Rural-Urban Migration and Urban Poverty:
Socio-Economic Profiles of Rickshaw Pullers and Owner-Contractors in North-East Delhi

February, 2007

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1. INTRODUCTION

Income poverty in India is a serious problem with about 350 million of its people earning less than $1 a day (Datt and Ravallion, 2002; World Bank, 2000). The official estimate for the poverty based on head count index (HCI) was 26.1% of the total population in 1999/2000 (Government of India, 2004). HCI in rural areas was estimated to be 27.1% of the total population which was slightly higher than that in urban areas (23.6%). Because of its higher incidence in the rural sector, the past research on poverty in India has focused more on rural poverty. Although useful, such research on rural poverty has limited value in providing general clues to the poverty reduction policies in India as a whole due to the following two reasons: first, the absolute number of the urban poor in India is phenomenal, at around 67 millions, more than the whole population of every country in Sub-Saharan Africa except Nigeria; and second, there has been a continuous flow of migration from rural to urban areas, including the poor, who aspired to improve their well-being. An understanding of this migration is crucial for understanding the poverty issues in India, particularly, the linkage between the urban poverty and the rural poverty. Therefore, it is critically important to understand the nature of urban poverty in India based on well-structured, careful field surveys combined with the state-of-the-art scientific methodologies in order to derive useful implications for evidence-based poverty reduction policies.

In the present pilot study aimed at this objective, we investigated the cycle rickshaw sector in north-east Delhi. In the survey, we collected information necessary to examine the current situation of poverty surrounding the persons engaged in the sector. There are three reasons for our choice of the rickshaw sector.

First, in terms of theoretical foundation of poverty, the existing empirical micro- or macro-studies on poverty such as Besley and Burgess (2003), Dollar and Kraay (2002), Datt and Ravallion (1998), and Dercon ed. (2005) have been focusing on personal distribution of income or consumption. Typically, these studies employed reduced-form equations to uncover determinants of poverty. Yet, such an analysis will not necessarily be useful in identifying the cause of poverty because the very structure that generates poverty would not be clear through such studies. Accordingly, we need to elaborate a research project with which we can identify the structure which generates functional distribution in the economy. We believe that our focus on the cycle rickshaw sector in Delhi provides an ideal research environment to explore the dynamics of urban poverty in India.

Second, the informal transportation sector in India's megalopolis is one of the most important economic activities in which the urban poverty is concentrated. Moreover, a very large number of poor rural-to-urban migrants tend to initiate their urban career in this sector. In spite of its importance, there exist very few economic studies on this sector. We know very little about these rickshaw pullers. Who are these people? What makes them engage in this informal sector activity which requires tremendous expenditure of their muscles power? Are they poor? These and many more questions call for an answer. Although considerable research has been carried out on the informal sector activities in India as well as in other developing countries, existing studies on rickshaw pullers are very few and such studies are almost nonexistent in India.[1] That is what has motivated us to undertake the present study, filling the serious gap in the existing studies.

Third, another rationale for studying rickshaw pullers in Delhi was the necessity to collect information useful for planning urban transportation in the burgeoning megalopolis of Delhi. Little is known about the contribution which the rickshaw pullers make through their engagement in the regional economy and about the economic efficiency of their transportation services. The analysis of these aspects is of vital importance when policies that regulate the informal transportation sector are designed. This study is expected to throw light on all these aspects of rickshaw pulling.

In the present pilot survey conducted in north-east Delhi in December 2005 – January 2006, we collected detailed information on eighty rickshaw pullers and twenty-six rickshaw owner-contractors. This is a preliminary report based on the data thus collected. In the following, we first overview the transportation sector in Delhi, to give an idea of the place the cycle rickshaws occupy in the larger context of transport in Delhi (Section 2). In Section 3, we describe the survey design and how we implemented the actual data collection. In Section 4, we provide information on the socio-economic profiles of rickshaw pullers. Since we found that distinguishing two types of rickshaw pullers into temporary migrants and permanent residents of Delhi is important in examining their earnings and living conditions, the information is given separately for the two types. We further discuss the living and working conditions of the sample rickshaw pullers in

[1] A study by Mitra (2002), who analyzed the supply and demand for informal rickshaw services in Delhi, is an exception but the analysis of his paper is not based on quantitative evidence. An important study,"The India Cycle Rickshaw Improvement Project," funded by the USAID was conducted in the Agra region in 2001. The project aimed at modernizing the vehicle and also commercializing the new technology in the specific socio-economic situation. For rickshaw pullers in Bangladesh, an exceptional study by Gallagher (1992) examined their socio-economic status based on primary data of around 1,173 Rickshaw pullers in 15 different towns, cities, and Upazilas.

Section 5. Since the majority of these pullers rent a cycle rickshaw from an owner-contractor, we turn to these rickshaw owner-contractors in Section 6 and describe their socio-economic profiles, their earnings, and the sources of their capital enabling their entry into the business. The final section (Section 7) concludes the report with a summary and discussion for further work and policy issues.

2. OVERVIEW OF THE TRANSPORTATION SECTOR IN DELHI

2.1 Economic Growth and Development of Transport in Delhi

At the present stage of India's development, cycle rickshaws remain a prevalent mode of transport in the urban and semi-urban areas. The capital city, Delhi is still served by rickshaw pullers, notwithstanding the fact that its per capita income is the second highest in the country, next only to Chandigarh's. Rickshaw pullers can be easily seen transporting people in residential colonies of the city and also in its outskirts. In the city centre, the area covered by New Delhi, where the union Government has its seat, cycle rickshaws are not permitted to ply.

Since the country embarked on the policy of economic liberalisation in the early 1990s, Delhi has seen a phenomenal growth in the number of private and personal automobiles, such as cars, jeeps, motorcycles and scooters. Automobiles as means of public transport --- taxies, buses and auto-rickshaws --- have however lagged behind, as they had to face a transition problem to less polluting forms of fossil fuel at the behest of the regulating authorities. In the meanwhile, the Delhi Metro Rail has come into being, and its coverage is continuing to expand. These developments in the modern modes of transport have not, however, displaced the traditional mode of cycle rickshaws. Apparently, the city has a demand for this mode of transport and there are people to meet the demand.

2.2 The Cycle Rickshaw Sector in Delhi's Transport System

As a backdrop to the study, it is useful to have an idea of the place cycle rickshaws occupy in the larger context of transport in Delhi. We exclude from our purview the Delhi Metro Rail and the Circular Railway, which provide local transit facilities to the citizens. Our focus is on automobiles and cycle rickshaws, which are the predominant modes of transport.

Delhi's population at the time of the last census in 2001 was 13.8 million. In 2006, it is estimated to be over 16 million. In relation to this population, the closest year for which official statistics on Delhi's transport are available is the year 2003-04 (Govt. of Delhi, 2004). The position regarding registered vehicles is as follows. These can be conveniently divided into two groups: (1) mostly private, personal vehicles, namely cars, jeeps, motorcycles and scooters, and (2) vehicles providing public service, i.e. taxies, auto-rickshaws and buses.

In the first group, during 2003-04 there were over 1.3 million registered cars and jeeps, and about 2.7 million motorcycles and scooters, making a total of 4.0 million vehicles (i.e., roughly about one-forth of the human population). Quite in contrast, in the second group, in the same year 2003-04, there were only about 25,000 registered taxies, 21,000 auto-rickshaws and 36,000 buses. These numbers are rather small in comparison to the first group as well as with Delhi's population (Govt. of Delhi, 2004).

But there is more to it when we look at the changes in the number of vehicles in both groups since 1995-96. The changes can be seen in Figure 2.1 and Table 2.1. The first group of vehicles clearly standout, showing a rapid expansion of stock, there being, on average an annual addition of about 200,000 vehicles to the group, since 1995-96. In the second group, the annual additions were merely 1,300 to taxies and 1,000 to buses. In this group, the story of auto-rickshaws is not altogether smooth. From a little over 79,000 in 1995-96, its number went up to 87,000 in 1998-99, remained constant till 2001-02 and then drastically fell to 15,500 in 2002-03 before rising to 21,000 in 2003-04. This happened because all auto-rickshaws were required to run on compressed natural gas (CNG) since 2002. The policy change meant that a brand new auto-rickshaw could be registered only if it was CNG based, and that an old one could be run only after it had been retreated or retrofitted to make its engine CNG compatible and then re-registered. After the transition period, the population of auto-rickshaws is expected to grow rapidly.

Whereas for regulatory purposes, automobiles fall within the jurisdiction of the Transport Authority of the Delhi Government, cycle rickshaws fall within the jurisdiction of the local body, namely the Municipal Corporation of Delhi (MCD). The statistics regarding the number of cycle rickshaws plied in Delhi in different years, as furnished by the MCD, are given in Table 2.1, and can also be read from Figure 2.1. The table and the figure show that the number of rickshaws increased rather fast, from a little over 46,000 in 1995-96 to over 70,000 in 1999-2000. This implies an increase of 6,000 a year on average. After 1999-2000, however, the number drastically fell for two years, reaching 15,500 in 2001-02. The tide, thereafter, reversed. And, almost in a

similar manner, in two years time the number escalated to about 50,000 in 2003-04.

This pattern of precipitous change is incredible. In the case of auto-rickshaws, a sudden drastic fall in numbers could be explained in terms of a change in the regulatory regime. But in the case of cycle rickshaws, there is no such rational explanation. The only thing left to say is that the statistics are wrong, which do not represent the real situation. This is not unlikely as the MCD does not have the machinery to perform all the regulatory tasks adequately and efficiently --- tasks like registration/licensing of cycle rickshaws, annual renewal of licenses, monitoring and checking the rickshaws on the road, punishment for rule violations, including illegal plying of rickshaws.

Given the inconsistent official statistics, what can we say about the number of cycle rickshaws currently plying in Delhi? If we take the 1999-2000 figure of 70,000 as a more reliable number published by the MCD for the licensed rickshaws, and if we assume an annual average addition of 6,000 rickshaws, in 2005-2006 there ought to be at least 100,000 rickshaws operating in Delhi, whether or not these are in the books of the MCD. This number should be far in excess of every other type of vehicle providing public transport facility. Furthermore, assuming a modest proportion of 50% of the stock of rickshaws plying on any day, there ought to be 50,000 rickshaw pullers transporting people every day in Delhi.

2.3 Rickshaw Pullers and Rickshaw Owner-Contractors

By their look, rickshaw pullers in Delhi, and for that matter in any other city, appear to be poor. There is a general perception that rickshaw pullers are men from the countryside, who come to town temporarily during off-agricultural seasons in order to earn supplementary income for their families back home. Our pilot survey confirmed this perception, as shown in the rest of this report. But these seasonal migrants are not the only ones, who do rickshaw pulling. There are also urban rickshaw pullers with or without their families, are resident citizens, legally recognized as such or having been resident of the city for five or more years. Thus, rickshaw pulling is an informal sector activity, which provides an income-earning opportunity for temporary, seasonal migrants from the countryside, as also to the urban poor.

A rickshaw puller, whether migrant or resident, must have access to a rickshaw, either owned by him or available on rent. Owning a rickshaw means making an investment, apart from incurring other expenses on its operation and maintenance, including MCD charges etc. For migrant

rickshaw pullers, this option is out of question. For resident rickshaw pullers, even if investment is feasible, it may be cheaper and less problematic to hire than own a rickshaw.

Rickshaw owners make rickshaws available on hire usually on a daily rent basis. Known as 'contractors' (*Thekedar* in Hindi), these people are small entrepreneurs who earn rental income from the investment made in the stock of rickshaws.

Just as rickshaw pulling, the business of rickshaw owning and renting out is also an informal sector activity. In this milieu of informality, it is of interest to examine the nature of transactions between rickshaw pullers and owner-contractors. Furthermore, from the point of view of the sociology of business, it is of no less interest to find out the socio-economic background of these rickshaw owner-contractors and the sources of their capital, which enabled them to enter into the business.

3. DESIGN AND IMPLEMENTATION OF THE SURVEY

3.1 Objective and Scope of the Survey

In the preceding section, we have given a brief account of cycle rickshaws as a mode of transport in Delhi, its importance vis-a-vis modern modes of transport and the rural, urban composition of rickshaw pullers. We have also drawn attention to the importance of the rickshaw owner-contractors in this sector of transport industry.

In this section, we present in brief the survey design and implementations. We begin the discussion with the objective and scope of the pilot survey. The study is specifically focused on the following: (1) the socio-economic background of rickshaw pullers in north-east Delhi, (2) the economic status of migrant rickshaw pullers' families in the countryside, nature of their in- as well as return- migration, their living conditions in Delhi, their working conditions, earnings and the money they are able to save and transfer to their families back home, (3) resident rickshaw pullers' working conditions and earnings, including their families' incomes from other sources, (4) the extent of poverty among the sample rickshaw pullers, (5) the economics of rickshaw renting business, sources of capital to enter the business, and finally, (6) the nature of transactions between rickshaw owners and rickshaw pullers in this informal sector of the economy. There is also an environmental dimension of the cycle rickshaw sector in which men, out of economic

necessity, use their muscle power as the physical driving force in comparison to fossil fuel used by automobiles. The latter involves emission of green house gases causing environmental pollution. We propose to reflect on this dimension as well in the concluding part of the report.

3.2 The Approach

In the ideal situation for a study based on primary data, we select a representative sample out of the population in question, and then elicit information from that sample of respondents. For this approach to work, it is necessary that the population in question is known, can be listed and the sample can be drawn. This approach is thus useful in cases where the population has a fixed location as in a village or a city ward, or can be really demarcated and listed for the purpose of drawing the sample.

In the present case due to the limitation of time and resource to find the residential location of population of rickshaw pullers, we had no way of listing all of individual rickshaw pullers out of which representative sample could be drawn. We have, therefore, settled down to a pilot survey in the North-East District of Delhi.

Delhi is a large metropolis, with a population of over 16 million (projected for 2006) covering an area of about 1,500 km^2. Its territory is divided into nine administrative districts and thirteen municipal wards under the jurisdiction of the Municipal Corporation of Delhi (MCD), leaving aside the area under the jurisdiction of the New Delhi Municipal Council (NDMC), and the Cantonment Board. As we said, rickshaw plying is not permitted in the NDMC area. In the Cantonment area, the number of rickshaws plying is small. For these reasons, the choice of a survey of rickshaw pullers is necessarily circumscribed to the MCD wards. The North-East District of Delhi is on the left bank of the river Yamuna, to the east bordering the state of Uttar Pradesh (UP).

3.3 The Field Survey

Since we have no prior knowledge of the residential location of the population of rickshaw pullers and migrant rickshaw pullers are a floating entity, coming in and going out of the city frequently, we have settled down to a pilot survey, the procedure of which is as follows.[2] The inferences

[2] In the concluding section of this report, we will discuss how a representative sample can be drawn in

drawn from the data collected through our survey, therefore, can not be applicable to the whole city of Delhi. They can, at best, be exploratory in nature.

At the first stage, we spent some time interacting and consulting with a few rickshaw pullers in the neighborhood within the study area. Consultation with an illiterate, but knowledgeable rickshaw puller, whom one of us has known for several years, was quite revealing of the various facets of this trade, including the business of rickshaw owner-contractors. Drawing on this information, we prepared a set of four questionnaire modules: (1) a basic module to identify, inter alia, whether a rickshaw puller (if interviewed in the field) was a rural migrant or a permanent resident of Delhi, (2) a module for a migrant rickshaw puller covering his socio-economic status at the place of origin, his living and working conditions and income earning conditions in Delhi, (3) a similar although not identical module for a resident rickshaw puller, and (4) a module for a rickshaw owner-contractor on his social status, business operations and their business antecedents.

At the second stage, these questionnaires were tested in the field by interviewing a few rickshaw pullers, and revised in the light of the responses. Prior briefing and testing of the modules in the field enabled our investigators to carry out the field survey with high quality. The actual interviews were conducted in the months of January-February, 2006.

The procedure adopted in the field was the following: Approach rickshaw pullers waiting in groups for passengers at crossings and street corners in the study area; select randomly one or two, tell them about the purpose of our enquiry, motivate them to answer the questions and, if necessary, compensate them for the loss of earning they might incur during the interview time. As for rickshaw owner-contractors, the approach was to locate their residence or their rickshaw stand and interview them as and when available.

In the final stage, the filled-in questionnaires were scrutinised to check whether a respondent's answers were consistent with each other. In a few cases, where answers were inconsistent, these were replaced by new respondents.

Completing this process, we were finally able to cover a sample of 80 rickshaw pullers and 26 rickshaw owner-contractors. Among the rickshaw pullers, 35 turned out to be seasonal migrants from the countryside and 45 were permanent residents of Delhi. It may be noted that the samples

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the next stage of this study based on the findings of the pilot survey.

covered are randomly chosen at the selected crossings and street corners. However, of course, the selected respondents are not necessarily representative of the study area because probabilities of reaching the selected crossings and street corners are not equal for all rickshaw pullers and related owner-contractors in Delhi. In the further study, the sampling points and corresponding number of respondents should be carefully chosen so that the selected samples become representative. Alternatively, if we can make a complete list of rickshaw owner contractors, it is possible to randomly select rickshaw pullers.

3.4 The Study Area

The Study area, where the pilot survey was conducted, falls within the North-East District of Delhi. The adjoining maps give an idea of its location. Over three decades ago, the area was inhabited by villages, practicing agriculture in the flood planes of the river Yamuna. The city has expanded and covered this area since then. It is bounded by the UP state and open to immigrants in search of income earning opportunities in informal sector activities, including rickshaw pulling. Consequently, this district besides being a hub of informal sector activities has a population density of 29,400 per km^2, more than three times the overall density of Delhi which is 938 persons per km^2. In 2001, this district had a population of about 1.8 million in an area of 60 km^2. At the time of our survey, five years later, its population may well be over 2 million, pushing the density still higher (assuming an annual growth rate of 4%). Rickshaw pullers appear to abound in this area transporting people over short distances along the internal streets and by lanes, and also to nearby places across the UP border. The study area is shown in the adjoining maps.

4. SOCIO-ECONOMIC STATUS OF RICKSHAW PULLERS

This section investigates the identity of rickshaw pullers included in our sample. It involves an analysis of some basic information regarding their social and economic background as well as their educational status. As noted in Section 3, the sample consists of 80 rickshaw pullers, 35 of whom are temporary, seasonal migrants, while the rest are residents of Delhi.

4.1 Social Status of the Sample Rickshaw Pullers

Table 4.1 presents the social status of the sample rickshaw pullers. Since all of the sample rickshaw pullers have Hindi as their mother tongue, linguistic distribution is not reported.

According to Table 4.1, out of the total number of respondents, as many as 91.25% happen to be Hindus and only 8.25% belong to the Muslim community. There are no rickshaw puller in our sample belonging to other communities such as Christians and Sikhs. Among the Hindus, 46.25% belong to the lower castes, designated as Scheduled Castes, 5% belong to the Scheduled Tribes and another 45% belong to the Other Backward Castes. Thus, taken together, 96.25% of the total population of migrant and resident rickshaw pullers considered in this study belong to the lower rungs of the Hindu society with practically no presence of the upper castes among them.

The distribution of social status among the migrant rickshaw pullers is very similar to that among the resident rickshaw pullers. According to a formal statistical test, we cannot reject the hypothesis that the distributions are the same between the two groups.

The majority of the sample rickshaw pullers are young. As shown in Table 4.2, 87.50% of them belong to the age group 19-40 years. The average age is 27.46 years, the minimum is 16 and the maximum is 50. The average age is slightly lower among the migrants than among the residents, where the difference is marginally significant according to the *t* test shown in Table 4.2.

Although these rickshaw pullers are relatively young, their educational attainments are extremely low: more than 70% of them are either illiterate or have gone through less than five years of elementary schooling (Table 4.3). However, what is somewhat surprising is that there are a larger number of illiterates among the residents of Delhi than among the migrants from the villages, although the difference in the distribution is not statistically significant.

The average family size of the rickshaw pullers, both migrant and resident, has been reported to range between 6-7 persons including the members living at their original habitat for whom the respondent feels responsible (Table 4.4). The average family size among the migrants is slightly smaller than among the residents but the difference is very small and statistically insignificant.

To summarize the social status of the sample rickshaw pullers, both migrants and residents belong to the lower rungs of the society and have little education. As far as their community, education, age, and family size are concerned, the two groups are very similar.

4.2 Economic Status of the Migrant Rickshaw Pullers

Table 4.5 shows the places of origin of the migrant rickshaw pullers. The majority of them (89%)

are from the UP state while the rest are from Bihar. Within UP, the district of Badaun accounted for the largest share, followed by Baraily, Bulandshahar and Muradabad. Normally it is expected that the migrants would be coming from the regions close to Delhi. However, our data seems to support the idea of "accumulation effect" where the pioneer migrants from any specific place induce the other people of the region to follow the early migrants to the same destination. This can also be called the positive network effect or snowball effect. Since the number of observations is too small to derive definite conclusions on this issue, a further investigation would be desirable in a future study.

A look into the economic status of the migrant rickshaw pullers prior to their immigration provides us with a fair idea of the economic compulsions that possibly led them to make the move to the city. As for land distribution (Table 4.6), 40% of the respondents have reported that their families are landless and another 31% possess only 1-5 *bighas*[3] of land which is too small to sustain a family of six members. The average holding size of the migrant's family is only 2.9 *bighas*.

Table 4.7 shows the distribution of the migrants' family occupation at the place of origin. Notably, none of them have reported that their families were exclusively engaged in cultivation. This is primarily because the holding size, in all the cases, happens to be too small for cultivation to sustain a family of about six persons, especially if the quality of land happens to be low. As high as 57.1% of the respondents have reported that their families were engaged in cultivation along with one or more of the associated activities, such as agricultural labour, non agricultural labour and animal husbandry In other words, all of the farm households combined cultivation with various kinds of additional work in order to supplement their income from cultivation. In contrast, more than 40% of the respondents have reported agricultural labour, non-agricultural labour or animal husbandry to be their sole occupation.

One can reasonably surmise that if the migrant respondents had had a stable and lucrative employment other than cultivation back in their villages, they would not have come to Delhi. As expected, as high as 42.9% of the migrant respondents had been unemployed before they came to Delhi (Table 4.8). Among the employed, wage labour (14.3%) and rickshaw pulling/carting (11.4%) appear to have been their major jobs; the rest seem to have been engaged in assorted low paid tertiary occupations at the village level.

[3] *Bigha* is not a standard measure of area. It varies from region to region. In western UP districts 5-

It is our conjecture that the factors such as poverty and deprivation which supposedly have induced the present migrants to move to a city like Delhi must also had been responsible for the migration of the many of the present day resident rickshaw pullers who for lack of any comparable sources of livelihood were forced to shift to the city and finally settle here. As shown in Table 4.9, 40% of the migrant rickshaw pullers had been working in Delhi for more than six months when the survey was conducted. The rest are spread across various lengths between "less than 15 days" to "about 5 months."

After coming to Delhi, these migrant rickshaw pullers found a way to accommodate themselves in the city environment. Table 4.10 shows the living conditions of the migrants at the time of our survey. Almost 66% of the migrant rickshaw pullers can afford to live in *pucca* houses with latrine and bath facility. The average monthly rent paid for this accommodation has been reported to bes.456.52. In contrast, the rest live in worse accommodations such as Jhuggi-Jhopadi (slum), contractors' rickshaw sheds, and the footpath. Accordingly, these poor rickshaw pullers pay nothing or much less than those living in *pucca* houses. As expected, none of these migrant rickshaw pullers owned a rickshaw so that they had to rent it from a rickshaw owner-contractor.

4.3 Economic Status of the Resident Rickshaw Pullers

The situation of the resident rickshaw pullers appears to have been very similar to their migrant counterparts. Table 4.11 shows the distribution of resident rickshaw pullers according to their main occupation previous to rickshaw pulling. It shows that 33.3% of the respondents had been unemployed while another 37.8% of them had been in some kind of employment in the government or in the private sector. The rest had been engaged in sundry activities of various kinds due to the lack of any regular employment. It would be safe to assert that the very fact they have opted for rickshaw pulling is in itself an evidence that their earlier occupations had been less lucrative than their present occupation of rickshaw plying. The situations for the resident rickshaw pullers thus are similar to those for the migrant rickshaw pullers shown in Table 4.9 in the sense that all of them were unemployed or under-employed previously in non-lucrative jobs. The only difference is that major activities of the under-employed among the migrants are based on agriculture while those resident in Delhi were engaged in petty occupations in the urban areas.

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bigha=1 acre. So one *bigha* is 0.2 acre or 0.08 hectare.

Table 4.12 shows the living arrangements for the resident rickshaw pullers. As high as 82.2% of them live in rented houses in the city or the urban slums. The average monthly rent paid by those living in rented accommodation works out to be Rs.555. Only 13.3% have their own *pucca* houses.

The ownership status of rickshaws is shown in Table 4.13. Five pullers, or about 11% of the sample resident rickshaw pullers, owned a rickshaw. The average age of the rickshaw was 2.85 years. Among the five rickshaws, four were registered at the MCD. The rest (89%) rented a rickshaw from a rickshaw owner-contractor.

4.4 Summary

Rural-urban migration usually results from a complex interplay of social, cultural and economic factors so that it is not always easy to pinpoint one or two factors behind it. In the present case, however, taking the total evidence about the socio-economic status of the migrant rickshaw pullers in their place of origin prior to migration, it becomes fairly clear that social marginalisation and economic deprivation must have provided one of the primary motivations for migration to the city, both to the present migrants as well as to the presently resident rickshaw pullers in the past. It is also reasonable to infer that it is usually the younger members of the family who take the risk of shifting to new environs of city life to take up more challenging occupations, leaving behind the older or less dynamic members of the family to take care of the family land or other traditional occupations that the family may have been committed to over the years.

Having settled as a rickshaw puller, their asset base remains very weak regardless of the puller being a migrant or a resident. The majority of them live in rented houses and pull rickshaws rented from rickshaw owner-contractors. In other words, their income is solely attributable to their labor. How much do they earn from the harsh job? What are their working conditions? These questions will be explored in the next section.

5. EARNINGS AND WORKING CONDITIONS OF RICKSHAW PULLERS

5.1 Working Conditions

The system of working

Typically, rickshaw pullers hire their rickshaws from the owner-contractors on a daily basis by paying fixed, predetermined charges. In our sample, all of the rental contracts were fixed on a daily basis.[4] Table 5.1 shows the distribution of the daily rental fee paid by the sample rickshaw pullers. The first mode is Rs.20 per day and the second mode is Rs.25 per day. The rate of Rs.20 corresponds to the rental for the old variety of rickshaws while that of Rs.25 corresponds to the rental for the new type. The rickshaw pullers mostly use the old type rickshaws, possibly because lower rental rates were charged by the contractors for these. Also the new types are not easily available for rent. Other rentals observed were such as Rs.15/day, Rs.18/day, Rs.22/day, and Rs.30/day, but they pertained to very few cases. The chi-squared test statistics shows that the distribution of the rental fees is not statistically different between migrants and residents. The average rental worked out to be Rs.21.4 per day, which is about 20% of their daily earning.

Table 5.2 shows other characteristics of the hiring arrangement. Approximately 96% of the rickshaw pullers reported that the contractor bears the cost of daily repairs, if any, while in case of major damages due to accident etc., approximately 89% of the rickshaw pullers reported that the cost is borne by the rickshaw puller. In some cases the contractors also extend loans to the rickshaw pullers.

The relationship of a rickshaw puller with the contractor, from whom the rickshaw is hired, is largely informal and is essentially based on trust mediated by some trusted men who could vouch for the reliability of the particular rickshaw puller. As shown in Table 5.3, 97% of the rickshaw pullers reported that a surety man is required to rent a rickshaw. Such a surety person usually belongs to the village of the rickshaw puller or some local person whom the rickshaw puller has come to know after coming to the city and who is also trusted by the contractor. Because of the existence of the surety man, no deposit is demanded by the contractor.

[4] To be more precise, one migrant rickshaw puller out of the total of 75 responded that he hires a rickshaw on the night shift basis. However, his rental fee is the same as others who responded that they hire a rickshaw on the 24 hour basis.

Hours of work

Tables 5.4 and 5.5 show information on the number of hours worked in a day and the number of days worked in the fifteen days preceding the survey. Judging from these numbers, the trade of rickshaw pulling seems to involve hard work. The average hours of work during a normal day is 9.79 hours (Table 5.4). As many as 30% of the sample rickshaw pullers work for 12 hours or more (Table 5.5). To a question about the number of days worked during the last fifteen days, the average number of days worked turned out to be12.40 days (Table 5.4). 80% reported to have worked for more than or equal to 12 days in the last fifteen days. In the survey, we collected information on the reason for taking days off. The most frequent answer was to take time off for rest, followed by sickness. Thus, the non-working days for these rickshaw pullers are not always spent on leisure It is also noteworthy that the rickshaw pullers earn and work more during the harsh months of summer when the commuters prefer to use rickshaws as transport rather than sweat it out walking.

An interesting finding is that the resident rickshaw pullers work less hours per day but more days per week than the migrant rickshaw pullers. The average number of working hours of the residents is 9.30 hours, while that of the migrants is 10.43 hours (the difference is statistically significant at the 5% level: see the note to Table 5.4). Looking at the distribution of working hours, 11.4% of the residents worked more than or equal to 12 hrs per day while 22.2% of the migrants worked the same number of hours (Table 5.5). On the other hand, the average number of days worked during the 15 days preceding the data of enquiry of the resident rickshaw pullers is 13.33 days, while that of the migrants is 11.20 days (the difference is statistically significant at the 5% level: see the note to Table 5.4).[5] By multiplying the two, we can estimate the number of hours worked during the last 15 days: 116.82 hours for the migrants and 123.97 hours for the residents. They are very close and the difference is not statistically significant.

The overall difference in the work patterns of the two sets of rickshaw pullers, perhaps, arises because the migrants come to town for a shorter duration and want to return home with maximum savings with them. This probably motivates them towards harder work per day. At the same time, probably because of their unstable living conditions and less reliable access to rickshaws, they

[5] Our sample of migrant rickshaw pullers includes five who migrated to Delhi less than fifteen days ago (Table 4.9). When these five observations were excluded from the calculation, the average number of working days during the preceding 15 days became 11.83 for the migrants, still significantly smaller than the average for the residents.

cannot work as many days per week as the resident rickshaw pullers do. To examine these conjectures, in Tables 5.4 and 5.5, we also report separate figures for those resident rickshaw pullers who own a rickshaw and those who hire a rickshaw. The work patterns are very similar and the difference was not statistically different. This suggests that the ownership of rickshaw in fact does not affect the work patterns. The ownership may affect the level of earning, which will be discussed in the next subsection.

5.2 Earnings

Net earning per day

Tables 5.6 and 5.7 show information on net earning per day among the sample rickshaw pullers. In Table 5.6, we report three estimates as proxies of income per day per rickshaw puller. The first estimate is based on the information provided by the rickshaw puller about their daily net earnings (the earning from fare minus the actually-paid rent and the actually-paid other incidental expenditures during the seven days preceding the date of enquiry). Since the number of working days during the seven days is less than or equal to seven, in the second estimate, we adjusted for this difference. The third estimate is based on an on-the-spot overall assessment regarding their daily earnings.

Average earnings per day is estimated variously as: Rs.75.33 (the first definition), Rs.80.81 (the second definition), and Rs.110.25 (the third definition). By definition, the second estimate is higher than the first. For 96.25% of the sample, the third estimate is higher than the second. We are inclined to believe that the third estimate is likely to be nearer the truth since the rickshaw pullers may not be able to recollect their earnings of the preceding seven days accurately enough as they are not usually accustomed to keeping accounts for each day. Assuming that they work for all the thirty days in a month, the third estimate in Table 5.6 implies a monthly income of Rs.3,400 to 3,500.

An interesting finding is that the average earning per day is very similar among resident rickshaw pullers owning a rickshaw, resident rickshaw pullers hiring a rickshaw, and migrant rickshaw pullers. All of the three estimates show that the migrant rickshaw pullers earn the largest amount although the difference is only a few rupees and statistically insignificant (see the note to Table 5.6). Since working conditions are similar as shown above, the similarity in earnings between resident rickshaw pullers hiring a rickshaw and migrant rickshaw pullers is as expected. On the

other hand, against the expectation that resident rickshaw pullers owning a rickshaw may earn more than residents hiring a rickshaw because they do not have to pay the rent, the average earnings among these two groups are almost the same. The reason for this finding can be found in the cost structure (see below).

In Table 5.7, the distribution of daily earning is shown. As many as 32.5% of the respondents have reported their daily incomes to be higher than Rs.100. And 42.5% of the total have indicated that their daily incomes range between Rs.91 and Rs.100. Thus, three fourths of the sample rickshaw pullers earn more than Rs.90 per day. In the case of migrant rickshaw pullers, the share of those earning more than Rs.90 per day is higher at 85.7%.

Cost structure of the rickshaw pulling business

In Table 5.8, we compile the rickshaw pullers' earnings out of the fare charged from the customers, the actually-paid rent, and the actually-paid other incidental expenditures during the seven days preceding the date of enquiry. Subtracting the last two from the first and then dividing by seven, the first estimates reported in Table 5.6 are obtained. To infer the difference in the rickshaw pulling business according to the types of rickshaw pullers (resident rickshaw pullers owning a rickshaw, resident rickshaw pullers hiring a rickshaw, and migrant rickshaw pullers), two percentages are reported: earnings and costs relative to the total sample average and the share of costs to the rickshaw fare earning.

In both the measures, resident rickshaw pullers hiring a rickshaw and migrant rickshaw pullers are very similar. Their payment for rickshaw rental accounts for about 20% of their fare earnings. Resident rickshaw pullers hiring a rickshaw and migrant rickshaw pullers spend only 1 or 2% of their fare earnings on other expenditures. Therefore, slightly less than 80% of the rickshaw fares are attributable to rickshaw pullers as an implicit payment to their labor.

In contrast, the cost structure of resident rickshaw pullers owning a rickshaw is quite different. They earn less fares, although the difference is not statistically significant. By definition, these rickshaw owner-pullers do not pay any rent for a rickshaw. However, they pay a non-negligible amount of money on "other expenditures". As shown by the cost shares, about 12.2% of their fare earnings are spent on these expenditures. Because of this payment, net earnings per day among the rickshaw owner-pullers are not significantly different from those among the rickshaw-hiring pullers. Since the net income of these rickshaw owner-pullers should be attributable to both labor

and capital, it is safe to say that they earn less for their labor than the rickshaw-hiring pullers or they earn less for their capital than the rickshaw owner-contractors, whose earnings will be investigated in the next section. The weekly payment of Rs.74 for the other expenditures by the rickshaw owner-pullers is comparable to the payment by the rickshaw owner-contractors.

Daily fluctuation of the earnings

Based on the information we collected on the rickshaw pullers' fare earning, rent payment, and other expenditures during the seven days preceding the date of enquiry, we calculated net income for each day during the week. Figure 5.1 plots the time series for each individual rickshaw puller to investigate the daily fluctuation of the rickshaw earnings. In the figure, twelve rickshaws were randomly chosen from the sample of 80 rickshaw pullers. The figure suggests a big fluctuation. If we choose the next twelve rickshaws randomly, the figure seems similar.

To grasp the level of fluctuation, we calculated two measures: a coefficient of variation (standard deviation divided by mean, both calculated in the direction of time) and the relative size of the range of income fluctuation (maximum minus minimum, divided by mean, all calculated in the direction of time). Table 5.9 shows that the income fluctuation is large: the average of the coefficient of time-series variation is 0.454 and the average of the relative size of the income range is 1.223. Not only the averages are high but also the standard deviation among the sample rickshaw pullers is high, suggesting heterogeneity of individuals' exposure to income risk.

Following Morduch (1995), we can capture the negative welfare costs of these earning risks by calculating how much money rickshaw pullers would be willing to pay to completely eliminate income variability. Mathematically, such an amount of money is represented by *m* which satisfies the following relationship:[6]

$$u(\bar{y} - m) = E[u(\tilde{y})], \qquad (1)$$

where $u(\cdot)$ is a well-behaved utility function, $\tilde{y}$ is a stochastic income and $\bar{y}$ is its mean value. Taking a first-order Taylor expansion of the left-hand-side around m=0 and a second-order Taylor

[6] The variable *m* represents a standard risk premium.

expansion of the right-hand-side around the mean income gives:[7]

$$\frac{m}{\bar{y}} = \frac{1}{2}\underbrace{\left(-\frac{u''(\bar{y})\bar{y}}{u'(\bar{y})}\right)}_{Coefficient\ of\ RRA} \times \underbrace{\left(\frac{\sqrt{Var(\tilde{y})}}{\bar{y}}\right)^2}_{Coefficient\ of\ Var}, \qquad (2)$$

where *RRA* stands for relative risk aversion.

Equation (2) indicates that approximately, the fraction of average income that a household would be willing to give up can be calculated as half of the coefficient of relative risk aversion multiplied by the square of the coefficient of variation of income. According to Morduch (1990) and Fafchamps (2003, p.184), the coefficient of relative risk aversion in Indian households are 1.39 and 1.77-3.10, respectively. Using equation (2), the estimated welfare cost of earning risks is at least 14.3% and can be 31.9% of household income at the mean coefficient of time-series variation.

Among the three types of rickshaw pullers (resident rickshaw pullers owning a rickshaw, resident rickshaw pullers hiring a rickshaw, and migrant rickshaw pullers), the income fluctuation is the highest among the first group. This is because of the lumpiness of "other expenditure" in Table 5.8. Rickshaw-hiring pullers, regardless of migrants or residents, pay a flat fee for the rental while rickshaw owner-pullers do not have to pay the rental but have to pay for the maintenance of their rickshaws from time to time. The difference in payment in the two cases was not statistically significant, however. This may be because our sample size of the rickshaw owner-pullers is very small (i.e., five) and the time-series dimension of our data is also very short (i.e., seven).

The rickshaw pullers are thus exposed to substantial daily income fluctuations. The ownership of a rickshaw does not stabilize their income flow. It is of great interest to investigate how the rickshaw pullers cope with such income fluctuations. Although we do not have data, seasonal income fluctuations are also likely to matter as well This issue, which is beyond the scope of the present study, needs further investigation.

[7] This is the so-called Arrow=Pratt risk premium.

5.3 Consumption Expenditure and Rickshaw Pullers' Perspectives for Alternative Jobs

With income levels estimated above, what levels of well-being are these rickshaw pullers enjoying? One of the most important determinants of well-being is the consumption level. Since the survey on which this report is based was meant to serve as a preliminary one, we did not attempt to collect detailed information on consumption. Instead, we collected information on housing, which was already discussed in Subsections 4.2 and 4.3. It was shown that, although modest, the majority of rickshaw pullers can afford to live in *pucca* houses with latrine and bath facility.

Table 5.10 provides data on the average daily expenditure on food and lodging by the migrant rickshaw pullers. It shows that only 34% of the migrant rickshaw pullers incur an average daily expenditure of Rs.40 and below. The median expenditure is Rs.50 per day and the mean expenditure is Rs.48.7 per day. Combining the distribution of these expenditures with the distribution of daily earning in Tables 5.6 and 5.7, we can obtain a picture of an average rickshaw puller who earns about Rs.100 a day from his hard work of rickshaw pulling and spends Rs.50 a day on his meals and lodging. On an a priori basis, one can surmise that these data certainly indicate a standard of living which is significantly higher than what can be expected among the poor in the countryside.

We can compute the ratio of the expenditure on food and lodging to the total earnings. By looking at the relationship between this ratio and the income level, we can test the applicability of Engle=Schwabe law in the context of the urban poor in Delhi.

To judge the level of well-being from a different angle, we asked rickshaw pullers "if you were to leave rickshaw pulling, what will you like to do in Delhi?" Table 5.11 summarizes their responses. The picture is neither hopeless nor hopeful. The most frequent reply was "wage labour" (25.7% among the migrants and 33.3% among the residents). Working as a rickshaw puller or a wage labourer seems to be a choice between similar jobs. A few respondents failed to give us concrete answers: they replied "no idea" or "any work." Among the migrants, going back to farming is a feasible choice (20%). On the other hand, several respondents listed jobs associated with higher ranks, such as "open shop," "driving," and "service." The sum of these three categories accounted for one fourth of the migrants and one third of the residents.

Since rickshaw pulling is a part of Delhi's transport sector (see Section 2), we expected more

rickshaw pullers to seek for transportation jobs in the formal transport sector, such as truck/bus or auto-rickshaw drivers. However, the number of rickshaw pullers listed these jobs (coded "driving" in Table 5.11) was very small. This shows a substantial segregation within the transport sector. From the viewpoint of the government, as noted in Section 2, automobiles fall within the jurisdiction of the Transport Authority of the Delhi Government, while cycle rickshaws fall within the jurisdiction of the Municipal Corporation of Delhi (MCD). To become a cycle rickshaw puller, no official qualification is required but only an able body, while obtaining a license is a must to become an auto-rickshaw driver. Accumulating know-how in cycle rickshaw pulling through working as a rickshaw puller does not seem very useful to enter the fuel-based transport sector.

On the whole, one can say that the working conditions of the rickshaw pullers are reasonable, notwithstanding the "professional hazards" that characterize this activity. While the trade of rickshaw plying does involve hard work, it yields fairly reasonable incomes comparable to similar activities normally undertaken by the poorer sections of the urban society. It is also noteworthy that this activity, unlike most work in the rural areas, provides employment throughout the year. For these reasons, this activity has acquired importance not only for the urban economy but also as a complementary avenue for employment and earning for the migrating rural poor.

6. SOCIO-ECONOMIC PROFILES AND EARNINGS OF RICKSHAW OWNER-CONTRACTORS

Rickshaw owner-contractors are the basic providers of rickshaws to rickshaw pullers on a rental basis and thereby play a pivotal role in this sector. Very few rickshaw pullers possess their own rickshaws and most of them hire it from the contractors. The contractors operate at different scales depending upon their capacity to invest in acquiring rickshaws. By virtue of their location in the industry matrix, the contractors stand a little higher than the rickshaw pullers in the industry hierarchy.

6.1 Socio-economic Background of the Sample Contractors

Religion, age, education, and family size

The social background of the sample contractors shows interesting differences from the sample

rickshaw pullers. In terms of religious distribution (Table 6.1), out of a total of 26 contractors in the sample, 17 are Hindus and 9 belong to the Muslim community. Among the Hindus, the scheduled castes and the 'other backward castes' account for 29.4% of the total population each while as many as 41.18% belong to the 'others' which presumably, includes respondents from the upper and middle castes also. This provides an interesting contrast to the caste distribution among the rickshaw pullers who came almost entirely from the lower and backward castes of the Hindu community. Similar to the case of the rickshaw pullers, all of the sample contractors speak Hindi as their mother tongue.

The sample rickshaw owner-contractors are older than the sample rickshaw pullers. As shown in Table 6.2, 63.1% of them belong to the age group 31 years and above. The average age is 37.54 years, about ten years more than the average age of the rickshaw pullers.

The educational status of the contractors, in consonance with their status in society, can be said to be marginally better than that of the rickshaw pullers. The proportion of the illiterates among the contractors is 30.8% compared to 45.0% among the rickshaw pullers while the semi-literate account for 15.4% among the contractors compared to 6.3% among the rickshaw pullers. The proportion of the literate among the contractors is 53.9% compared to 48.8% among the rickshaw pullers.

The average size of the families, including those living with the contractors as well as at the place of origin, is 6.36 (standard deviation 2.56), which is about the same as of the rickshaw pullers. The maximum family size is 12 while the minimum is 1.

Beginning of the business

The majority (19 out of 26) entered the business of rickshaw contractors during the 2000s. In our sample, two entered the business during the 1980s and five did during the 1990s. When they entered the business, the average number of rickshaws owned is 17.73 (standard deviation 22.39), ranging from 1 to 100.

Looking at the previous work background (Table 6.4), the largest number of contractors (12 out of 26 or 46.2%) came into their present job from rickshaw repairing work. In addition, 2 out of 26 or just 7.7% became contractors from a background of rickshaw pulling. This seems to suggest that it is rather difficult for a rickshaw puller to become a contractor; only very few seem to be able to

make it. However, we observe instances of rickshaw pullers becoming rickshaw repair mechanics, working for the rickshaw owner-contractor. Taking into account this three-tier step, more rickshaw owner-contractors may have their origins in rickshaw pulling than indicated in Table 6.4. What is of significance is about a half of our sample contractors have previous experiences in the cycle rickshaw business before becoming a contractor.

Besides rickshaw repairing and rickshaw pulling, the contractors had had a variety of background such as daily wage labour, regular employment with the government or private sector, and other kinds of small scale activities including shop keeping (e.g., vegetables, provision stores), tailoring and other businesses (Table 6.4). This finding was a pleasant surprise since it shows that people from rather weak financial status have also been able to acquire enough resources to start such business.

6.2 Operating System

Contractors' production assets

The contractors operate at different scales depending upon the number of rickshaws they own. Table 6.5 shows the distribution of rickshaws among the contractors. As can be seen from the table, there are contractors who own as few as less than 20 rickshaws while at the other end there are the ones who own more than 70. In our sample, there seems to be maximum concentration of contractors in the small and medium range i.e. 20-40; 486 out of the total of 742 rickshaws belong to these groups. The average ownership size is 28.54 rickshaws per owner. This shows an average growth of 61% from the initial ownership size when they entered into this business. In Figure 6.1, the initial and current ownership size is plotted. The majority of them, especially those contractors who entered this business with a smaller number of rickshaws, experienced a positive growth. The largest owner, who currently has 80 rickshaws, reduced the size of his business.

In Table 6.5, summary statistics for the number of rickshaws utilized are also given. In the questionnaire, we asked not only "How many rickshaws do you own? But also asked "How many rickshaws do you normally rent out per day?" As shown in the table, the average number of rickshaws utilized is 16.35. By dividing the latter by the former, we obtain the average utilization rate at 57.3%. However, the average utilization rate may be misleading. As Figure 6.2 shows, the rate of capacity utilization is the highest among the contractors belonging to the smallest size-class and that it systematically declines as the size-class increases. The majority of those owners

having less than 40 rickshaws utilize their rickshaws at the utilization rate of around 60 to 90%, while the utilization rate of those owners having more than or equal to 40 rickshaws is around 40 to 60%. The largest size class (above 70) contractors show a utilization rate as low as 43.75%. Even allowing for the fact that some of the rickshaws have to be kept off the road for repairs etc., such low rates of utilization are difficult to explain. Perhaps, low demand for rickshaws from the rickshaw pullers in certain seasons could be one of the important reasons.

According to respondents, the demand for rickshaws drops drastically during the agriculturally busy seasons and picks up again during agriculturally slack seasons as well as festival times. Information received from informal sources, however, indicates that the contractors often under report not only the number of rickshaws owned by them but also the number they rent out. They do this to avoid payment of registration fees and other municipal charges, which depend upon the number of rickshaws owned and the revenue earned by them. To the extent this is true, it is bound to affect all our estimates concerning operating costs as well as incomes of the contractors. This aspect of the contractors' business needs to be looked into rather closely.

To run the business of a rickshaw owner-contractor, a shed to park their rickshaws is required. Table 6.6 summarizes the information on these sheds. Approximately one fourth of the contractors use closed sheds, while the rest use open sheds. Very few of them (4 out of 26) own their sheds. Most of those contractors who do not own their sheds operate through rented sheds. While only 6 out 26 park their vehicles in closed sheds, some 20 of them use open sheds. Strangely enough, seven contractors have reported operating from sheds, which are neither owned by them nor hired implying, most probably, unauthorised occupation of public land.

The business of renting out the rickshaws

The manner of renting out the rickshaws is informal in the sense that the credentials of the rickshaw pullers are vouched for by men who often belong to the rickshaw pullers' villages or nearby villages and are also trusted by the contractors. In our sample, 24 out of 26 respondents indicated that a trusted man is required to stand surety for them and endorse their reliability and trustworthiness. Sometimes, these interlocutors are local men who are trusted by the contractors and also happen to know the concerned rickshaw pullers. No written contracts are signed nor any deposit money paid by the latter.

Almost all the contractors reported August-November to be the busiest season when there is

maximum demand for the rickshaws from the rickshaw pullers. This seems plausible since this period coincides with the festive season when people travel more frequently and the rickshaw pullers also have more incentive to work since they need extra cash for meeting the expenses for the season. April-July, the summer months have been reported to be moderately busy season since the commuters in this season prefer to use rickshaws for short distances to avoid extreme heat of the city.

6.3 Earnings of the Owner-Contractors

The operation expenses and earnings

Table 6.7 summarizes the operation expenses incurred by the sample contractors. All twenty-six contractors have to spend on repair and maintenance of their rickshaws and this expense accounts for 81.0% of the total cost. It is equivalent to Rs.3,908 per contractor, Rs.136.9 per rickshaw in stock, and Rs.239.1 per rickshaw utilized per month. In addition to this item, costs for rickshaw sheds and MCD charges (fines for violating regulations, bribes paid, registration fee etc.) have to be added, resulting in a monthly expenditure Rs.4,823 per contractor, Rs.169.0 per rickshaw in stock, and Rs.295.1 per rickshaw utilized. In other words, the average contractor owning 28.54 rickshaws and normally utilizing 16.35 of them have to spend Rs.4,823 every month.

The expense for rickshaw sheds depends on the type of sheds. Those who own the shed pay only Rs.125.0 per month, while those who hire the shed pay Rs.900 to 1,000 per month. Therefore, we expect difference in earnings depending on the shed ownership status. This is analyzed below.

Against these expenses, the contractors earn monthly rental income. Since we found it difficult to obtain precise figures for the rental income earned by them, we estimated the gross earning according to the following equation.

$$\text{Monthly rental income} = \text{Number of rickshaws utilized} \times 20 \times 30 \qquad (3)$$

where 20 is the median rate of rickshaw rental (Rs. per day; see Table 5.1), applicable to an old-type rickshaw, and 30 is the number of days worked. Note that the number of rickshaws utilized is the product of the number of rickshaws owned and the utilization rate, so that the higher utilization rate results in a higher estimate for the gross earning.

Applying equation (3), the gross earning of the average contractor (owning 28.54 rickshaws and normally utilizing 16.35) turns out to be Rs.9,807.7 per month. Therefore, we obtain the net earning of the average contractor as Rs.4,983.9 per month. In terms of net earnings per rickshaw, the same assumption led to Rs.174.6 per month per rickshaw owned and Rs.304.9 per month per rickshaw utilized.

The viability of the business

Based on these estimates, we calculate the pay back period (i.e., the number of months required to pay back or recoup the initial investment per rickshaw). This calculation gives us an idea about the viability of the rickshaw rental business. From our data, the average price of the old-type rickshaw as reported by the sample contractors is Rs.4,692 and the average price of the new-type rickshaw is Rs.5,707.

Dividing these figures by 304.9, we obtain the pay back period of 15.38 months for the old type and 18.71 months for the new type of rickshaw. Since the assumed rate of Rs.20/day for a rickshaw rental corresponds to the old type (see Subsection 4.1), the estimated pay back period for the new type is an overestimate. If we use the alternative rate of Rs.25/day for a rickshaw rental, we need to divide 5,707 by 454.86 (Rs. per month per a new-type rickshaw utilized), resulting in the pay back period of 12.54 months. This implies that approximately 12 to 15 months' net earnings would be needed to replace a rickshaw. Considering that the useful life of a cycle rickshaw is said to be about 2 years, the business as conducted by the contractors and therefore the whole trade of cycle-rickshaw pulling seems to be quite viable: the investment in purchasing a rickshaw is paid back much before the end of its working life. The rickshaw owner contractor, in his turn, is able to earn an income, which can sustain a family of five above the poverty level if he has sufficient number of rickshaws running at decent utilization rates.

Using the same information, we can instead calculate the internal rate of return (IRR). Assuming 24 months for the life of a rickshaw as before, the IRR for investing in an old-type rickshaw turns out to be 58% per year and that for investing in a new-type rickshaw turns out to be 28% per year. 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 definitely lower than informal interest rates without collateral (48-120%). Therefore, investing in rickshaws bring contractors moderate returns, confirming the viability and competitive nature of the business.

Income disparity according to the business scale and the shed ownership

Applying equation (3) to all of the twenty-six contractors in our sample, we can obtain estimates for their net earnings. Table 6.8 shows the results, first by the shed ownership status and second by the business scale.

First, the rickshaw owner-contractors who own their shed obtain higher net earnings per business, than those who rent a shed or those who occupy public land in an unauthorised way. This shows the advantage of not paying rent to others for the shed. The difference in means between those who own their shed and those who rent a shed is about Rs.1,000, which is consistent with the average rental fee for the shed shown in Table 6.7. However, because of large standard deviations, the difference is not statistically significant.

Second, the reason why those who occupy public land in an unauthorised way earn less than others is their smaller number of rickshaws owned. In terms of net earnings per rickshaw utilized, those who occupy public land in an unauthorised way earn more.

Third, per-enterprise earnings increase with the business scale measured by the number of rickshaws owned. This is as expected. The difference is huge. The smallest category earns only Rs.2,320 per month, which is not sufficient even for a small sized family. In contrast, the largest owner earns Rs.14,500 per month. The size-earnings disparity is better shown in Figure 6.3. There is a positive relationship between the net earnings per enterprise and the number of rickshaw owned.

Fourth, the average net earnings per rickshaw utilized do not show a definite pattern with respect to the business scale. On the one hand, there is a scale economy attributable to the management of the shed; on the other hand, there is a negative relationship between the rickshaw utilization rate and the business scale. These two conflicting effects seem to cancel each other.

Net earnings shown in Table 6.8 and Figure 6.3 depends on the assumption shown in equation (1). To investigate the robustness of our estimates, we adjusted the equation in two ways. First, as the maximum each contractor can earn, we use the number of rickshaws owned instead of that of rickshaws currently utilized. This increases the estimates of earnings of large-scale contractors, as shown in Table 6.9. However, the basic contrast among the shed ownership status and among the

business size remains the same. Second, considering the possibility that some of the contractors own new-type rickshaws, we replace Rs.20/day by Rs.25/day in the calculation. This increases the estimates for earnings of everyone, but more for small-scale contractors whose utilization rate is high. As shown in Table 6.9, the basic contrast remains the same.

7. SUMMARY AND DISCUSSION

7.1 Well-being of Rickshaw Pullers

Cycle rickshaws provide an important and popular means of transport in the urban, semi-urban and rural areas in practically all parts of the country. Rickshaw plying is essentially an informal activity without any formal organizational structure. Notwithstanding the existence of a licensing system, put in place mainly to restrict the number of rickshaws on the roads of Delhi by the municipal authorities, in reality, there are no entry or exit barriers and the rickshaw pullers do not even have to pay any deposit money to the owner-contractors. The only restriction placed on the owner-contractors is that they need to have their rickshaws registered with the municipal authorities. This, of course, leaves most of the rickshaw pullers free of any legal or administrative hassles for carrying out their trade since an overwhelming proportion of them do not own a rickshaw and instead, hire it on rent from the contractors.

The above characteristics of this trade makes rickshaw plying an easy and attractive option for the rural and urban poor who are in search of an opportunity for earning their livelihood. This activity does not require any particular type of skill nor does it call for any initial investment on the part of the rickshaw pullers. Our data on the socio-economic characteristics of rickshaw pullers in north-east Delhi indicate that they, including the ones who are settled in the town as well as the migrants from the neighbouring rural areas, overwhelmingly belong to the scheduled castes and tribes and other backward castes. Given their low social standing, it is not surprising that their educational attainments are very low with almost half of them being illiterate and the rest having gone through only very few years of schooling in their villages. The economic status before taking to rickshaw pulling was almost desperate. More than 40% of the migrants reported that they had been unemployed in their villages while the others were engaged in very small scale cultivation or other activities like agricultural and non-agricultural casual labour, animal husbandry etc. The resident rickshaw pullers had been engaged in a variety of small activities that they could get by in their neighbourhood to make a living. Overall, this whole class of people had been very poor who

could barely eke out a living by taking up whatever small jobs came their way.

Considering the socio-economic status of the migrant rickshaw pullers prior to their taking up rickshaw pulling as their source of livelihood, we are led to infer that their extreme economic deprivation and social marginalization must have been one of the main causes for their migration to the town in search of a better life. On the other hand, the rickshaw pullers who have taken permanent residence in the city of Delhi, must have found this activity relatively more lucrative than whatever they had been engaged in earlier.

This naturally brings us to the key issue viz., what has been the overall impact of this activity on the levels of living of the rickshaw pullers? Are they able to improve their standard of living compared to the earlier situation? Our estimates, based on the respondents' feedback about their daily earnings during the seven days preceding the date of enquiry as well as on their own on-the-spot estimate of their daily net earnings show that the average daily earning of the rickshaw pullers, both migrant and resident, ranges between Rs.80-110, implying a monthly income of Rs.2,400-3,300. On the basis of overall evidence, this level of earning seems to afford them a much higher level of living than what could have been possible in their earlier occupations in the villages or elsewhere.

That this is so is confirmed by our data on two basic items determining the basic level of living viz., daily expenditure on food and lodging and the type of living accommodation which they are able to afford. The data shows that more than 80% of the resident rickshaw pullers are able to pay an average monthly rent of Rs.555 for their rented accommodation. Almost similar conditions hold for the migrant rickshaw pullers, 65.71% of whom are able live in *pucca* houses with bath and latrine facilities paying an average monthly rent of Rs.456.52. With their average daily income around Rs.80-110, they can, on an average, afford a daily expenditure on food and lodging of Rs.50 (or a monthly expense of Rs.1,500 per individual).

The data published in the National Sample Survey (59th Round) in the report on "Household Consumer Expenditure and Employment-Unemployment Situation in India, (January-December 2003)" can now enable us to compare the levels of consumption expenditure of the rickshaw pullers with that of the all-India average monthly per capita consumer expenditure (MPCE). The Survey reveals that the all-India average monthly per capita consumer expenditure (MPCE) during 2003 was Rs.554 for rural India while for the urban sector, it was 84% higher at Rs.1,022. The report further adds that 50% of the country's rural population have an MPCE below Rs.470

(implying a monthly family expenditure of Rs.470x 5= Rs.2,350, 5 being the assumed number of members in the family) while the bottom 13% have an MPCE below Rs.300 (implying a family expenditure of Rs 300x 5=Rs.1,500). These are all-India averages across the various income groups, from the highest to the lowest, and also across all the states of India which include many states whose MPCE would fall much below the national average. Further, one does not know how much of the MPCE mentioned above is incurred out of debt and how much out of the family's own income. This is a relevant question for the poor households who have often incomes lower than what is needed to survive. It is well known that the incidence of debt is the severest among the poorest households implying a lower income than what their consumption level indicates.

It would not be unreasonable to assume that given their highly vulnerable socio-economic background, the migrant population of rickshaw pullers in the present study would certainly belong to the lower 50% of the rural population, if not to the bottom 13%, implying an MPCE of less than Rs.470 and in some cases even lower than Rs.300. Given this scenario, the daily average expenditure of Rs.50 on food and lodging by rickshaw pullers (which implies an MPCE of Rs.1,500) is certainly above the national average and can be considered to be a definite improvement in their standard of living. Hypothetically, one can say that if out of a monthly income of Rs.2,400-3,300, the rickshaw puller is able to spare Rs.900-1,800 for his family back home after meeting his expenses on food and lodging, it will substantially boost the income of the family in his village, possibly raising them above the poverty level..

The discussion above pertains to the level of living of the individual rickshaw puller. Since the poverty level is defined with reference to a household rather than an individual, we cannot draw any direct inference about the poverty level from the above data. The only indirect indication that we can draw from the above data with regard to the poverty level would be by referring to the savings that the rickshaw puller is able to make over and above his own expenditure on food and lodging. As mentioned above, this amount will be available to him for his family who may be staying with him or may be residing in the village. This in any case will reveal only the partial picture. The full scenario can be seen only if we can add the income of the other members of the family, however small, to that of the rickshaw puller.

In this context, it is significant that the Government of Delhi has declared Rs.24,200 per household per annum to be the poverty line for Delhi. Households having less than this amount as their family income will be designated as "poor," entitling them to receive their food rations at a concessional rate. Our data has indicated that on an average, the rickshaw pullers earn

approximately Rs.100 a day implying an annual income of about Rs.36,000. This level of income of the individual rickshaw puller, thus, definitely puts them significantly above the poverty line. If the income of the other family members are also added to this, as we must, the overall scenario would look much better. Unfortunately, our data does not permit us to undertake the second part of the exercise so that our inference in this regard, at the present moment remains indicative rather than definitive.

7.2 Migration and the Rural-Urban Linkage

One significant feature, which the rickshaw pulling activity shares with many other trades in the informal sector of the urban economy, is its dependence on migratory labour from the rural areas. There are good reasons behind it. Poverty, wherever it exists, is directly related to the lack of availability of adequate sources of livelihood. Wherever people are afflicted by this malaise, they look for alternative sources of livelihood which promise a better level of income and standard of living. The migration of labour from the rural to the urban sector is primarily explained through this reasoning. It is a process through which the rural migrant seeks to share some of the benefits out of the relatively faster growing urban economy. The easiest way for the migrants to enter the urban economy is through the informal sector, which is characterized by extreme flexibility and not bound by any rigid set of rules and regulations of functioning. There are hardly any entry or exit barriers, nor are these occupations demanding in terms of skill and capital investment. Their existence at the periphery of the urban economy is rather unobtrusive and hence not much taken note of by the administrative and the law and order authorities.

Rickshaw pulling is a typical and a very important activity in the informal economy of India which forms a popular option not only among the poor rural migrants but also among the urban poor existing at the fringe of the economy. An important implication of the inflow of the migrant labour from the rural areas is that it generates a reverse flow of earnings back to the rural economy, thereby establishing an important link between the growth of the urban and the rural economies. In fact, even the 'resident' rickshaw pullers retain strong bonds with their kith and kin in the countryside which only goes to strengthen the rural-urban linkages both, at the economic as well as social planes.

Migration anywhere, is a complex phenomenon, driven by multifarious motives. This is equally true of the present case even though, as noted above, in view of their socio-economic antecedents, the rickshaw pullers in our study seem to have been primarily driven by their urge to escape

poverty at their places of origin and seek better earning prospects in the urban areas. Apart from the poor who migrate to meet their needs of subsistence, there are others, not so poor, who migrate to the city to earn some cash for supplementing the incomes of their families or for meeting specific requirements. Quite often, the migrants from the better off families are the ones who are young, better educated and could be spared from farming as there would be enough hands available back home for looking after the farm related activities. The cash needs of the village economy has been steadily increasing for meeting the consumption as well as investment needs and this trend is set to continue in the future with the spread of awareness and growing urban influence in the countryside and this trend is likely to strengthen the motivation for migration from the rural to the urban areas..

In view of the analysis presented above, it appears that cycle rickshaw plying, as an activity, plays a small but significant role in generating additional employment and income at the grass root level and leads to income transfers from the more dynamic urban economy to the lowest rung of the rural economy thereby making a contribution towards alleviating rural poverty and in raising the standard of living at that level. In this situation, it is not surprising that the rural poor have a tendency to migrate to towns and that many of them end up choosing rickshaw pulling as their regular occupation and settle down in the city.

A very important characteristic of the migrant population, as brought out by our study, is that they keep shifting between their village and the town periodically, depending upon their need to earn additional cash in the city and the work and family obligations they need to attend to in their villages. More generally, the migrants come to town during agricultural slack and/or the festive seasons when they need some additional cash to celebrate the occasion and go back to the villages with their accumulated earnings when the agricultural operations like sowing or harvesting, are in full swing. This phenomenon has an important implication for defining the income of the migrant and its relationship with his and his family's standard of living: under such circumstances, the income of the rickshaw pullers cannot be taken on a stand alone basis but should be considered inclusive of his and his family members' incomes in the village. Strictly speaking, the level of living of the family/household of the rickshaw puller, improvement of which may be his ultimate objective, cannot be estimated unless an estimate of the income of the household as a whole is also available. That, however, is besides the scope of the present study.

7.3 The Role of the Owner-Contractors

No discussion about the cycle rickshaw plying industry would be complete without a mention of the role played by the owner-contractors in running the system. The contractors can be described as small entrepreneurs who have risen from rather humble beginnings. Our data indicate that the largest number of them, 12 out a sample of 26, came from the background of rickshaw repairing and the rest of them came from equally or even more modest occupations such as wage labour, vegetable vending, tailoring and even rickshaw pulling. It is obvious that even though most of the contractors have risen from humble beginnings, they must have been distinguished from the rest by virtue of their greater dynamism and higher aspirations to do better in life and take risks.

In terms of their socio-economic status, the contractors are a little better off than the rickshaw pullers. Many of them, for instance, belong to the relatively upper caste Hindu background and as a group are slightly better educated than the latter. There is substantial differentiation among the contractors in terms of the size of their business ranging from those who own less than 20 to the ones who own more than 70 rickshaws. Our data shows that the contractors with larger number of rickshaws in their stock have higher levels of excess capacity in terms of unutilized or undeployed rickshaws. It is not clear from our data as to why the contractors should be acquiring so many more rickshaws than they can profitably deploy. Some information available to us from informal sources seem to suggest that there is considerable underreporting of capacity utilization as well as revenue earned to avoid scrutiny by the municipal authorities. Nevertheless, on the basis of on-the spot observation, we found it to be true that there is considerable amount of seasonality in the demand for rickshaws and the contractors seem to have learnt to take it as a part of the game. However, the contractors also see their rickshaws as assets and they do show a tendency of investing some of their savings acquiring more of them.

Even with the data as we have it, the average monthly net earnings per establishment and per utilized rickshaw work out to be Rs.4,984 and Rs.305 respectively. Using the average monthly net revenue per utilized rickshaw and the prices of new rickshaws (old and new types) we worked out the pay back period of investment in a new rickshaw. For the old type rickshaw, the pay back period works out to be 15.4 months and for the new type rickshaw the figure is 12.5 months. Even though tentative in nature, these figures are significant as they show that on an average, a typical contractor is able to recover the cost of his rickshaw well before it runs out of its working life which is considered to be about two years. Thus we have reasons to believe that the business being run by the contractors is quite viable and to the extent there is underreporting of revenue,

the actual situation is likely to be still better. Our information from the informal sources suggests that the average monthly income of the contractors may well be in the neighborhood of Rs.8,000-10,000, which is in the range of our estimates based on alternative assumptions.

As providers of rickshaws to the rickshaw pullers, the contractors are located at the top of the hierarchy in this sector. They provide rickshaws on rent and perform the all important function of risk bearing for the business, leaving the rickshaw pullers free to pursue their trade of rickshaw pulling on payment of a fixed rental. The tasks handled by the contractors are rather complex as they range from tackling their clients, the rickshaw pullers, the municipal authorities, the police to repairing and taking care of the rickshaws in their sheds. The fact that they do not charge any deposit money from their clients and run their business on the basis of trust rather than any formal contract makes it that much easier for the uneducated, poor villagers to directly get on with their work without any formalities. Had the contractors acted more formally, the whole character of this trade would have been different, possibly, excluding many of the rural poor because of their incapacity to cope with the formal terms of contract including the requirement of depositing security money..

7.4 Policy Issues

Cycle rickshaw plying is an informal activity, which exists on the sidelines of city life. In the smaller towns and some rural areas, however, it is often the most important means of transport for ferrying passengers as well goods. These rickshaws are run by the poor and are also largely used by the poor. Due to their unobtrusive existence, their contribution to the economy has largely escaped the attention of the policy makers. The contribution of this sector in providing pollution free transport to a fairly large population and their role in generation of income and employment at the grass root level has not been sufficiently appreciated. Our analysis has led us to believe that given its positive role in the economy, this sector deserves some amount of streamlining and encouragement from the state so that its potential is fully realized.

Perhaps, the most important step in this direction can be to increase the productivity of the rickshaw pullers so as to enhance their earning capacity. In this context, it may be worthwhile to look at the different ways in which the design of the rickshaws could be improved to make it more comfortable for commuters to travel and also less strenuous for rickshaw pullers to drive. Some thought has gone into exploring this question but there is need for more systematic efforts. It may be useful to examine the possibility of converting human driven rickshaws into power driven ones

by fixing appropriate motors in them. Some initiatives of this kind have been tried but they did not always survive scientific cost-benefit evaluation since the mechanical devices fitted in them did not turn out to be cost effective and fuel-efficient. Two important initiatives in this regard deserve mention: The first was by Anil, K Rajvanshi of the Nimbkar Agricultural Research Institute (PHALTAN, Maharashtra) (2002) and the USAID funded project on "India Cycle Rickshaw Improvement Project" (2001). Both the initiatives aimed at improving the physical shape and structure of the vehicle and also to try to run it with the help of electricity or diesel. The proposed design improvements providing superior comfort for passenger, offering back support, arm rest and sun and rain protection, have received considerable commercial acceptance. The new design uses little or no wood which is expensive and hence it reduces cost. The chair structure allows more passengers to be carried thereby increasing the earnings of the rickshaw pullers. On the whole, the new integral frame is lighter, stronger and cheaper. The innovations in the gear system and attempts to make the rickshaws power driven have so far not found commercial acceptability as they were not found to be robust enough for the weight loads they often have to carry and also the unsophisticated handling by the rickshaw pullers

Another approach can be to encourage rickshaw pullers to become owner-drivers by extending cheap loans and subsidies to them as was done under the Integrated Rural Development Programme. This can help in the growth of entrepreneurship at the grass root level. However, as far as our data shows, net earnings of resident rickshaw pullers owning a rickshaw are not larger than those of resident rickshaw pullers hiring a rickshaw. This fact may dampen the enthusiasm of the rickshaw pullers to own the rickshaws they drive. In fact, the migrant rickshaw pullers who come to the city for short durations will have no reason to want to own the rickshaws which they will find very difficult to look after. However, forming cooperatives of the rickshaw pullers ca be an alternative which needs to be explored.

The possibility of rickshaw pullers moving on to become auto-rickshaw or taxi drivers seems to be remote, at least in the near future, since the former are not linked to the automotive sectors in any way. The two sets of occupations have little in common between them. It does not seem to be a natural path of progression since the automotive sectors require much higher levels of skill and capital than what the poor and illiterate rickshaw pullers can hope to muster. The younger generations, hopefully, with higher levels of education and aspiration may attain such vertical mobility in the future.

Lastly, the present system of regulation, including the laws and by-laws presently in force need

drastic review in order to reduce the harassment which the rickshaw pullers often have to face on behest of the police and the municipal authorities.

7.5 Issues for the Further Study

This report is based on a small-scale pilot survey. Therefore, findings on the cycle rickshaw sector and policy discussions above are very tentative in nature. To provide more definite evidence, both qualitative and quantitative, a further study is needed, which is based on an extended survey. In the extended survey, more detailed information on socio-economic background (e.g., the full occupation history of each rickshaw puller and the information on village economies from which these rickshaw pullers migrated) and on income and consumption/saving is required. Another thing we need to consider in the extended survey is how to obtain a representative sample.

One approach, whose idea came out from the pilot survey, is as follows. If the extended survey is conducted on a larger scale in Delhi, a multi-stage sampling can be designed. At the first stage, select a certain number of MCD wards randomly. In the selected wards, prepare a list of rickshaw owner-contractors with the help of MCD authorities. Note that owner-contractors in a ward have fixed residential/business locations. From this list, at the second stage, select randomly a number of owner-contractors for the purposes of the enquiry. And, at the final stage, select randomly a certain percentage of their client rickshaw pullers, who may turn out to be either resident or migrant rickshaw pullers. This will also ensure that the relative importance of the two groups is reflected in the sample.

This procedure of sample selection admittedly assumes the cooperation of rickshaw owner-contractors, which may not be easily forthcoming since business people of any hue are known to be reticent about passing on information. To derive cooperation, basic findings reported in this paper will be useful, we believe.

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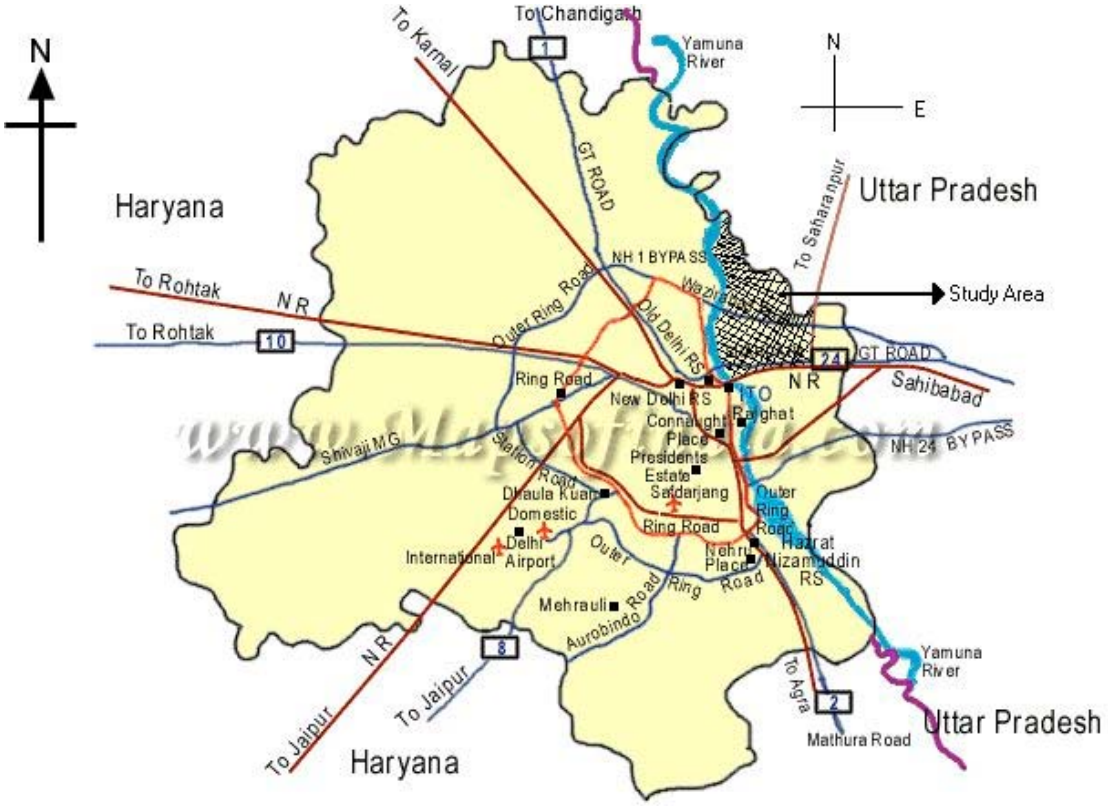
Map 1: The Location of the Survey Site in Delhi Metropolitan Areas



Map 2: The Location of the Survey Site in North-East Delhi

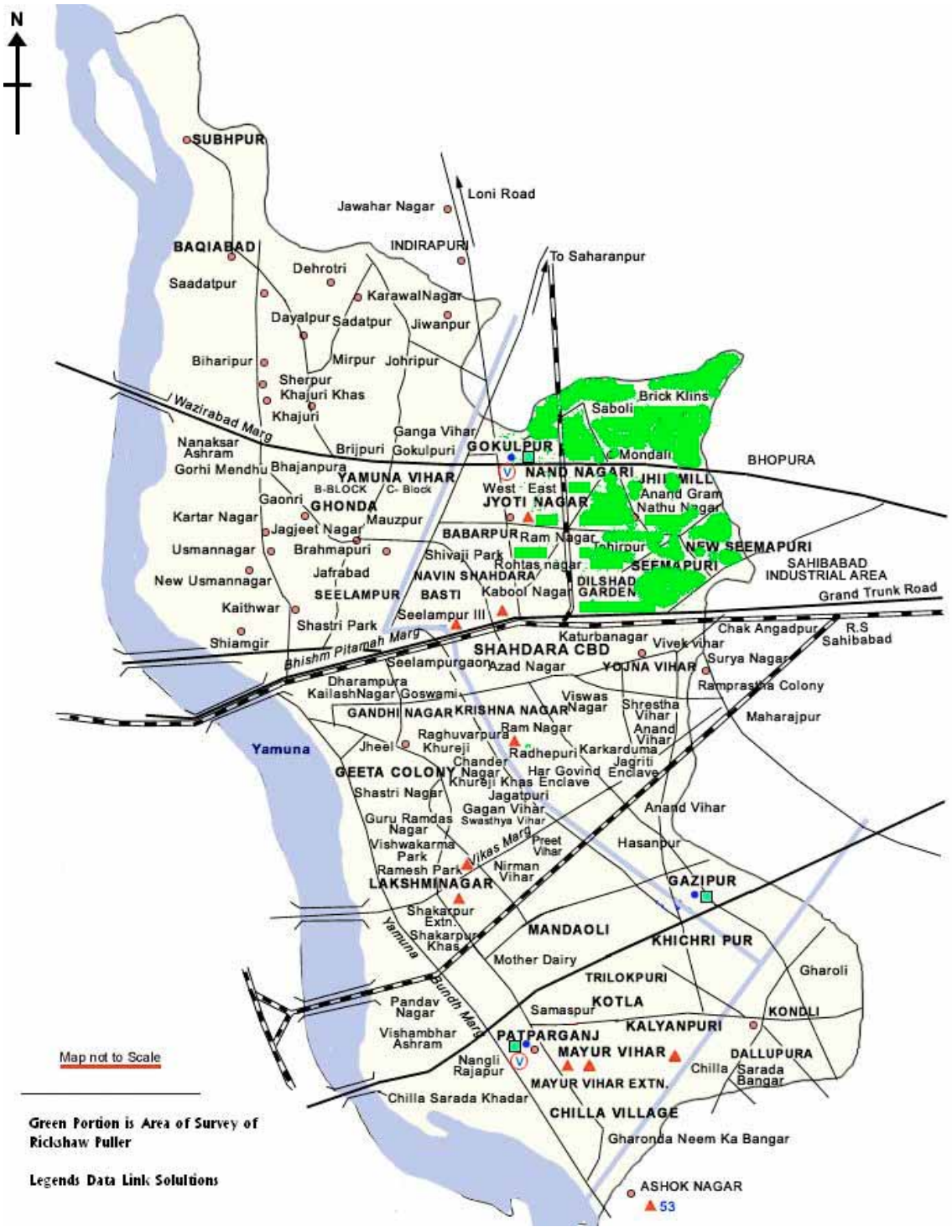


Figure 2.1: Number of Registered Vehicles in Delhi

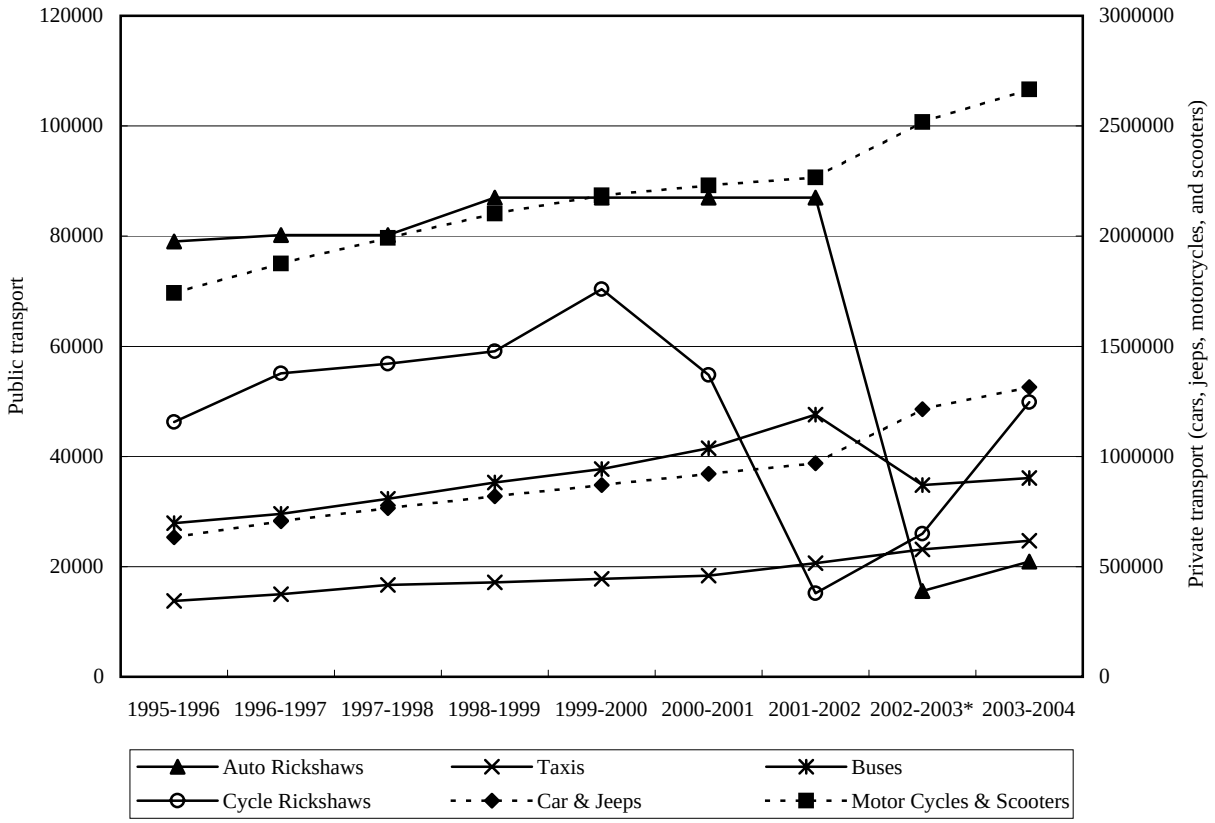


Figure 5.1: Daily fluctuation of income for individual rickshaw pullers

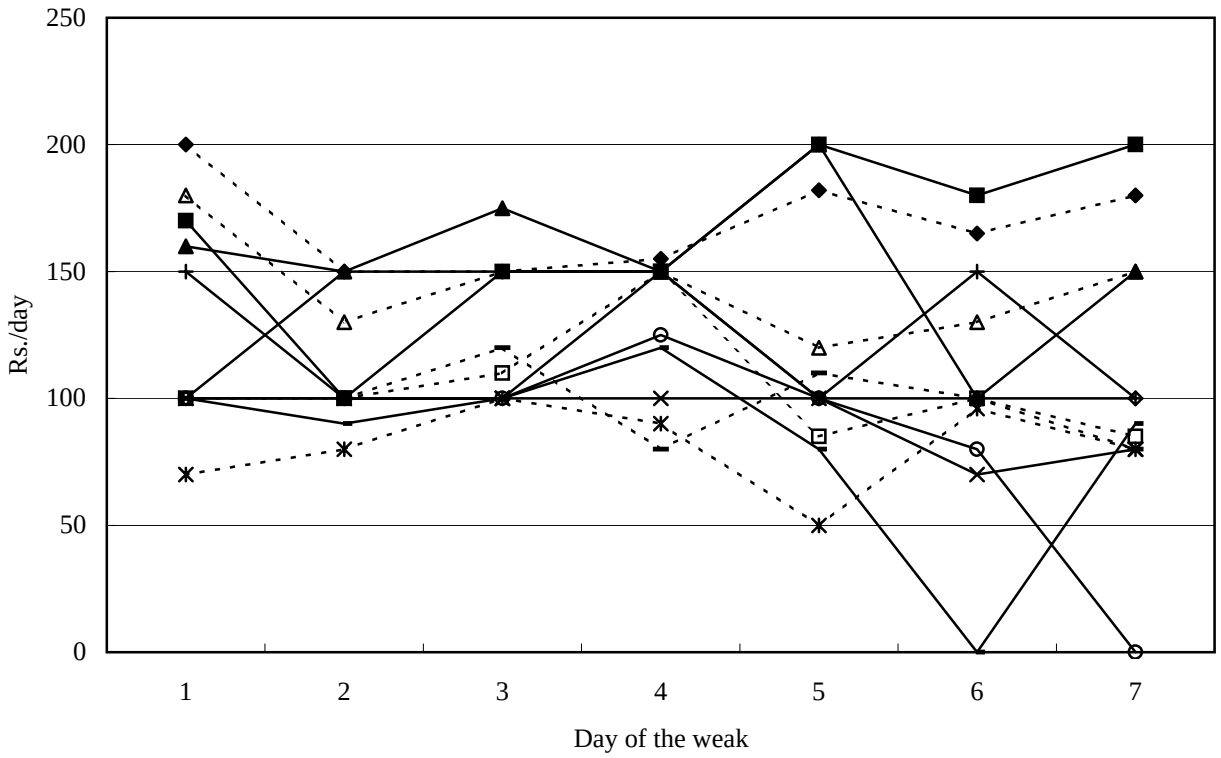


Figure 6.1: Growth of the Number of Owned Richshaws by the Rickshaw Contractors

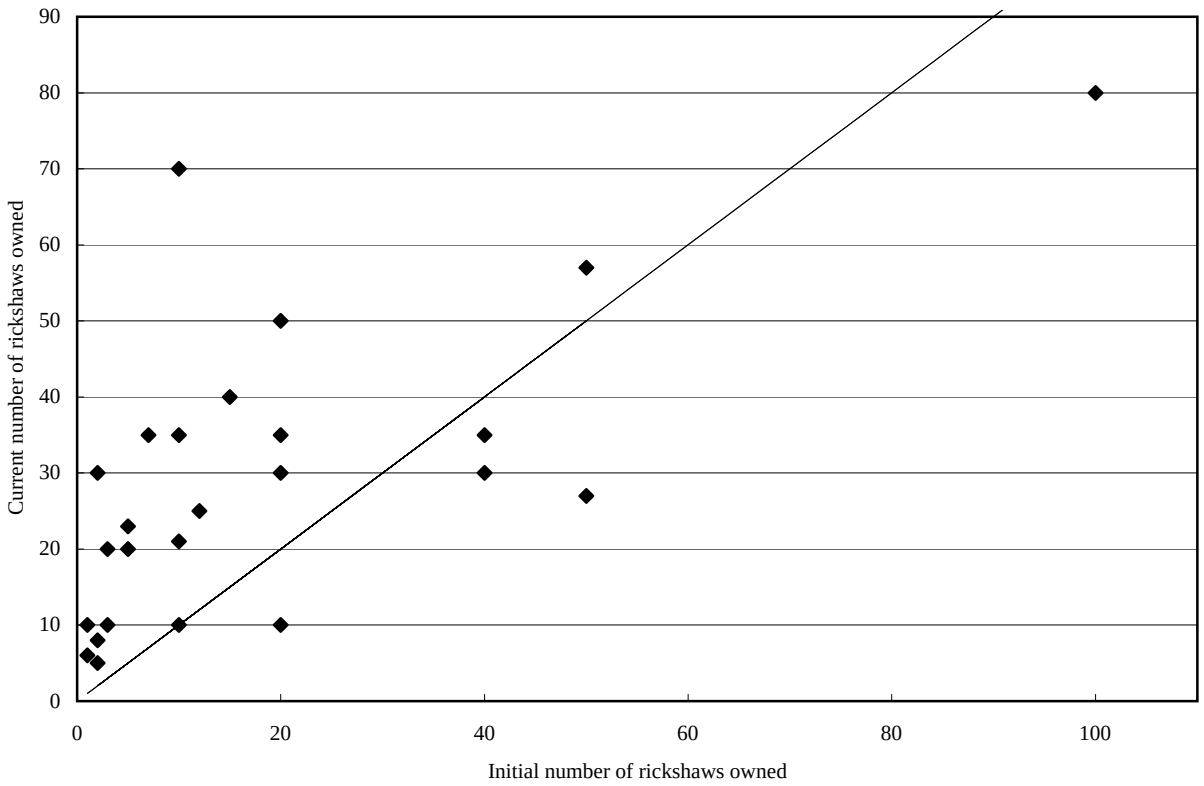


Figure 6.2: Number of Owned Richshaws by the Rickshaw Contractors and Their Utilization

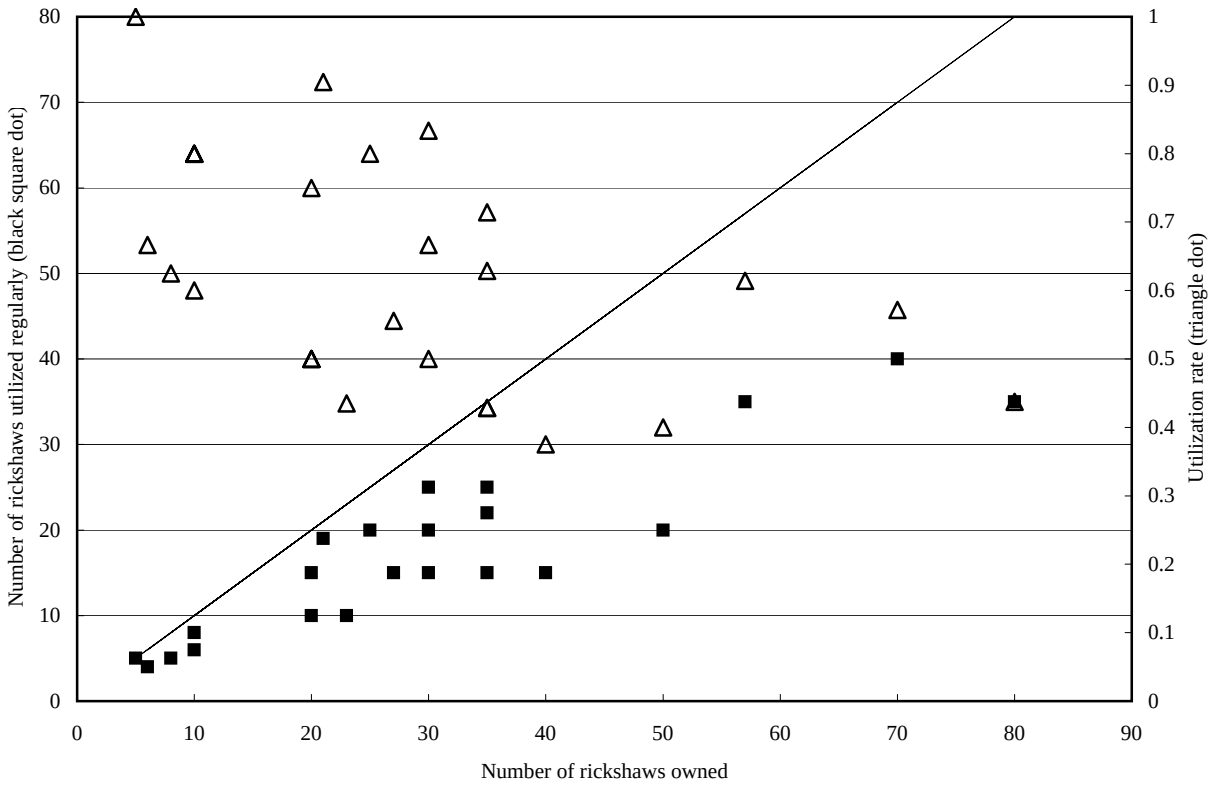


Figure 6.3: Net Earnings from the Rickshaw Business

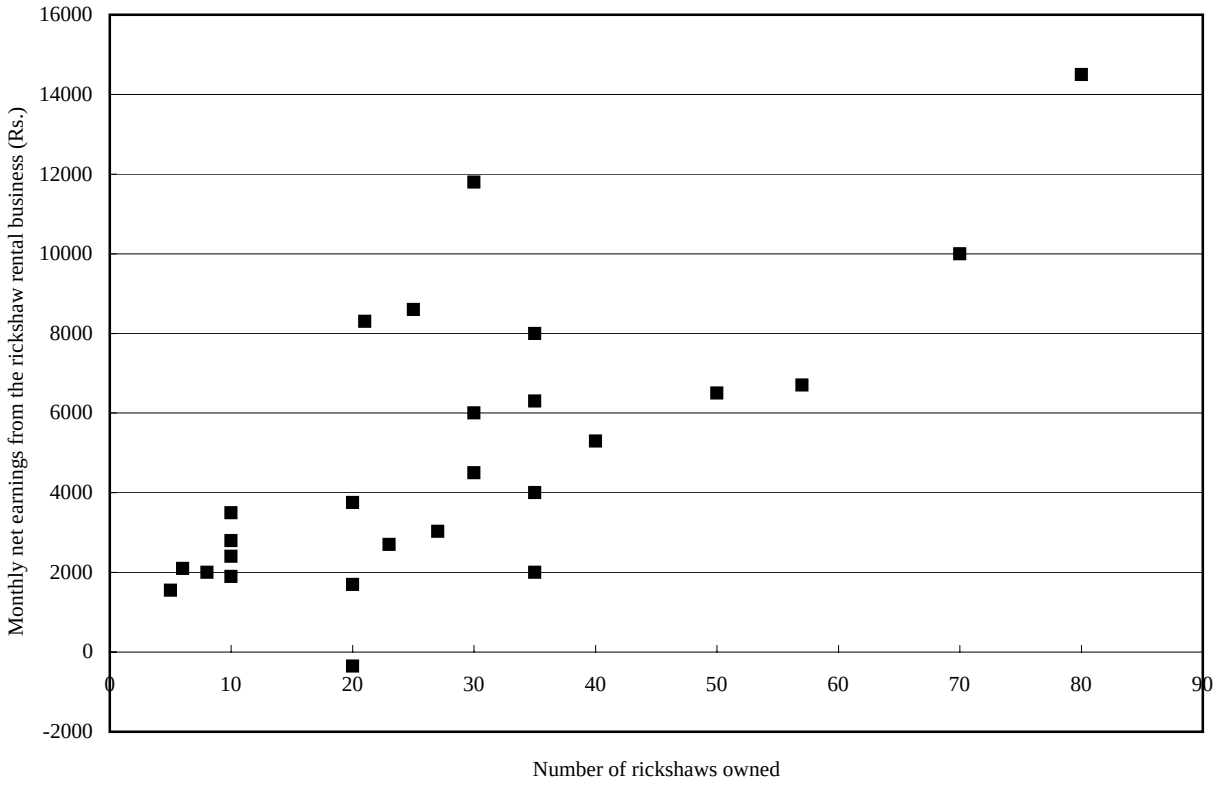


Table 2.1: Means of Transport in Delhi

Items	1990-1991	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003*	2003-2004
Car & Jeeps	-	-	633802	705923	765470	818962	869820	920723	968894	1214693	1314672
Motor Cycles & S	-	-	1741260	1876053	1991710	2101876	2184581	2230534	2265955	2517788	2665750
Auto Rickshaws	-	-	79011	80210	80210	86985	86985	86985	86985	15567	20893
Taxis	-	-	13765	15015	16654	17136	17762	18362	20628	23145	24712
Buses	-	-	27889	29572	32333	35254	37733	41483	47578	34795	36059
Cycle Rickshaws	12383	45778	46231	55075	56849	59071	70401	54791	15182	25998	49838

Note: * This is a year when the CNG regulation was introduced.
Source: Govt. of Delhi (2004) and the information provided by the Municipal Corporation of Delhi.

Table 4.1: Social Status Distribution of the Sample Rickshaw Pullers

	Total rickshaw pullers		Temporary migrants		Permanent residents of Delhi	
	No.	% to total	No.	% to total	No.	% to total
Total rickshaw pullers	80	100.00	35	100.00	45	100.00
Hindus						
Scheduled castes (SC)	34	42.50	16	45.71	18	40.00
Other backward castes (OBC)	33	41.25	14	40.00	19	42.22
Scheduled tribes (ST)	3	3.75	2	5.71	1	2.22
Other Hindus	3	3.75	1	2.86	2	4.44
Hindus, sub-total	73	91.25	33	94.29	40	88.89
Muslims	7	8.75	2	5.71	5	11.11

Note: chi-squared statistics for the independence of religion distribution from the migratory status (d.o.f.=4) = 1.603 (n.s.)

Table 4.2: Age Distribution of the Sample Rickshaw Pullers

	Total rickshaw pullers		Temporary migrants		Permanent residents of Delhi	
	No.	% to total	No.	% to total	No.	% to total
Total rickshaw pullers	80	100.00	35	100.00	45	100.00
Age group (in years)						
Less than or equal to 18	7	8.75	4	11.43	3	6.67
19 to 24	20	25.00	12	34.29	8	17.78
25 to 30	31	38.75	12	34.29	19	42.22
31 to 40	19	23.75	6	17.14	13	28.89
More than 40	3	3.75	1	2.86	2	4.44
Summary statistics of age in years						
Mean	27.46		25.71		28.82	
Standard deviation	7.11		6.88		7.06	
Minimum	16		16		18	
Maximum	50		46		50	

Note: *t* statistics for the same mean of ages between migrant and resident rickshaw pullers (d.o.f.=78) = -1.9758 (prob=0.0517).

Table 4.3: Literacy and Educational Levels of the Sample Rickshaw Pullers

	Total rickshaw pullers		Temporary migrants		Permanent residents of Delhi	
	No.	% to total	No.	% to total	No.	% to total
Total rickshaw pullers	80	100.00	35	100.00	45	100.00
By literacy						
Illiterate	36	45.00	14	40.00	22	48.89
Semi-literate	5	6.25	1	2.86	4	8.89
Literate	39	48.75	20	57.14	19	42.22
of which, by education levels						
Completed 5th Grade	12	15.00	4	11.43	8	17.78
Completed 8th Grade	20	25.00	12	34.29	8	17.78
Completed 10th Grade	7	8.75	4	11.43	3	6.67
Completed 12th Grade	0	0.00	0	0.00	0	0.00
Above 12 the Grade	0	0.00	0	0.00	0	0.00

Note: chi-squared statistics for the independence of education distribution from the migratory status (d.o.f.=4) = 4.677 (n.s.)

Table 4.4: Family Size of the Sample Rickshaw Pullers

	Total rickshaw pullers	Temporary migrants	Permanent residents of Delhi
Number of the sample rickshaw puller	80	35	45
Summary statistics of the family size			
Mean	6.20	6.14	6.24
Standard deviation	2.90	3.19	2.69
Minimum	1	1	2
Maximum	15	14	15

Notes: (1) See the text for the definition of the family size. (2) t statistics for the same mean of family sizes between migrant and resident rickshaw pullers (d.o.f.=78) = -0.1544 (prob=0.8777).

Table 4.5: Origin Places of the Migrant Rickshaw Pullers

	Number of rickshaw	% to the total
Total sample	35	100.00
UP districts	31	88.57
Badaun	7	20.00
Baraily	4	11.43
Bulandshahar	4	11.43
Muradabad	4	11.43
Etta	3	8.57
Shahjhanpur	2	5.71
Other UP districts with only one sample (Agra, Badot, Bharahabanki, Ghonda, Meinpuri,	7	20.00
Bihar districts (Gharkonikbar, Kathaihar, Madhubani, Navada)	4	11.43

Table 4.6: Land Distribution Among Migrants' Families at the Place of Origin

	No. of house-holds	% distri-bution of house-holds	Area cultivated in Bighas					
			Owned	Rented	Share cropped	Total area cultivated	% distri-bution to total area cultivate	Average size of operation
Landless	14	40.00	0.0	0.0	0.0	0.0	0.00	0.0
1 to 2	6	17.14	9.5	0.0	0.0	9.5	5.92	1.0
3 to 5	5	14.29	23.0	0.0	0.0	23.0	14.33	2.9
6 to 10	4	11.43	18.0	9.0	0.0	27.0	16.82	4.2
11 to 15	4	11.43	51.0	0.0	0.0	51.0	31.78	7.9
Above 15	2	5.71	50.0	0.0	0.0	50.0	31.15	15.6
Total	35	100.00	151.5	9.0	0.0	160.5	100.00	2.9

Table 4.7: Distribution of the Migrants' Family Jobs at the Origin Place

	Number of rickshaw	% to the total
Total sample	35	100.00
Cultivation, Agricultural Labour (AL), Non-Agril. Labour (NAL)	4	11.43
Cultivation, Agricultural Labour (AL)	3	8.57
Cultivation, NAL	1	2.86
Cultivation, AL, NAL, Animal Husbandry (AH)	2	5.71
Cultivation, NAL, AH	1	2.86
Cultivation, AL, NAL, AH	3	8.57
Cultivation, AL, AH	6	17.14
NAL, AH	1	2.86
Only AL	1	2.86
Only AH	3	8.57
Only NAL	8	22.86
Other	2	5.71

Table 4.8: Distribution of Migrants According to Main Occupation Before Arriving in Delhi

	Number of rickshaw	% to the total
Total sample	35	100.00
Unemployed	15	42.86
Wage labour	5	14.29
Farming	1	2.86
Rickshaw Pulling/Carting	4	11.43
Tailoring	3	8.57
Vendor	2	5.71
Cobbler work	2	5.71
Any other work	3	8.57

Table 4.9: Distribution of Migrants According to the Timing of Coming to Delhi

	Number of rickshaw	% to the total
Total sample	35	100.00
More than 6 months ago	14	40.00
About 6 months ago	0	0.00
About 5 months ago	1	2.86
About 4 months ago	3	8.57
About 3 months ago	2	5.71
About 2 months ago	2	5.71
About 1 month ago	4	11.43
About 15 days ago	4	11.43
Less than 15 days ago	5	14.29

Table 4.10: Distribution of Migrants According to the Type of Living Accomodation in Delhi

	Number of rickshaw	% to the total	Average rent per month	
Total sample	35	100.00		
Pucca (community/brick house)	23	65.71	456.52	
a. With latrine and bath facility	23	65.71	456.52	
a.i) Shared with others	11	31.43	509.09	**#1**
a.ii) Not shared with others	12	34.29	408.33	
b. Without latrine or bath facility	0	0.00	n.a.	
Jhuggi-Jhopadi (slum)	1	2.86	0.00	
Contractors' rickshaw sheds	7	20.00	128.57	
Footpath	4	11.43	0.00	

Note : #1 Paid jointly by those sharing the accommodation.

Table 4.11: Distribution of Residents According to Main Occupation Before Working as a Rickshaw Pullers

	Number of rickshaw	% to the total
Total sample	45	100.00
Unemployed	15	33.33
Wage labour	8	17.78
Service1	9	20.00
Self Employed		
i) Vendor	4	8.89
ii) Driving	1	2.22
iii) Rickshaw Pulling	3	6.67
iv) Others	5	11.11
Sub-total	13	28.89

Table 4.12: Distribution of Residents According to the Type of Living Accomodation in Delhi

	Number of rickshaw	% to the total	Average rent per month
Total sample	45	100.00	
Living in own			
(i) Pucca house	6	13.33	
(ii) Jhuggi-Jhopadi (slum)	0	0.00	
Rented house (pucca)	37	82.22	555.00
Foot path	2	4.44	0.00

Table 4.13: Ownership of Rickshaws by Resident Rickshaw Pullers

	Number of rickshaw	% to the total
Total sample	45	100.00
Those owning a rickshaw	5	11.11
(i) Of which, registered	4	8.89
(ii) Not registered	1	2.22
Those renting a rickshaw	40	88.89

Table 5.1: Distribution of Rickshaw Rental Contracts among the Sample Rickshaw Pullers

	Total rickshaw pullers hiring a rickshaw		Temporary migrants		Permanent residents of Delhi	
	No.	% to total	No.	% to total	No.	% to total
Total rickshaw pullers	75	100.00	35	100.00	40	100.00
Rickshaw rental fee per day						
15 Rs./day	2	2.67	0	0.00	2	5.00
18 Rs./day	1	1.33	0	0.00	1	2.50
20 Rs./day	47	62.67	23	65.71	24	60.00
22 Rs./day	5	6.67	2	5.71	3	7.50
25 Rs./day	18	24.00	9	25.71	9	22.50
30 Rs./day	2	2.67	1	2.86	1	2.50
Summary statistics						
Mean	21.44		21.69		21.23	
Standard deviation	2.77		2.62		2.91	

Note: chi-squared statistics for the independence of the distribution from the migratory status (d.o.f.=5) = 2.901 (n.s.)

Table 5.2: Charactristics of the Rickshaw Rental Contracts Reported by the Sample Rickshaw Pullers

	Total rickshaw pullers hiring a rickshaw		Temporary migrants		Permanent residents of Delhi	
	No.	% to total	No.	% to total	No.	% to total
Total rickshaw pullers	75	100.00	35	100.00	40	100.00
Conditions applicable						
Repair costs owned by the puller	3	4.00	2	5.71	1	2.50
If damaged, the puller has to pay to the owner	67	89.33	31	88.57	36	90.00
Re-rental of the rickshaw allowed	1	1.33	1	2.86	0	0.00
If needed, the puller can borrow money from the contractor	16	21.33	10	28.57	6	15.00

Table 5.3: Charactristics of the Surety Man for the Sample Migrant Rickshaw Pullers

	Temporary migrants		
	No.	% to total	% to the case the surety man is required
Total rickshaw pullers	35	100.00	
Conditions applicable			
Surety man required to rent a rickshaw?	34	97.14	100.00
The surety may is from own family back home	2	5.71	5.88
The surety may is from own village	17	48.57	50.00
The surety may is a friend made in Delhi	14	40.00	41.18

Table 5.4: Summary Statistics of the Number of Working Hours and Working Days

	Total rickshaw pullers	Temporary migrants	Permanent residents of Delhi		
			Own rickshaw	Hired rickshaw	Sub-total
No. of observations	80	35	5	40	45
(1) Normal working hours per day					
Mean	9.79	10.43	10.50	9.15	9.30
Standard deviation	2.20	2.28	1.50	2.06	2.03
Minimum	5	6	9	5	5
Maximum	16	16	12	15	15
(2) Number of working days during the preceeding 15 days					
Mean	12.40	11.20	14.00	13.25	13.33
Standard deviation	3.84	4.73	1.00	2.80	2.66
Minimum	1	1	13	2	2
Maximum	15	15	15	15	15

Notes: *t* statistics for the same mean: (1) Working hours, between "Own rickshaw residents" and "Hired rickshaw residents" (d.o.f.=43) = 1.4144 (prob=0.1644); between "Temporary migrants" and "Permanent residents" (d.o.f.=78) = 2.3349 (prob=0.0221).
(2) Working days, between "Own rickshaw residents" and "Hired rickshaw residents" (d.o.f.=43) = 0.5854 (prob=0.5587); between "Temporary migrants" and "Permanent residents" (d.o.f.=78) = -2.5514 (prob=0.0127).

Table 5.5: Distribution of the Number of Working Hours and Working Days

	Total rickshaw pullers	Temporary migrants	Permanent residents of Delhi		
			Own rickshaw	Hired rickshaw	Sub-total
No. of observations	80	35	5	40	45
(1) Normal working hours per day (*hrs*)					
hrs <8	6	2	0	4	4
8=<*hrs* <10	31	10	2	19	21
10=<*hrs* <12	19	9	1	9	10
12=<*hrs* <14	20	11	2	7	9
14=<*hrs*	4	3	0	1	1
(2) Number of working days during the preceeding 15 days (*dys*)					
dys <8	10	8	0	2	2
8=<*dys* <10	2	2	0	0	0
10=<*dys* <12	4	1	0	3	3
12=<*dys* <14	24	8	2	14	16
14=<*dys*	40	16	3	21	24

Table 5.6: Summary Statistics of Net Earning Per Day

	Total rickshaw pullers	Temporary migrants	Permanent residents of Delhi		
			Own rickshaw	Hired rickshaw	Sub-total
No. of observations	80	35	5	40	45
(1) Net earning based on the seven days preceding the interview (Rs.)					
Mean	96.33	98.42	86.57	95.72	94.70
Standard deviation	30.49	30.29	8.37	32.54	30.88
Minimum	8.57	8.57	78.57	31.43	31.43
Maximum	200.00	168.86	98.57	200.00	200.00
(2) Net earning based on the seven days preceding the interview adjusted for working days (Rs.)					
Mean	103.18	106.95	91.86	101.30	100.25
Standard deviation	26.11	24.03	5.12	29.01	27.52
Minimum	60.00	60.00	84.29	62.14	62.14
Maximum	200.00	168.86	98.57	200.00	200.00
(3) Net earning based on the respondent's own assessment regarding income per day (Rs.)					
Mean	110.25	114.43	103.00	107.50	107.00
Standard deviation	30.64	27.08	13.04	34.84	33.07
Minimum	60	60	90	60	60
Maximum	200	175	125	200	200

Notes: *t* statistics for the same mean: (1) Based on the seven days, between "Own rickshaw residents" and "Hired rickshaw residents" (d.o.f.=43) = -0.6204 (prob=0.5383); between "Temporary migrants" and "Permanent residents" (d.o.f.=78) = 0.5310 (prob=0.5971).

(2) Based on the seven days adjusted, between "Own rickshaw residents" and "Hired rickshaw residents" (d.o.f.=43) = -0.7192 (prob=0.4159); between "Temporary migrants" and "Permanent residents" (d.o.f.=78) = 1.1409 (prob=0.2574).

(3) Based on the own assessment, between "Own rickshaw residents" and "Hired rickshaw residents" (d.o.f.=43) = -0.2839 (prob=0.7779); between "Temporary migrants" and "Permanent residents" (d.o.f.=78) = 1.0770 (prob=0.2848).

Table 5.7: Distribution of Net Earning Per Day

	Total rickshaw pullers	Temporary migrants	Permanent residents of Delhi		
			Own rickshaw	Hired rickshaw	Sub-total
No. of observations	80	35	5	40	45
Net earning based on the respondent's own assessment regarding income per day (Rs.)					
Rs. =<60	3	1	0	2	2
61 - 70	2	0	0	2	2
71 - 80	4	1	0	3	3
81 - 90	11	3	1	7	8
91 - 100	34	15	3	16	19
101 - 110	2	2	0	0	0
111 - 120	4	1	0	3	3
121 - 130	5	4	1	0	1
131 - 140	1	0	0	1	1
Rs. > 140	14	8	0	6	6

Table 5.8: Cost Structure of the Rickshaw Pulling Business

	Total rickshaw pullers	Temporary migrants	Permanent residents of Delhi		
			Own rickshaw	Hired rickshaw	Sub-total
No. of observations	80	35	5	40	45
Average earnings and costs in the seven days preceding the interview (Rs.)					
Rickshaw fare earning	821.30	845.37	680.00	817.90	802.58
Actually-paid rent for the rickshaw	130.71	139.46	0.00	139.40	123.91
Actural-paid other expenditures such as tyre puncher	16.30	17.00	74.00	8.48	15.76
Earnings and costs relative to the total sample average (%)					
Rickshaw fare earning	100.00	102.93	82.80	99.59	97.72
Rickshaw rent	100.00	106.69	0.00	106.65	94.80
Other expenditures	100.00	104.29	453.99	51.99	96.66
The share of costs to the rickshaw fare earning (%)					
Rickshaw fare earning	100.00	100.00	100.00	100.00	100.00
Rickshaw rent	15.92	16.50	0.00	17.04	15.44
Other expenditures	1.98	2.01	10.88	1.04	1.96

Table 5.9: Fluctuation of Daily Earninigs During the Last Seven Days

	Total rickshaw pullers	Temporary migrants	Permanent residents of Delhi		
			Own rickshaw	Hired rickshaw	Sub-total
No. of observations	80	35	5	40	45
(1) Coefficient of time-series variation (standard deviation divided by mean)					
Mean	0.349	0.369	0.338	0.332	0.333
Standard deviation	0.391	0.494	0.133	0.307	0.291
Minimum	0.000	0.000	0.151	0.091	0.091
Maximum	2.646	2.646	0.461	1.718	1.718
(2) (Maximum income - Minimum income)/(Mean income)					
Mean	0.912	0.958	0.902	0.874	0.877
Standard deviation	0.953	1.235	0.378	0.702	0.671
Minimum	0.000	0.000	0.356	0.215	0.215
Maximum	7.000	7.000	1.273	3.818	3.818

Table 5.10: Daily Expenditure on Food and Lodging by the Migrant Rickshaw Pullers

	Temporary migrants	
	No.	% to total
Total rickshaw pullers	35	100.00
Daily expenditure in Rs.		
Rs.=<20	4	11.43
21 - 30	7	20.00
31 - 40	1	2.86
41 - 50	13	37.14
51 - 60	4	11.43
61 - 70	3	8.57
71 - 80	0	0.00
81 - 90	0	0.00
91 - 100	3	8.57
Summary statistics		
Mean	48.71	
Standard deviation	22.27	
Minimum	15	
Maximum	100	

Table 5.11: Alternative Jobs in Delhi if Leaving Rickshaw Pulling

	Total rickshaw pullers		Temporary migrants		Permanent residents of Delhi	
	No.	% to total	No.	% to total	No.	% to total
Total rickshaw pullers	80	100.00	35	100.00	45	100.00
Alternative job						
No idea	3	3.75	2	5.71	1	2.22
Any work	3	3.75	1	2.86	2	4.44
Wage labour	24	30.00	9	25.71	15	33.33
Vendor	4	5.00	1	2.86	3	6.67
Farming/animal husbandry	7	8.75	7	20.00	0	0.00
Open shop	10	12.50	4	11.43	6	13.33
Driving	5	6.25	1	2.86	4	8.89
Service	10	12.50	4	11.43	6	13.33
Others	14	17.50	6	17.14	8	17.78

Note: Some rickshaw pullers responded with multiple choices. In these cases, the first job is analyzed in this table. chi-squared statistics for the independence of the distribution from the migratory status (d.o.f.=8) = 11.9897 (n.s.)

Table 6.1: Social Status Distribution of the Sample Rickshaw Owner-Contractors

	No.	% to total
Total rickshaw owner-contractors	26	100.00
Hindus		
Scheduled castes (SC)	5	19.23
Other backward castes (OBC)	5	19.23
Scheduled tribes (ST)	0	0.00
Other Hindus	7	26.92
Hindus, sub-total	17	65.38
Muslims	9	34.62

Table 6.2: Age Distribution of the Sample Rickshaw Owner-Contractors

	No.	% to total
Total rickshaw owner-contractors	26	100.00
Age group (in years)		
Less than or equal to 18	0	0.00
19 to 24	2	7.69
25 to 30	5	19.23
31 to 40	12	46.15
More than 40	7	26.92
Summary statistics of age in years		
Mean	37.54	
Standard deviation	10.81	
Minimum	20	
Maximum	72	

Table 6.3: Literacy and Educational Levels of the Sample Rickshaw Owner-Contractors

	No.	% to total
Total rickshaw owner-contractors	26	100.00
By literacy		
Illiterate	8	30.77
Semi-literate	4	15.38
Literate	14	53.85
of which, by education levels		
Unknown	1	3.85
Completed 5th Grade	2	7.69
Completed 8th Grade	5	19.23
Completed 10th Grade	4	15.38
Completed 12th Grade	2	7.69
Above 12 the Grade	0	0.00

Table 6.4: Previous Occupation of the Rickshaw Owner-Contractors

	No.	% to total
Total rickshaw owner-contractors	26	100.00
Rickshaw Repairing work	12	46.15
Rickshaw Pulling	2	7.69
Wage Labour	2	7.69
Employment in Govt. private sector including building construction	3	11.54
Self Employed:		
i) Shop keeping (provision store)	2	7.69
ii) Vegetable selling	1	3.85
iii) Tailoring	1	3.85
iv) Other business	2	7.69
Sub-total	6	23.08
Farming (agriculture)	1	3.85

Table 6.5: Ownership of Rickshaws Among the Rickshaw Owner-Contractors

	Number of owner-contractors belonging to each class		Number of rickshaws belonging to each class	
	No.	% to total	No.	% to total
Total rickshaw owner-contractors	26	100.00	742	100.00
Size class of the number of rickshaws owned				
<20	7	26.92	59	7.95
20 - 25	6	23.08	129	17.39
26- 40	9	34.62	297	40.03
41- 70	3	11.54	177	23.85
Above 70	1	3.85	80	10.78
Summary statistics	Number of rickshaws owned		Number of rickshaws utilized	
Mean	28.54		16.35	
Standard deviation	19.10		9.68	
Minimum	5		4	
Maximum	80		40	

Table 6.6: Rickshaw Stand Sheds Used by the Rickshaw Owner-Contractors

	Number of contractors	Of which, using a closed shed		Of which, using a shed owned by the contractor		Of which, using a shed rented from other owners	
		No.	% Yes	No.	% Yes	No.	% Yes
Total owner-contractors	26	6	23.08	4	15.38	15	57.69
Size class of the number of rickshaws owned							
<20	7	1	14.29	0	0.00	4	57.14
20 - 25	6	2	33.33	2	33.33	3	50.00
26- 40	9	3	33.33	2	22.22	5	55.56
41- 70	3	0	0.00	0	0.00	2	66.67
Above 70	1	0	0.00	0	0.00	1	100.00

Table 6.7: Average Monthly Operational Expenses Incurred by the Rickshaw Owner-Contractors

Expenditure item	Number of contractors who reported positive amount of payment (No.)	Number of rickshaws owned (No.)	Total expenses (Rs.)	Composition share of each expenditure item (%)	Expenditure normalized (Rs.)		
					Per contractor /2	Per rickshaw in stock	Per rickshaw utilized
Repair and maintenance of rickshaws	26	742	101600	81.01	3907.69	136.92	239.11
Repair and maintenance of own rickshaw shed	4	110	500	0.40	*125.00*		
Rent paid for rickshaw							
(i) Open stand	9	261	8300	6.62	*922.22*		
(ii) Stand in shed	6	192	6100	4.86	*1016.66*		
MCD charges /1	16	477	8920	7.11	*557.50*		
Total /2	26	742	125420	100.00	4823.84	169.02	295.14

Notes: 1. MCD charges include fines for violating regulations, bribes paid, registration fee etc.

2. "Expenditure normalized" cells in the "Total" row are divided by the total number of contractors or rickshaws owned or rickshaws utilized. On the other hand, the italic figures are divided by the number of reporting contractors. Thus the sum is not equal to the last row.

Table 6.8: Monthly Net-Earnings of the Rickshaw Owner-Contractors

	No. of contrac-tors	No. of rick-shaws owned	No. of rick-shaws utilized	Summary statistics for the per-contractor net earnings (Rs.)				Average net earnings per rickshaw utilized (Rs.)
				Mean	Std.Dev.	Minimum	Maximum	
Total rickshaw owner-contractors	26	742	425	4983.85	3552.59	-350	14500	304.89
By the shed ownership status								
Own shed	4	110	77	6075.00	3121.30	1700	8600	315.58
Rented shed, paying rental fee	15	479	260	4920.00	3806.66	-350	14500	283.85
Unauthorised occupation of public land	7	153	88	4497.14	3581.05	1900	11800	357.73
By the number of rickshaws owned								
<20	7	59	44	2321.43	651.83	1550	3500	369.32
20 - 25	6	129	84	4116.67	3620.31	-350	8600	294.05
26- 40	9	297	167	5658.89	2920.70	2000	11800	304.97
41- 70	3	177	95	7733.33	1965.54	6500	10000	244.21
Above 70	1	80	35	14500.00	.	14500	14500	414.29

Table 6.9: Monthly Net-Earnings of the Rickshaw Owner-Contractors under Alternative Assumptions

	Average per-contractor net earnings (Rs.)			Average net earnings per rickshaw (Rs.)		
	Rs.20 for each rickshaw utilized (Table 6.8)	Rs.20 for each rickshaw owned	Rs.25 for each rickshaw utilized	Rs.20 for each rickshaw utilized (Table 6.8)	Rs.20 for each rickshaw owned	Rs.25 for each rickshaw utilized
Total rickshaw owner-contractors	4983.85	12299.23	7435.77	304.89	430.97	454.89
By the shed ownership status						
Own shed	6075.00	11025.00	8962.50	315.58	400.91	465.58
Rented shed, paying rental fee	4920.00	13680.00	7520.00	283.85	428.39	433.85
Unauthorised occupation of public land	4497.14	10068.57	6382.86	357.73	460.65	507.73
By the number of rickshaws owned						
<20	2321.43	3607.14	3264.29	369.32	427.97	519.32
20 - 25	4116.67	8616.67	6216.67	294.05	400.78	444.05
26- 40	5658.89	14325.56	8442.22	304.97	434.11	454.97
41- 70	7733.33	24133.33	12483.33	244.21	409.04	394.21
Above 70	14500.00	41500.00	19750.00	414.29	518.75	564.29