Measuring well being of the people living in Slums of Islamabad by Wealth Index and by household deprivations as an application to Human Development Index (HDI)

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Abstract

In Pakistan and across the world, slums have been the characteristics of urban setting. Almost every slum setting exits across the boundaries of cities but in Islamabad, slums are right at the center of urban sectors and they are inhabited particularly on banks of riverine nullas. Notwithstanding, CDA has approved these slums. People started to dwell here from early 1960s and after 1997 CDA has regularized the slums covered under present study. Regularization provided inhabitants the right to build houses and live as legitimate member of the community. What particular socio-demographic characteristics they have, how households are distributed between and across communities, in terms of wealth index, and what patterns of household-level deprivations exit in all of these communities are the target of this research work. Findings show that wealth index varies within communities e.g. G7/1 slum is found as inhabiting largest poorest segment and G7/2 inhabiting largest richest segment of households. Household deprivations vary from 38 to 54 percent. In overall, about 45 percent of the total population is excess population that shows that these slums are over populated. It has been found that demographic transition has already been started for these communities, therefore, poverty and household deprivations have implications for their future socio-economic and demographic characteristics. Excess population, bad management of solid waste disposal, and polluted water are other crucial issues that will ultimately challenge the future settlement conditions at each slum and have strong policy implications.

Introduction

In Pakistan, the socio-economic data and research that are available reflect the trends that do not include community wise statistics/evidence. Policy making in Pakistan is unable to know what particular trends are undergoing in underdeveloped communities like slums in Islamabad.

The people living in slums cannot be left blank in policy documents. This study makes efforts to formulate it convenient to know what particular trends these people have in terms of demographic dynamics, poverty (economic wellbeing), and deprivations (household level). All these indicators are vital in terms of their specific place in the Millennium Development Goals. Evidence, all over the world, has proved that communities with better socio-economic indicators have better performance in terms of education, health and wellbeing. Henceforth, this research is fostering to get the statistics/evidence that could be used to tell policy makers about majority of the people living in Islamabad slums about their socio-economic wellbeing.

What are slums of Islamabad?

Islamabad was the first city in Pakistan during 1970s to be architected according to the pre-define Master Plan. The construction of a new city from scratch provided millions of jobs for different workers. Most of them travelled from all parts of the country. The real impetus for the migration of workers from different parts of the country was the economic opportunities in the construction work. Christians, now living in slums as a majority, were those who jumped into the opportunity in the Capital Territory, even as street cleaners. Later, as the people from the Christian communities started to dwell, most of their relatives, friends, and family members started to migrate from the Punjab province to escape poverty, religious resistance and to enjoy extended work opportunities. This is evident from the report produced by Dawn (2011), stating,

> *Shazad Masih is an office boy in Blue Area, Islamabad. He is one of the thousands that live in Islamabad`s slums. "We have negligible facilities here, but my parents say that this is the best we have because we cannot go back," said Masih. "We belong to Samundri, district Faisalabad. My mother and father left when I was very young and came to this slum in G-7,"*

On the broader framework, the people living in slums of Islamabad could be attributed as a 'class' because they all have the common social, economic, or educational status (Wright, 2003). Even their political status is common.

According to the 1985 Katchi Abadis policy, eleven Katchi Abadis of Islamabad were those to be regularized. Regularization means relocation or up-gradation. During 1997, Federal cabinet

took notice of extending slums of Islamabad and advised CDA to take practical steps to solve the issue of slums. The slums that were inhabited on CDA designated residential or commercial areas were selected for relocation and those that were on riverine nullas like studied in this research were selected for up-gradation. Slums selected for up-gradation were given their right to exist and were ensured to given essential social services and commodities like housing, electricity, sewerage etc.

Scope of the study

Scope of this study is limited to the socio-economic profiles of majority population living in CDA accredited slums. The study on Slums of Islamabad is first ever of its kind study that focuses to map out the socio-economic indicators. What particular trends have been there in terms of people's socio-economic status and how households are divided in terms of poverty and household deprivations are the examples of many questions that would be answered by this study.

Background (Literature Review)

According to the literature review, only two exclusive studies were done on the slums of Islamabad. One was done by the 'National Institute of Population Studies (NIPS)' in 1996 and the second was done by 'Akhtar Hamid Khan Resource Center (AHKR)' in 2008. The first study collected data on household and family planning indicators. In literature, this is the only study on the subject of these slums. While the second study examined the legislative and administrative issues pertaining to relocation, up-gradation and other issues that pertain to the shelter, housing rights and status of social amenities rights.

Urbanization is a continuous phenomenon and Pakistan's total urban population is about 37 percent and it's growing annually at the rate of 3.97 (Economic Survey of Pakistan, 2010-11). The slums, the survey was completed in, are all officially recognized by the government. CDA has a fully functional department that takes care of the matters of the slums of Islamabad.

After regularization of the slums in Islamabad, there were many development initiatives in order to mechanize the life in these dwelling settings. People were allotted plots and were given loans on low interest rates to construct houses. However, what were the official policies, how much they were implemented and what are their outcomes is beyond the scope of the thesis.

The average annual rate of change of urban percentage for Pakistan was 1.20 during 2005-10 (UN-HABITAT, 2009) and total slum population of the Pakistan was estimated to be 47.0 percent[1] of its total urban population (58487, 000) in 2007. The total slum population of the world was estimated to be 1 billion in 2006 and the current rates will make it double in 2030 (UN-HABITAT, 2003), unless tackled innovatively.

According to the Global Urban Indicators (2009), the people living in slums of Islamabad have access to piped water (57.7%), sewerage (82.9%), telephone (61.5%), and connectivity to electricity (99.5%). These statistics are based on a survey done in 2006, UN-HABITAT used to report.

According to the National Katchi Abadi Policy 2001, CDA developed modern urban shelter project. According to this project, most of the slums of the Islamabad were relocated to Ali Pur Farash where they were given their rights to own land and construct houses. According to Dawn November 29, 2003, a demonstration was held by residents of modern urban shelter project for the implementation of National Katchi Abadi Policy and for the provision of basic amenities. Again in Jan 2012, Dawn reported a protest by the inhabitants for modern urban shelter project for the availability of basic amenities. Since the project by CDA was aimed to encourage most, if not all, to migrate to the Ali Pur Farash but the provision of better facilities and basic amenities might the core object in the way to move.

In order to ascertain the economic situation of the communities, the most fundamental issue remains the collection of expenditures data by HHs for the calculation of income. Even that data are collected, still there are limitations and assumptions associated with the calculation of poverty lines (absolute or relative poverties). Expenditures are mostly asked from one of the adult HH member that may not be able to provide accurate information on the expenditures because other adult HH members might have different income expenditure patterns. Wealth Index, developed first time by Shea Oscar Rutstein around 1996 (Rutstein & Johson, 2004) to group the HHs by their economic status, is widely accepted and considered as a proxy to the HH expenditures data to measure the economic situations of HHs.

[1] This percentage is estimated by UN by using the HH data of Pakistan using four slum indicators (improved water, improved sanitation, durable housing and sufficient living area).

Different studies were done on slums of Karachi because slums in Karachi have the highest growth rate. Aga Khan University has the extensive work on reproductive health of women living in slums of Karachi. In Islamabad, no any work has been found for Christians living in slums. This segment of population is a minority in Islamabad because the total population of these slums was only 1.2 percent of the total population of Islamabad in 1998 (Islamabad Census Report, 2000). The reproductive behavior of monitories might be different from that of mainstream population. Monitories always try to enhance their participation by taking up the fertility flight with high altitude but this is an assumption.

Theoretical connotation of the study

Basic economic theory is the basis for the recent developments in the field of economics. Since neoclassical theory better postulates the current economic development paradigms across the world, the work done under this study found a strong relation with the neoclassical theory by emerging the concept of utilities. The concept of utility varies by imposition of different subjects and their underlying theories. Utilities are the public services like water supply, electricity and transportation and in pure economic terms, these are the measures that have to be maximized in any situation involving choice (WordWeb Pro). In this analysis, utility means the services and the customers' choices (household belongings, e.g.) that they perceive have to be maximized in any situation in order to maintain their 'standard of living'. 'Standard of living' has been used by Pigou as synonymous to 'welfare economics' (Sen, 1939). This implies the link of this study to the theory of 'Economic Welfare' by Pigou (1932) presented in his first published book in 1920 'The Economics of Welfare'. Pigou defined the 'economic welfare' as 'that part of the social welfare that can be brought directly or indirectly into relation with the measuring-rod of money' (Pigou, 1952: cited by Sen, 1984). This means that people who have money to ensure access to maximum utilities which they choose for themselves should have better 'standard of living'. This also leads to import basic concept of 'social choice theory' that says, in words of Amartya Sen (1977) that 'social choice theory' is concerned with relationship between individuals' preferences and social choice.

As discussed above, the rationale for linking this study with the 'neoclassical theory of economics' is the implementation of this theory at micro level in order to get theoretical objectives of the study. As Mookherji and Ray (1999) puts on the theory of economic

development, linking the Rober Solow's work, that by adhering to the law of diminishing returns and 'assuming that saving patterns and fertility rates are the same across countries [communities][2], per capita incomes [income and/or saving] in poor countries [communities] should grow faster, and eventually living standards in all countries [communities] should converge'.

Different types of social sciences' subjects emerged to a composite subject of development studies during the last phase of 20th century. This was due to the development of some new theories that better represent the human development out of context of traditional subjects of sociology and economics. This process was vice-versa. The most important work by Amartya Sen and other development theorists have recognized the theory of human development in the different perspective to social and economic theories. The most important is the Sen's Capabilities' Framework. The debate on 'Standards of Living' has emerged as a measure of human development at individual and household level (Williams, 1987). Currently standards of living are used to measure the household level development in terms of durable household possessions. By taking a forward step, DHS Measure have used the advance statistical technique of Factor Analysis (Principal Component Analysis) to give weights to every durable possession of a household to categorize the household as poor or wealthy in an index called Wealth Index. DHS Measure compared the findings of Wealth Index with the surveys that were conducted across world to measure the poverty prevalence, both absolute and relative and found that Wealth Index is a better measure of poverty (Rutstein & Johson, 2004). Henceforth, Wealth Index has been in use as a proxy determinant of household poverty and the work on 'Standards of Living' ended in a proxy measure of poverty at household level.

Townsend et al (1987) had first time developed a disadvantage and deprivation index that account for the four variables that deal with unemployment, non-home population, non-car population, and overcrowding. Townsend deprivation index does not provide any link to human development to be used as an application to HDI, however, Sanusi (2008) have utilized some four broad variables to measure household level deprivations as an application to HDI. The theory of Human Development as presented by HDI has found some harsh criticism. First of all,

[2] This is what I refer to the imposition of the macro explanation to the micro level i.e. from countries to communities as target population is divided into communities in itself and if they all are aggregated to be one community, their difference and comparison with other urban areas could be considered.

it does not adhere to the Sen's Capability Framework (Sen, 1984) that points to ensure full human capabilities so that human development could be measured in that term as well. Human capabilities mean that there should not be any political, ethnic, religious or any other type of imposition of rules that restrict rights and freedom of individuals. This is the debate by Sen (1984) where Pigou's economic welfare has been given reconsidered adding 'freedom' along with 'opulence' and 'utility' to measure 'standard of living'.

During 1990s, United Nations Development Program (UNDP) first time published the findings of an index, called 'Human Development Index' (HDI) to list the countries of the world on HDI scores. HDI used the three main indicators to categorize countries: Gross Domestic Product (GDP); Life Expectancy; and Educational Attainment. Every indicator was given equal weight of 1/3.

Since the deprivation by Townsend was unable to present the Human Development Applications, it was searched in the literature about household level deprivation measurements that could be implied as human development index's applications. The work for Hanusi (2008) was the only scientific paper that provided peer reviewed guidelines to measure household level deprivations on selected household level indicators to measure deprivation as an application of human development index.

Research Questions

Guided from literature review and theoretical discussion, the following research questions were devised to be investigated scientifically.

- What are the 'standards of living' measured in terms of household belongings?
- What are the households level deprivation patterns prevailing in Christian households?

Objectives of the study

1. What are demographic characteristics of Christians living in these slums?
2. Development of wealth index for HHs/people living in slums.
3. Measurement of household deprivations for HH/people living in slums.

4. To know distribution of households by wealth index and household deprivations inter and intra slums.

Data and Methodology

This study is totally a quantitative analysis of the data that is based on the random sampling of the households in each of the slums selected for the survey. The listing of the households prepared by the Capital Development Authority (CDA) was obsolete; however, the maps prepared by CDA for each of these slums were acquired to look at the boundaries of the slums with the household identification numbers. The total numbers of households in a slum were taken from the map. The first household was selected randomly and then every next household was selected by a continuous interval.

The universe of the research was all Christian HHs that are located in four selected slums of Islamabad. This study covers the four slums that are: Slum of G7/1; slum of G7/2; slum of F6/2 (also called 100 quarters); and slum of F7/4 (also called France Colony). The universe of this study was all the HHs of the four slums. The sample was the 50 HHs from each of the slums. The selection of HHs was based on the random probability criteria. All of these slums are populated on the banks of the nullas and are congested by the irregular and bulk of HHs. Sometimes, it was hard to find the HH that was identified from the map. Each interviewer was given list of randomly selected HHs after their two days participation in the training on the questionnaire. It was ensured that each interviewer is at least holder of bachelor's degree.

The pre-coded questionnaires were entered in SPSS after labeling and coding was done. Some of the HHs were revisited due to the lack of quality data in the first round. Wealth Index was developed by using Principal Component Analysis in SPSS 15.0. Rest of all data analysis was done in STATA 11.2.

All statistics are weighted except statistics calculated for individual slums. Probability weights are calculated at HH level and at population level. HH level weights are used for analyses of the file containing HHs level data while roster level analyses were done using the population based probability weights.

Findings of the study

Demographic transition in slums

According to classical theory of demographic transition, there are four stages to a demographic transition (figure 1) to be completed in a population. It is found that people of slums, as a whole, are undergoing from a third phase of a demographic transition.

Figure 1: Classical phases of a demographic transition

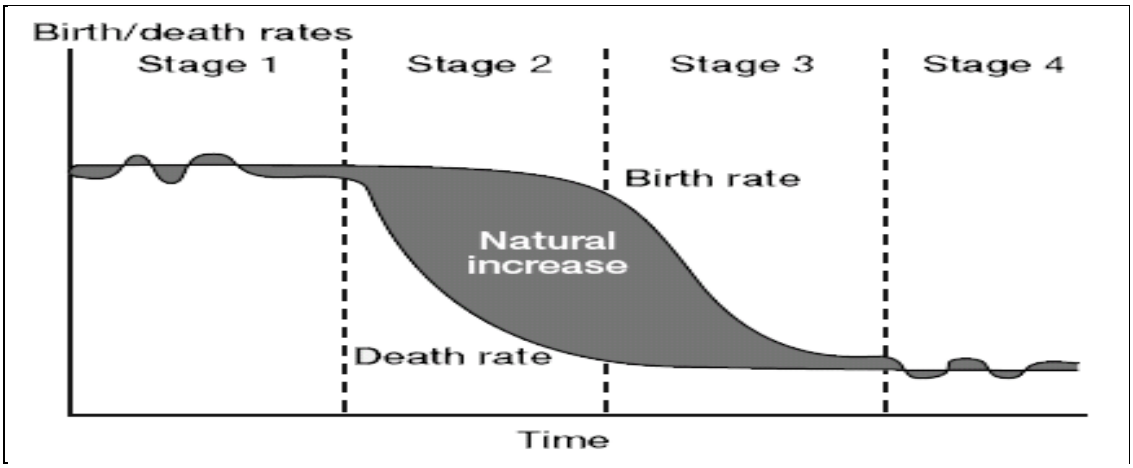
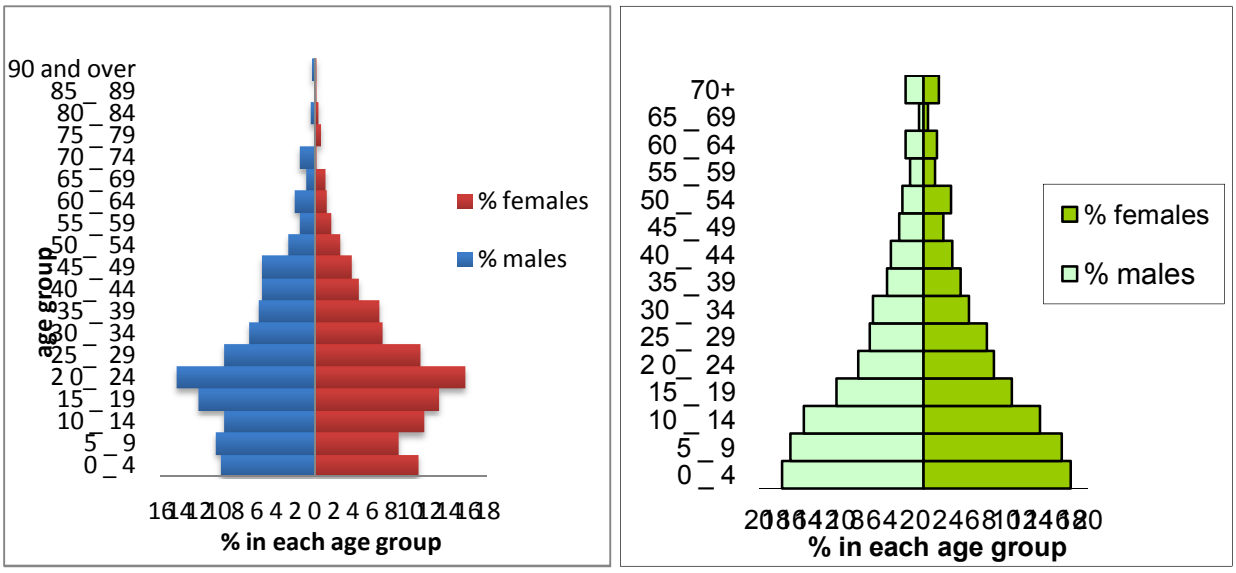


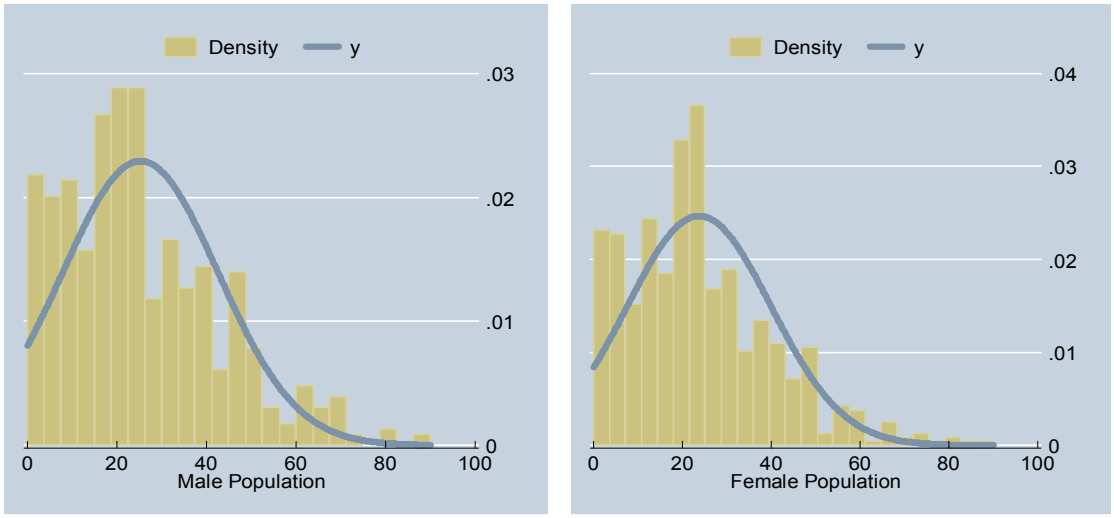
Figure 2: Current population pyramid and 1996 NIPS population pyramid of slums[3]



[3] Second part of the figure is based on a largest sample that include all households [including slums that do not exist today] as universe (Conducted by NIPS in 1996) and first part represents the findings from areas that were part of the NIPS sample. This could be a problem in comparing these two results.

Figure 2 shows the glimpse between population distributions by age at two different times. It is apparent that first part of the figure is the evidence that there is a demographic transition and it is in the third phase where births started to decline after deaths were declined already. The 1996 data show that population of slums was living with high fertility and therefore highest numbers of population are of children aged from 0-4 but the current study show the declining fertility trend. Christian women are going to have fewer children. Fertility decline also highlighted the fact that currently youngest generation is highest in numbers that lead to further policy implications in terms of future housing needs, education, health and hygienic environment that are the basic requirements for a progressive society. Next sections will further highlight the findings on poverty among the households across communities and data on excess population that highlight the important findings of the study.

Figure 3: Male and Female population and its normality



According to the normal curve, there is strong evidence that younger population is higher than older and peaks at around 20 years. Table 1 below provides the average household size, housing units per structure and mean age of the people living at slums. Household size is used in measuring *housing adequacy* in the next section.

Table1: Mean number of HH members by community

Slums	Household size	Mean Number of Persons per room	Mean no. of HH units in the structure	Mean age
F6/2 (100 Quarters)-n=50	6.88	3.1	1.3	25.56
F7/4 (France Colony)-n=50	9.54	3.1	1.5	24.02
G7/1 (Faisal Colony)-n=39	8.15	3.7	2.5	24.45
G7/2 (66 Quarter)- n=17	8.94	3.6	1.6	23.27
Total (n=156)	8.82	3.4	1.7	24.47

Wealth Index[4]

Wealth index at HH level is relatively a new term coined by the Macro International. The wealth index is used in the Demographic and Health Surveys around the world. The index used here was recently developed and tested in a large number of countries in relation to inequalities in household income, use of health services, and health outcomes (Rutstein et al., 2000, cited in PDHS 2006-07). It is a good proxy determinant of the financial situation of the HHs. Measuring wealth index at community level could lead to better estimation of the financial situation of the HHs that has often been measured through income and expenditure estimation. The variables used in the construction of wealth index are given in Annexure.

Table 2: Distribution of Wealth according to wealth index by slums (Percent of households)

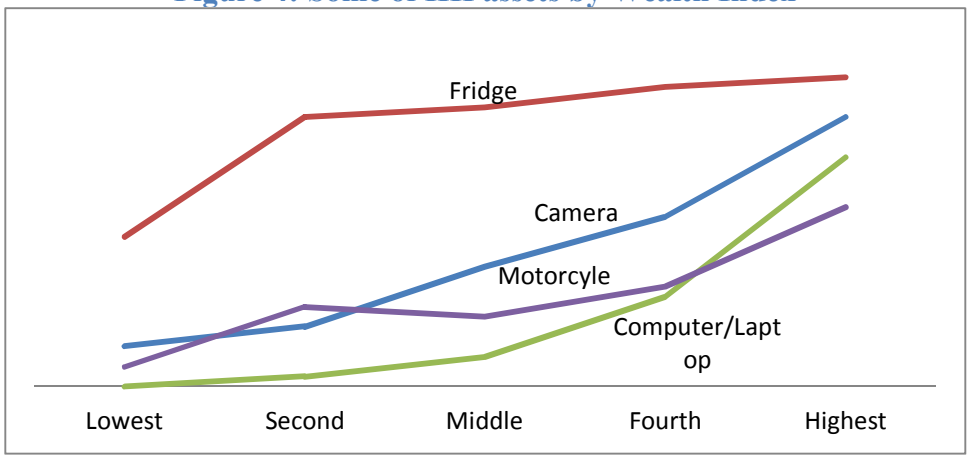
Name and code of sector	Wealth Index(quintiles)					Total
	Poorest (Lowest)	Second	Middle	Fourth	Wealthiest (highest)	
F6/2	20.0	40.0	20.0	18.0	2.0	100.0
F7/4	16.0	10.0	26.0	12.0	36.0	100.0
G7/1	25.6	12.8	17.9	30.8	12.8	100.0
G7/2	17.6	5.9	11.8	23.5	41.2	100.0
Total	19.9	19.9	20.5	19.9	19.9	100.0

[4] Wealth Index is developed according to DHS methodology. Detail report on Wealth Index by Marco International. is available at http://www.measuredhs.com/pubs/pdf/CR6/CR6.pdf

In the table 1, the distribution of HHs is given according to their economic status. People in G7/2 and F7/4 are richer than people in other communities (Wealthiest 41 percent and 36 percent respectively). F6/2 slum is poorer, as 60 percent lies in the lowest two quintiles, and people in the highest quintile are only 2 percent while G7/1 slum has about 13 percent in the highest quintile, the second lowest after F6/2.

Wealth index is very important indicator to look at variations of different indicators particularly on health and education. People in different quintiles of wealth index are supposed to have different patterns, for example, on acquisition of HH assets etc. The figure 4 below provides the evidence of changing patterns of some HH assets. This also validates the results in table 1.

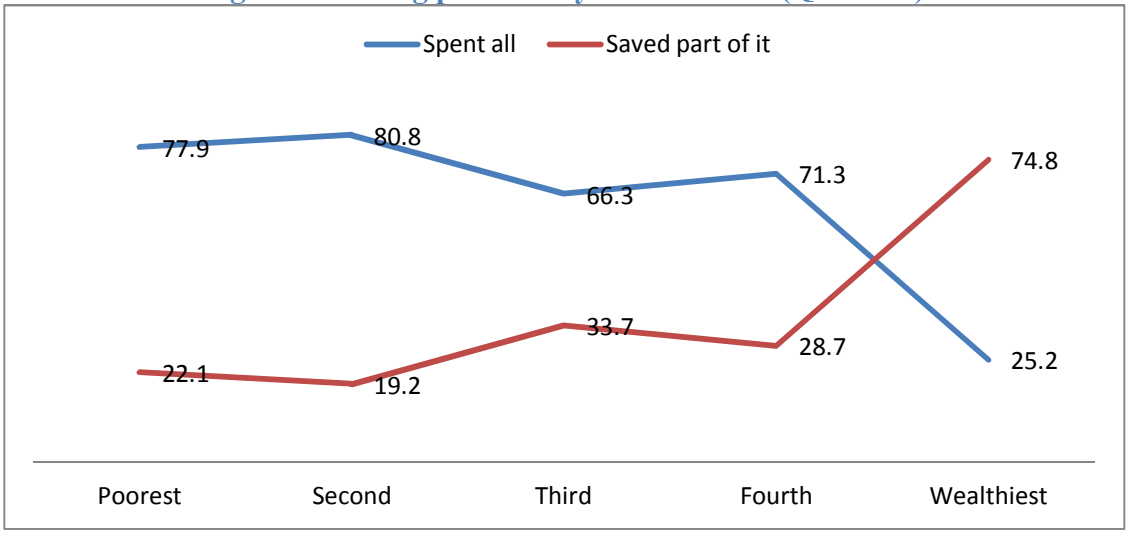
Figure 4: Some of HH assets by Wealth Index



It looks aligned with the concept that people who are richer would like to have fridge and other luxury amenities like camera etc. compared to households in low wealth quintiles.

Figure 5 shows the saving patterns by the wealth quintiles. As it should be, the wealthiest are more likely to save money and poorer are those who spent almost all of their income. The question inquired households (head of the household in most of the cases) to tell if income earned last year was all spent or part of it was saved.

Figure 5: Saving patterns by wealth index (Quintiles)



Development of Household deprivation for four slums

Sanusi (2008) worked on household level indicators to develop an index of deprivation. The indicators that were used by the author might not be replicated in case of the slums under study here because as the communities change, scenarios, problems, and even solutions change. Lots of household level indicators are collected from these communities that could be incorporated in the household level deprivation to sketch the overall human development picture of these slums.

Human Development Index (HDI) is used to grade the countries on a scale to measure their human development but in literature there are lots of questionings regarding the true representation of human development at communities' level by HDI. For example, GDP is hard to be calculated at community level rather at country level it lacks the ability to present the income distributions. However, household level deprivations could be used as an application to HDI in order to look at the development at grassroots level in the target communities.

There are four main indicators that are used for the development of household level deprivations at household level. These indicators are *household level facilities, housing adequacy, housing space,* and *polluted water and solid waste disposal.* Every indicator has many sub-indicators that are discussed in details below.

Household level facilities

Housing facilities include all the household level requirements that a normal life require e.g. type of latrine; separate room for cooking etc. The following indices are selected to measure the household facility level deprivation:

1. Proportion of households who share toilet facility with other households (82%)
2. Proportion of households with no separate room/space for cooking (26%)
3. Proportion of households with no separate space for bathing (bathroom) (46%)
4. Proportion of households having toilets other than 'flush to sewerage' and 'flush connected to septic tank' (6%)
5. Proportion of households who share kitchen with other households (54%)
6. Proportion of households who share bathroom with other households (78%)
7. Proportion of households who share more than one of the above household facilities (74 percent)

The overall average of household facilities level deprivation stands at 52 percent. This means that all slums have 52 percent deprivation based on household level facilities.

Housing adequacy

The housing characteristics that are under specific consideration here are those that reflect the human development and standards of living. The average HH members are given in table 1. The main question is whether the housing units and facilities are able to host the number of HH members and how much is the spillover population? The higher the spillover population, the more squatters' characteristics develops. Sanusi (2008) have worked on the slums of Nigeria and calculated the excess population according to the formula below. Spillover population is calculated as:

Spillover or excess population= Actual Population – Expected population, where
Actual population= total number of HHs x average HH size and
Expected population= standard occupancy ratio x total number of habitable rooms

Standard occupancy ratio is two persons per room. In this survey, the data were collected on numbers of habitable rooms, the average HH size is calculated and we know the total number of

HHs visited during the survey. According to the formulas above discussed, the following table is calculated that shows the housing space by total and by slums.

Table 3: Excess population by slums and by Total

Slums	Actual Population			Expected Population			Excess population	
	HHs covered	Average HH size	Population covered	Total inhabitable rooms	Standard occupancy ratio	Population expected	Spillover population	Proportion excess
F6/2	50	6.88	344	102	2	204	140	40.70
F7/4	50	9.54	477	149	2	298	179	37.53
G7/1	39	8.15	318	86	2	172	146	45.89
G7/2	17	8.94	152	41	2	82	70	46.05
Total	156	8.82	1376	378	2	756	620	45.05

The table 3 above illustrates the spillover population. The total communities inhabit about 45 percent more people greater than their overall capacity. The spillover population is one of the main indicators to categorize the dwelling as slums where housing facilities already lack and more people live in miserable living conditions. All four slums are located at the banks of the riverine nullas where the hygienic conditions are pitiable. Other slum indicators are the scores on improved drinking water; improved sanitation; and durable housing. The fourth indicator is sufficient living area that is measured by the rate of spillover population.

Housing space

Housing space deals with the living activities within the dwelling unit. The data is available on the following indicators that are related to the housing space:

1. Percentage of households with no room with cross ventilation (41 percent)
2. Percentage of households with no internal open space (57 percent)
3. Percentage of households with no guest/parlor/drawing room (83 percent)
4. Percentage of households with no sitting/living room (91 percent)
5. Percentage of households using guest/parlor/drawing room for sleeping (6 percent) [5]

[5] The variables mentioned in points 5 and 6 were only asked from households who have responded affirmative on variables mentioned in points 3 and 4. However, the percentages (variables 5 and 6) are representing proportion

6. Percentage of households using sitting/living room for sleeping (4 percent)

After calculating the average, it is found that in all the slums, the household deprivation based on housing space is 47.0 percent. This means that 47.0 households are deprived based on housing space.

Polluted water and Solid Waste disposal

Solid waste disposal is related to the clean environment. Proper disposal means clean air to inhale, hygienic living conditions and less breeding grounds for mosquitoes and other infectious diseases. Two indicators are used to assess the solid waste disposal: dispose of household's polluted water; and disposal of daily garbage. According to data, 62 percent households' polluted water falls in nullas and 3 percent have their polluted water directly connected to open drains. Rest 35 percent households have link to the sewerage for the polluted water. Open drains and falling in nallas has been taken as a bad management of waste management, therefore, in total 65 percent households have bad management on waste management.

Second variable is based on the solid waste management. Households were inquired where they dispose off their solid waste. The options, on which responses were received, include CDA designated drums; in Neighborhood; Nulla; Hand over to private collectors; Go someone to dispose far from home; Just dispose anywhere outside household; and others. The variables of interest here include disposal in the neighborhood and in nullas. There is no response on disposal in the neighborhood but about 10 percent dispose of solid waste in the nullas which is an unhealthy practice particularly when households are already located on nullas.

Composite household deprivation index

This index presents the overall scores on all four categories that were selected for the purpose of measuring household level deprivations. Household deprivations are highest among households in slum G7/2 while the slum F7/4 have about half of the households falling in the household deprivation levels measured by the household level facilities; housing adequacy; housing space; and polluted water and solid waste disposal statuses.

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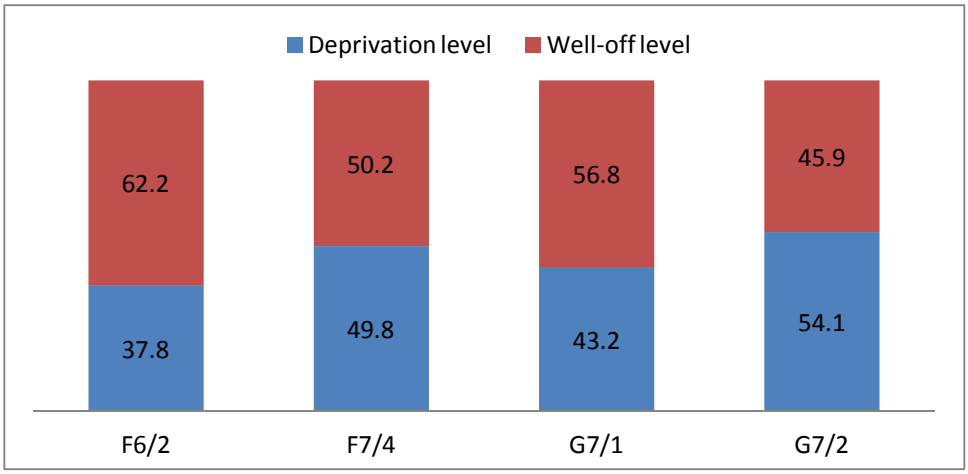
from all households just to diminish the biasness in the final score (composite index) on household level deprivations.

Table 4: Composite score on household deprivations by slums

Slums	Household level facilities (%)	Housing adequacy (%)	Housing space (%)	Polluted water and solid waste disposal (%)	Composite index (%)
F6/2	35.7	40.7	49.7	25.0	37.8
F7/4	63.3	37.5	48.3	50.0	49.8
G7/1	60.0	45.9	41.0	26.0	43.2
G7/2	55.7	46.1	46.6	68.0	54.1
Total	53.6	43.0	46.4	42.3	46.2

The figure given below provides a glimpse on the deprivation and well-off levels at household level by slums. All slums have more than half households well off except households in G7/2. Since most of the slums are informally populated with congested households and narrow streets etc, the scores show that on average 46 percent households are living in the deprivation levels.

Figure 6: Household deprivation and well-off levels by slums



Conclusion

The people living in different slums differ from each other in terms of poverty and household deprivations. The biggest challenge is to accommodate excess population in each of these slums. Since CDA has demarcated each slum with its boundary wall, there is no space for new households and growing population does not have alternatives to their already meager living conditions. People, in general, are not well educated as their literacy rates (please see annex 3) show low prevalence of education. Since these slums are undergoing through demographic transition, the literacy among highest segment of total population (15-24 years) is at 47.3 percent (that is about 11 percentage points higher than adult literacy) is important to note. The future of these people could only be saved with proper future inhabitation planning and creation of job opportunities for young people to diminish the negative effects of demographic transition on themselves as long as on Urban Islamabad population.

Recommendations

Strong policy implications exist that lead to proper management of slum dwellings within urban sectors of Islamabad. It also reflects that there is a strong need to relocate these slums to proper colonies in order to ensure that proper living conditions are available to inhabitants of the slums. Islamabad slums have implications for urban localities in terms that most of the polluted water of these slums falls directly in nullas and solid waste disposal is also dumped in nullas creating havoc on grounds on hygienic and healthy living conditions across the capital. There is no space for new households and therefore a refresh policy is required to tackle the issues of these underdeveloped communities.

Annexure

Annex1: List of variables used for the development of Wealth Index

1. Type of flooring
    a. Earth (earth/sand/mud)
    b. Ceramics tiles
    c. Cement
2. Access to electricity
3. HH assets
    a. Radio
    b. TV
    c. Landline telephone
    d. Refrigerator
    e. Bicycle
    f. Motorcycle/scooter
    g. Car or jeep
    h. Video deck
    i. Computer
    j. Sewing machine
    k. Camera
    l. Room cooler/air conditioner
    m. Washing machine
    n. Mobile phone
4. Type of toilet used
    a. Flush connected to sewerage tank
    b. Flush connected to open drain
    c. Raised latrine
    d. Pit latrine
5. Sources of drinking water
    a. Piped water into dwelling
    b. Govt. supply (communal)
    c. Motorized/hand pump in the dwelling

d. Motorized/hand pump outside
e. Open well outside
f. Tube well

Annex 2: The religious Segments

The table below provides detail analysis of the Christian religious affiliations grouped or divided into wealth index categories. Less than half (45 percent) Christian households are Catholics. The second highest category appears as 'Others'. These others are those who refer themselves as affiliated with UP Church (23 percent among 21 percent others and rest were affiliated with individual pastors without any affiliation with the Churches mentioned in the table—data not shown). Next comes the people who belong to PGA as the third Christian majority living in slums of Islamabad. The below table also illustrates the distribution of different religious segments according to wealth index.

Table 5: Christian religious affiliations by wealth index (N=156)

	Poorest	Poorer	Middle	Richer	Richest	Total
Catholic	55.8	34.7	39.7	43.4	53.6	45.1
Protestants	6.0	5.3	1.9	8.2	5.9	5.4
Salvation Army	2.2	3.4	5.5	2.6	0.0	2.8
Church of Pakistan (Saint Thomas Church)	0.0	2.3	1.9	6.4	0.0	2.1
PGA (Pakistan Gospel Assembly)	6.4	23.8	5.5	19.3	7.1	12.4
Full Gospel Assembly	3.9	3.4	0.0	0.0	0.0	1.4
Baptist	0.0	6.8	3.3	3.9	0.0	2.9
Islamabad Pentecostal	8.6	3.8	10.3	0.0	7.5	6.1
Mormon	0.0	0.0	3.7	0.0	0.0	0.8
Others	17.1	16.6	28.3	16.3	26.0	21.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Annex 3: Literacy

In this section, the adult literacy of the Christian is discussed. Following figure provides distribution of adult literacy for all slums. The literate adult population proportion is much less than the national figures particularly for male population. Figure 8 provides the literacy of the highest segment of population that is population with age group 15-24 that accounts of the total 27.7 percent of the total population. There is less difference between male and female literacy

rates for this group (48.4 for males and 46.3 for females) that shows that females are have better school enrollment rates.

Figure 7: Adult literacy of Christian of slums of Islamabad

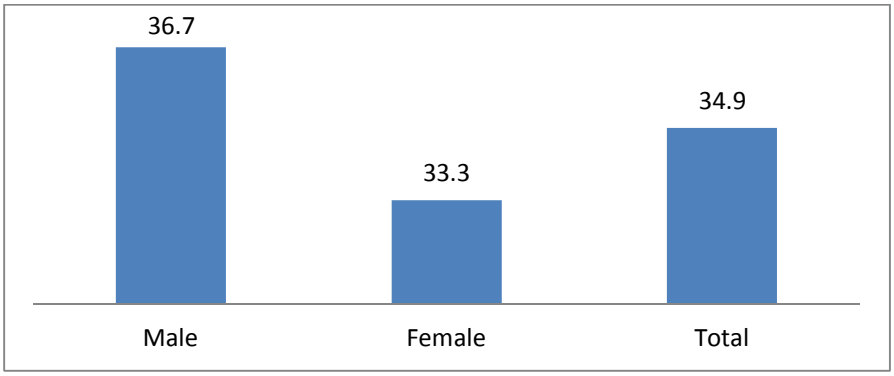
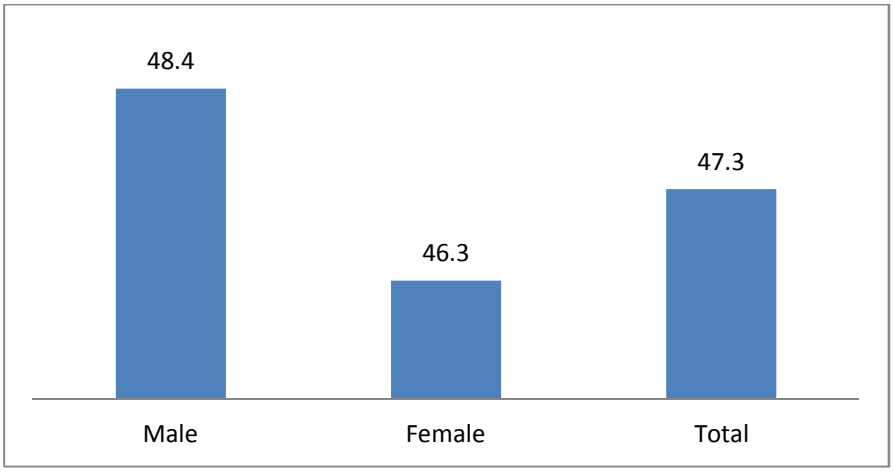


Figure 8: Literacy of age group 15-24



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