

Socioeconomic and demographic analysis of occupational patterns in Delhi slums, India*

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Abstract: Slums are a major concern for the contemporary urban planners, especially in the developing world. They typically represent an imbalance between migration into cities and economic growth of the city. For a long time, governments have tried to improve the quality of life for the slum dwellers, with varying degree of success. Such efforts understate the need to continually understand various aspects of the slum economics. This article is an attempt to comprehend the socio-demographic and economic patterns of the population in slums of Delhi, India. The study employs the use of field survey technique comprising of questions that tapped the education level, income, gender and occupational status of the respondents. The sample consisted of 5053 participants and further classified as working and non-working population. On the basis of the survey, the occupational patterns are analyzed and classified at three different levels (macro, meso and micro). The study reveals high degree of positive correlation between the education level, economic status and gender parity in the slums.

Key words: slums; occupational structure; gender disparity; urban planning

1. Introduction

1.1 State of slums: Global perspective

A slum is an area that combines one or many of the following characteristics: inadequate access to safe water, inadequate access to sanitation and other infrastructure, poor structural quality of housing, overcrowding and insecure residential status (UN-HABITAT, 2001).

Studies reveal that 924 million people or 31.6% of the world's urban population live in slums. Slum dwellers account for 43% of the urban population in the developing regions as compared to 6% of the urban population in developed regions. In 2001, Asia had 554 million slum dwellers, or 60% of the world's total. Projections for the next 30 years reveal that the number of slum dwellers worldwide will increase to 2 billion if no firm action is taken to remedy the situation (UN-HABITAT, 2001).

1.2 State of slums in India

In the Indian context, The Slum Areas (Improvement and Clearance) Act, 1956, defined slum areas as (1) being in any respect unfit for human habitation, or (2) by reason of dilapidation, overcrowding, faulty arrangement and design of such buildings, narrowness or faulty arrangement of streets, lack of ventilation, light or

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sanitation facilities or any combination of these factors, which are detrimental to safety, health or morals.

The population of slums accounted for 24.1% of urban cities with a population above one million in India (Government of India, 2005a). According to 2001 census, 19% of the total population of Delhi lives in slums (Government of NCT of Delhi, 2006). The studies of education in slum areas in India are confined mainly to children's survey focusing on a few slums (Banerjee, 2000). The educational disparity in the urban areas is under-researched in India (Govinda, 2002). Urban poverty level was estimated at 50% in 1996 (Gupta & Mitra, 2002) in notified sample slums in Delhi. After 1980's growth rate of migrants has also increased leading to population explosion in the slums and also emergence of new slums.

1.3 Classification of slums in India

Notified slums: Where the slum is distributed in defined as pockets. In Delhi, the old city of Shajahanbad (walled city) its extension and certain urban villages have been notified.

Unauthorized colonies: These are developed by private colonizers for profit without any regards to the community facilities or basic amenities required for an individual plot. The present population in such colonies in Delhi is nearly 20 lakhs.

Resettlement colonies: They are so called because under Slums Clearance Program (1969-1970), municipality/Delhi Development Authority allotted small plots and developed them in a planned way. Many of these have not yet been occupied and have living conditions where are even poorer than notified slums (Ali, 1991). One surveyed as part of this research was Khayala. The residents of such colonies are allotted *pattas* (title deed for a patch of land) for 5 to 7 years for Rs. 5,000 or Rs. 7,000 respectively and thereafter for a monthly rent of Rs. 6. In Delhi there are 46 resettlement colonies with 15 lakh people.

Squatter/Jhuggi Jhopri Clusters (J. J. Clusters): These are built all over Delhi and are basically illegal. These are conglomeration of houses built without a foundation on public land, on drain sides, on side of railway tracks, on banks of Yamuna River, etc. Such houses are made of straw, mud, loose bricks, tin, wood, corrugated sheet etc. They are haphazardly arranged and are worst among the worst in health and socio-economic status. Recent estimates put the population of these J. J. Clusters to around 18 Lakh (Government of NCT of Delhi 2006).

2. Survey details

2.1 Surveyed slums

The research is based on the survey of below mentioned slums in Delhi covering a population of 5053 individuals:

- Khayala Resettlement Colony;
- Madanpur Khadar;
- Yamuna Pusta-Phase I and Phase II;
- Govind Puri (Notified Slum);
- Kusumpur Pahari (JNU Complex);
- Munirka Village (JNU Complex);
- Priya Kuli Camp (JNU Complex).

2.2 Survey methodology

The occupational analysis of slum dwellers in this research is based on the household survey conducted across the seven slums of Delhi. The occupational structure of the slum dwellers is classified at three different levels:

- Macro-level classification: At this level the workers are classified into formal and informal occupational sectors;

- Meso-level classification: At this level the workers are classified into secondary, tertiary and quaternary economic sectors;
- Micro-level classification: At this level the workers are classified by occupation;
The occupational status of workers is further cross tabulated with respect to the following parameters:
 - Educational level;
 - Income level;
 - Male-female participation or gender disparity: This is analyzed using Modified Sopher's Index. Modified Sopher's index = $\log (X_2/X_1) + \log (200-X_2/200-X_1)$, Where $X_2 > X_1$ always and represent percent male and female population (Sopher, 1974, 1980; Kundu & Rao, 1986).

3. Data analysis and results

3.1 Demographic analysis of the occupational patterns of Delhi slums

Population of the seven slums was classified into working and non-working and the percentage of workers was calculated. The study includes a total 5053 individuals out of which 32.6% are engaged in economic activities. The rest of the population is dependent on working population. Slums having better economic status show higher work force participation, i.e., Khayala resettlement colony shows a work force of 37.4% as compared to Govindpuri J. J. Cluster where the work force is only 28.4% as shown in Table 1.

Table 1 Work classification of the Delhi slum dwellers

Slums		Working population	Non-working population	Total
Govindpuri	Count	270	690	960
	Within slum (%)	28.10	71.90	100.00
	Within work group (%)	16.40	20.30	19.00
Khayala	Count	453	762	1216
	Within slum (%)	37.40	62.60	100
	Within work group (%)	27.40	22.20	23.90
Kusumpur Pahar	Count	172	388	560
	Within slum (%)	30.70	69.30	100.00
	Within work group (%)	10.40	11.40	11.10
Munirka	Count	82	202	284
	Within slum (%)	28.90	71.10	100.00
	Within work group (%)	5.00	5.90	5.60
Madanpur Khadar	Count	173	349	522
	Within slum (%)	33.10	66.90	100.00
	Within work group (%)	10.50	10.20	10.30
Priya Kuli Camp	Count	86	163	249
	Within slum (%)	34.50	65.50	100.00
	Within work group (%)	5.20	4.80	4.90
Yamuna Pusta	Count	411	852	1263
	Within slum (%)	32.50	67.50	100.00
	Within work group (%)	25.00	25.00	25.00
All slums	Count	1,647	3,406	5,053
	Within slum (%)	32.60	67.40	100.00
	Within work group (%)	100.00	100.00	100.00

3.1.1 Macro-level occupational classification

Here the working population is classified into formal and informal sectors. Formal sector is one where the state can intervene directly or indirectly into the matters of the sector. Informal sector is defined to have low level organization with no division between labor and capital, having small scale, existing labor relations are from casual employment and personal/social relation rather than contractual arrangements with formal guarantees' (Husmanns & Mehran, 1999).

The study reveals 72.8% workers in informal sector and 27.2% in formal sector.

Govindpuri: This notified slum has a large percentage (81.1%) of population engaged in informal sector. One major occupation was astrology, i.e., card reading and parrot reciting.

Khayala: This resettlement colony matches the middle class income level of a smaller town. Here both the formal and informal sector contributes roughly 50% of the total workers.

Madanpur Khadar: Having poor standard of living only 22.7% of the total population is engaged in formal sector. Many workers pose as doctors and teachers but the inbuilt fallacy was that these doctors were not the registered medical practitioners but were still categorized in formal sector.

Yamuna Pusta: This J. J. Cluster records a highest percentage of population (85.4%) as informal workers. In Phase-I most of the workers are employed in the fish selling market.

JNU complex: This includes Kusumpur Pahari, Munirka Village and Priya Kuli Camp. Here around 77% to 79% of the working population is engaged in informal sector. These slums show low level of subsistence, low level of income which in turn is reflective of the economic conditions of the slum dwellers (see Table 2).

Table 2 Macro-level classification of workers in Delhi slums

Slums		Formal sector	Informal sector	Total
Govindpuri	Count	51	219	270
	Within slum (%)	18.90	81.10	100.00
Khayala	Count	224	228	452
	Within slum (%)	49.60	50.40	100.00
Kusumpur Pahari	Count	39	135	174
	Within slum (%)	22.4	77.60	100.00
Munirka	Count	17	65	82
	Within slum (%)	20.70	79.30	100.00
Madanpur Khadar	Count	39	133	172
	Within slum (%)	22.70	77.30	100.00
Priya Kuli Camp	Count	18	68	86
	Within slum (%)	20.90	79.10	100.00
Yamuna Pusta	Count	60	351	411
	Within slum (%)	14.60	85.40	100.00
All slums	Count	448	1,199	1,647
	Within slum (%)	27.20	728	100.00

3.1.2 Meso-level occupational classification

At this level, the workers are classified into secondary, tertiary and quaternary economic sectors. The primary sector of the economy is involved in extracting or harvesting products from the earth. Secondary sector of economy is involved in manufacturing finished product. Tertiary sector refers to the service sector and related occupations. Quaternary sector of the economy is involved in intellectual activities.

The primary sector was non-existent in the surveyed slums and hence, it was kept out of the analysis. 54.2% of workers were engaged in tertiary sector providing personal and community services (like the services provided by tailor, barber, clerk, etc.). 38.3% of workers were engaged in secondary sector mainly in manufacturing and construction. The quaternary sector had a meager existence, only 7.5% of the total population was involved in such activities. But the existence of quaternary sector is definitely a sign that the technology is slowly making its way into the lives of slum dwellers with more and more youth getting educated (see Table 3).

Govindpuri: This is a less organized cluster with dominance of informal sector. The area shows a large percentage of population engaged in tertiary sector which help to provide services in the nearby urban colonies. The secondary workers are predominantly engaged as masons. This slum has a negligible population of quaternary workers.

Khayala: Secondary workers constitute the highest proportion of workers in this resettlement colony (57.1%). 15% of workers engaged in quaternary sector show a high level of income and economic standards. The region also reveals a higher per capita income than others.

Yamuna Pusta: With low level of subsistence and poor economic conditions, people are mainly engaged in providing services to suburban areas of Delhi and across Yamuna Settlements.

Madanpur Khadar: The workers here are engaged mostly in manufacturing sector. Service industry also forms a major source of livelihood in this region.

JNU Complex: Priya Kuli Camp and Munirka show a smaller percentage of people engaged in white collar jobs compared with Kusumpur Pahari. Priya and Kusumpur have a high percentage of population engaged in tertiary sector.

Table 3 Meso-level classification of workers in Delhi slums

Slums		Secondary sector	Tertiary sector	Quaternary sector	Total
Govindpuri	Count	106	157	7	270
	Within slum (%)	39.30	53.10	2.60	100.00
Khayala	Count	258	126	68	452
	Within slum (%)	57.10	27.90	15.00	100.00
Kusumpur Pahari	Count	24	128	22	174
	Within slum (%)	13.80	73.60	12.60	100.00
Munirka	Count	28	48	6	82
	Within slum (%)	34.10	58.50	7.30	100.00
Madanpur Khadar	Count	68	100	4	172
	Within slum (%)	39.50	58.10	2.30	100
Priya Kuli Camp	Count	12	73	1	86
	Within slum (%)	14.00	84.90	1.20	100.00
Yamuna Pusta	Count	134	261	16	411
	Within slum (%)	32.60	63.50	3.90	100.00
All slums	Count	630	893	124	1,647
	Within slum (%)	38.30	54.20	7.50	100.00

3.1.3 Micro-level occupational classification

Occupations were divided into following fifteen categories based on reasoned inferences. Similar occupations were grouped together into one category:

- Hawkers and vendors (Class 1);

- Sweepers, rickshaw pullers and washer men (Class 2);
- Cooks, gardeners and painters (Class 3);
- Tailors, barbers and cobblers (Class 4);
- Waiters, wage laborers and security guards (Class 5);
- Carpenters and craftsmen (Class 6);
- Construction workers (Class 7);
- Repair workers (Class 8);
- Salesmen, photographers and video recorders (Class 9);
- Shopkeepers (Class 10);
- Astrologers and social workers (Class 11);
- Factory workers and manufacturing workers (Class 12);
- Drivers (Class 13);
- High class professionals (Class 14);
- Others (Class 15).

The highest percentage of workers was hawkers and vendors; next important category was that of waiters, wage laborers and security guards. Shopkeepers formed the third most prevalent category. A good percentage of workers were engaged as sweepers, washer-men, cooks, gardeners, painters and rickshaw pullers. Rest of the categories occupied only a minor percentage (see Table 4).

Table 4 Percentage wise micro level occupations classification in Delhi slums

Occupations	Slums							
	Govindpuri (%)	Khayala (%)	Kusumpur Pahari (%)	Munirka (%)	Madanpur Khadar (%)	Priya Kuli Camp (%)	Yamuna Pusta (%)	All slums (%)
Class 1	10.70	19.90	5.70	18.30	17.40	8.10	36.70	20.20
Class 2	2.20	0.90	18.40	8.50	14.00	20.90	15.10	9.30
Class 3	6.30	7.10	16.70	15.90	2.90	2.30	4.40	7.00
Class 4	10.70	6.00	4.00	4.90	5.20	1.20	4.40	5.80
Class 5	19.30	3.10	18.40	19.50	22.70	37.20	7.50	13.10
Class 6	1.10	1.80	0.60	0.00	2.30	1.20	1.70	1.50
Class 7	2.20	2.00	3.40	3.70	1.20	7.00	3.20	2.70
Class 8	4.40	2.70	0.00	0.00	0.00	0.00	0.70	1.60
Class 9	4.80	13.70	5.20	8.50	5.80	1.20	1.20	6.50
Class 10	11.90	21.70	4.60	2.40	14.00	15.10	10.70	13.40
Class 11	6.30	0.40	0.00	0.00	0.00	0.00	0.20	1.20
Class 12	8.90	1.80	0.60	1.20	5.80	1.20	8.50	4.90
Class 13	5.20	2.40	9.80	3.70	5.80	0.00	3.20	4.10
Class 14	2.20	14.20	12.60	9.80	2.90	4.70	2.20	7.20
Class 15	3.70	2.40	0.00	3.70	0.00	0.00	0.20	1.50
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Govindpuri: The highest proportion of workers in Govindpuri as are engaged as waiters, wage laborers and security guards. The next important category is that of vendors and hawkers and then came tailors, barbers and cobblers. High class professionals constitute only a minor proportion of the society.

Khayala: This region had a large fraction of shopkeepers and then hawkers and vendors. High class professionals constitute the biggest proportion here when compared with other slums. A small fraction of

population is engaged as sweepers, washermen and rickshaw pullers.

Madanpur Khadar: Waiters, wage laborers and security guards occupy a major section of population in this region. Next important occupation in this region was that of vendors, hawkers, shopkeepers and sweepers. No one was found to be engaged in astrology or as social workers.

Yamuna Pusta: Vendors and hawkers constitute a major proportion, and sweepers constitute the next biggest. Very few people are involved as repair workers and as high class professionals.

JNU Complex: Largest fraction of population is engaged as waiters in Priya Kuli camp. This camp also has the largest fraction of waiters of all the other slums. It also shows highest percentage of, sweepers, cleaners and maids. No one was found to be engaged as driver or repair worker. Within JNU Complex, Munirka has the highest proportion of high class professionals and Kusumpur Pahari has the highest proportion of drivers.

3.2 Socioeconomic analysis of occupational patterns in Delhi slums

3.2.1 Analysis of occupation patterns with respect to educational levels

The majority of the vendors, hawkers, cooks, gardeners, painters, carpenters, craftsmen and construction workers have an educational level up to 10th class. Nearly 50% of sweepers, rickshaw pullers, washer-men, waiters, wage laborers and security guards are educated below 5th class and a very few are educated above 10th class. Nearly 75% of the repair workers are educated below 10th class. Unemployment was also a factor affecting type of occupation. So, although 25% of the sweepers are educated above 10th class, due to lack of skilled jobs they are forced to work as sweepers. Nearly 55% of salesmen, photographers and recorders are educated up to 10th class. Most of the shopkeepers and around 50% of the astrologers and social workers are educated up to 10th class. No astrologer or social worker was found to be educated below 5th class. 50% of the high class professionals have an education level above 10th class.

Overall 44.4% of working population is educated up to 10th class. 30.2% of working population is without education or only educated up to 5th class. Nearly 25% of the total working population is illiterate. Only 25.4% of the working population is educated past 10th class. Many people with higher degrees but without suitable employment have resentment towards the society, increasing the number of anti-social activities in and around the slums.

3.2.2 Analysis of occupational classification with respect to income levels

Nearly 70% of the vendors, hawkers, cooks, gardeners, tailors, painter, barbers, cobblers, waiters, wage laborers and security guards have an income level of less than Rs. 2,000 per month. Nearly 90% of the sweepers, rickshaw pullers and washermen have an income level even less than Rs. 2000 per month. For carpenter and craftsmen income structure is a bit favorable with 58.3% workers having income up to Rs. 5,000 per month. Repair workers, shopkeepers, photographers and recorders are nearly 5% of the workers but have income of more than Rs. 10,000 per month. For most of the construction activities, the wages are less than Rs. 2,000 per month. About 65% of the drivers have an income of Rs. 2,000 per month. Only 7% of high class professionals earn more than Rs. 10,000 per month.

Overall, nearly 60% of the working population has an income of less than Rs. 2,000. 5.2% of the workers have income of Rs. 10,000 and merely 0.8% of workers have income above Rs. 10,000. Inter slum disparity is very high with Khayala having a high income level and Yamuna Pusta with very low income level.

3.2.3 Analysis of occupation with respect to gender participation

Gender participation across occupations was analyzed using modified Sopher's index. Vendors and hawkers have around 80% male workers while sweepers, rickshaw pullers and washermen have nearly 50% male workers.

Cook, gardener, carpenter, painter, waiter, wage laborer and security guard have nearly 90% male workers while astrologers, social workers, repair workers, salesmen, photographers and video recorders have nearly 92%-93% male workers. Tailors, barbers, cobblers and high class professionals have nearly 80% male workers. Overall working population is composed of 83% male workers and 17% female workers.

Vendors and hawkers, tailors, barbers, cobblers, drivers, high class professionals and shopkeepers have low gender disparity. Astrologers, social workers, repair workers, factory workers, manufacturing workers, salesmen, photographers, video recorders, cooks, gardeners, painters, waiters, wage laborers, security guards have very low gender disparity. Sweepers, rickshaw pullers, washer-men, construction workers, carpenters, craftsmen have a high gender disparity (see Table 5).

Table 5 Gender disparity amongst various occupations in Delhi slums

Occupation	Male	Female	Disparity index
Hawkers and vendors	19.5	23.6	0.08
Sweepers, rickshaw puller and washer men	5.3	28.6	0.70
Cook, gardener and painter	7.8	3.2	0.39
Tailor, barber and cobbler	5.6	6.4	0.05
Waiter, wage laborer and security guard	14.9	4.6	0.52
Carpenter and craftsmen	1.8	0.01	2.25
Construction	3.2	0.4	0.91
Repair works	1.8	0.7	0.41
Salesman, photographer and recorder	7.3	2.5	0.47
Shopkeeper	12.5	17.9	0.16
Astrologer and social worker	1.3	0.7	0.26
Factory worker and manufacturing workers	5.4	2.1	0.41
Drivers	4.9	4	0.09
High class professionals	7.1	7.5	0.02
Others	1.5	1.4	0.03

3.2.4 Slum wise analysis of occupation

Govindpuri: The gender disparity is high in this region. Both male and female workers are mostly engaged in services, manufacturing and trading services. The largest fraction of workers in services is educated up to 10th class. A large percentage of workers in trade and communication are educated above 10th class. In communication sector, none of the worker is educated below 5th class.

Yamuna Pusta: Large fraction of the male workers is engaged in wholesale and retail trade, restaurants and hotels, and then in community, personal and social services. Yamuna Pusta has maximum vegetable/fruits and fish sellers. Trade and service sector in this region have low gender disparity. The highest number of workers in this region is engaged in retail and wholesale trade. These workers are more educated than the workers engaged in construction, transport and business services. Maximum number of workers engaged in community and personal services are educated above 10th class. All the workers in Finance and business services sector have education level above 5th class.

Madanpur Khadar: Most of the male workers are engaged in community, personal and social services. More female workers are engaged in business activities than trade activities. Most of the workers have education below 5th class and only the business and manufacturing sector have dominant proportion of workers educated up to 10th class.

Priya Kuli Camp: Most of the male workers are engaged in community, personal and social services, wholesale and retail trade. Most of the workers are educated below 5th class. Business and finance is the only sector with very few workers especially those above 10th class educational level.

Motilal Nehru Camp: Most of the workers are engaged in community, personal and social services, wholesale and retail trade. Overall educational level is poor. Workers engaged in trading activities have higher education level with most of the workers educated up to 10th class.

Kusumpur Pahari: Male population is mostly engaged in services, trade, transport and storage. Female population is mostly engaged in service sector with few engaged in trade and construction. The largest percentage of workers is educated below 5th class.

Khayala Resettlement Colony: The male workforce is mostly engaged in trade, services, finance and business. Female workforce is mostly engaged in business and service sectors. There is no participation in construction, storage and transport activities. This slum has the minimum percentage of people educated below 5th class. High percentage of workers is engaged in services, trade and business activities.

4. Conclusion

Khayala Resettlement Colony has the largest fraction of skilled workers with high educational level as compared with Govindpuri and Yamuna Pusta. Workforce gender disparity is also low in the better off colonies where more freedom is given to women.

References:

- Ali, S.. (1991). *Slums within slums*. Vikas Publication House, New Delhi.
- Banerjee, R.. (2000). Poverty and primary schooling: Field studies from Mumbai and Delhi. *Economic and Political Weekly*, 35(10), 795-802.
- Government of NCT of Delhi. (2006). *Delhi Human Development Report 2006: Partnership for Progress*. New Delhi: Oxford University Press.
- Government of India. (2005a). Census of India 2001 slum population (640 Cities and Town Reporting Slums). *Census of India*, New Delhi.
- Govinda, R.. (Ed.). (2002). *India education report*. New Delhi: Oxford University Press.
- Gupta, I. & Mitra, A.. (2002). Rural migrants and labour segmentation: Micro-level evidence from Delhi slums. *Economic and Political Weekly*, 37(2), 163-168.
- Husmanns, R. & Mehran, F.. (1999). Statistical definition of the informal sector-international and standards and national practices. *Bulletin of the International Statistical Institute*, 52 session, Tome, Finland.
- Kundu, A. and Rao. (1986). Inequity in educational development: issues in measurement, changing structure and its socio-economic correlated with special reference to India. In: M. Raza (Ed.), *Educational planning: A long term perspective*, New Delhi: NIEPA and Concept Publishing Company.
- Sopher, D. E.. (1974). A measure of disparity. *Professional Geographer*, 26, 389-392.
- Sopher, D. E. (1980). Sex disparity in Indian literacy. In: Sopher (Ed.), *An exploration of India: Geographical perspective on society and culture*. New York: Cornell University Press.
- UN HABITAT. (2001). *State of the world's cities report 2001*. Nairobi.

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