat each zone as potentially different and include all zones in our survey. We have two-stage clusters: the primary sampling unit is a colony and the secondary sampling unit is a ward. We therefore incorporated this stratified clustering structure in the estimation of SE reported in Table 2.3. Since observations in the same colony are likely to be positively correlated, without controlling for the clustering, the SE would be underestimated (the precision would be over-claimed).

---

<sup>8</sup> This assumption may not be strictly satisfied. The adjustment when the weights are stochastic is left for further study.