

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the name of Allah, Most Gracious, Most Merciful.

In the name of Allah, Most Gracious, Most Merciful.

In the name of Allah, Most Gracious, Most Merciful.

**Quantification of Socio Economic Deprivations of Urban  
Slums:  
A Case Study from Faisalabad**

**By  
Riaz Ahmed  
Dr. Usman Mustafa**

# CONTENTS

<b>Sr. No.</b>	<b>Title</b>	<b>Slide No.</b>
1	<b>Introduction</b>	4
2	<b>Methodology</b>	8
3	<b>Result of Socio-Economic Opportunity Index</b>	19
4	<b>Conclusion And policy Implication</b>	23
5	<b>References</b>	24

# INTRODUCTION

- **Rapid Urbanization, last few decades**
- **The share of world urban population(World Bank Development Indicators,1999)**  
**32%(1950) - 39%(1980)- 48%(2000)- 66%(2030)**
- **In 1950-(86) cities with population over one million, in 2002(400)- by 2015(550) (Un population division,2002)**
- **In Pakistan the share of urban population 17.8%(1951)- 28.3%(1981)- 32.5%(1998)**  
**(Population and housing census,1998)**
- **The urban population rise 4.9 billion ...rural decrease 28 million by 2030 (UN-HABITAT, 2003).**

# INTRODUCTION

- **Rapidly increasing population**  
(The poor to settle in open spaces)
- **Slums.....Katchi Abadis**
- A residential area that is physically and socially deteriorated and in which satisfactory family life is impossible (Encyclopedia of Britannica )
- **Transferred > non-transferred slums.** (Ahmed et al.2015).
- **Faisalabad.....third most populous city ( 106 slums)**

# INTRODUCTION

## Objective of the study

- To quantify the different socio economic deprivations of inhabitant of urban slums by developing socio economic opportunity Index (SEOI)

# INTRODUCTION

## Literature review

- No access to safe water and sanitation (Naveed& Anwar,2014)
- There is no proper way of cleanliness (Bandyopadhyay and Agrwal, 2013)
- Inadequate facilities like food, shelter, sanitation and health care (Akhtar,2009).
- Increasing number of slums create a major challenge to development (Sufaira.C, 2013).
- No access to safe drinking water which is major cause of diseases there (Graf, 2008),Qureshi (1982), Asghar (1984), Chaudhry (1991) and Kazmi (1999)

# METHODOLOGY

- **Total number of slums in Faisalabad =106**
- **Information available = 104**
- **Stratified Sampling Technique**
- **Whole universe = 6 stratum**
- **Selected Slums = 15**
- **Total number of sample = 213**
- **Questionnaire**
- **Data analysis (Quantification of different qualitative variables)**
- **Socio-Economic Opportunity Index (SEOI)**



# METHODOLOGY

## Category of Dwelling Units

Stratum	No of Household	No of Slums
A	Below 80	33
B	81-200	32
C	201-350	16
D	351-500	11
E	501-1000	7
F	Above 1000	5

# METHODOLOGY

## Selection of Sample Katchi Abadi on the basis of variation in number of households

Stratum	Mean	S.D	* $S_h^2$	$N_h$	$N_h \times S_h^2$
A	58.75758	14.01122	0.056862	33	1.876456
B	131.0625	31.88076	0.05917	32	1.893435
C	276.6875	39.0405	0.019882	16	0.318114
D	427.3636	42.34447	0.009817	11	0.107992
E	725.4286	132.0151	0.033123	7	0.231858
F	1857.4	812.2831	0.191257	5	0.926255
<b>Total</b>					5.35411

# METHODOLOGY

## Selection of Sample Katchi Abadis

$$n^1 = \frac{N \cdot \sum N_h S_h^2}{\frac{N^2 d^2}{Z^2} + \sum N_h S_h^2}$$

Here

N = Total number of Katchi Abadis

$N_h$  = Total numbers of Katchi Abadis in “h” Stratum.

d = (Sampling error acceptable for study). Due to resource & time constraint 0.1 error was accepted at Abadis level.

Z = Confidence level = 95%

$$n = \frac{(104)(5)}{\frac{(104)^2(0.1)^2}{(1.96)^2} + 5}$$

$$n = \frac{520}{28.1549 + 5}$$

$$n \cong 15$$

# METHODOLOGY

## Selection of Sample Katchi Abadis

$$n_i = \frac{N_h}{N} \times n$$

Stratum 1:  $n_1 = \frac{33}{104} \times 15 = 5$

Stratum2:  $n_2 = \frac{32}{104} \times 15 = 4$

Stratum3:  $n_3 = \frac{16}{104} \times 15 = 2$

Stratum4:  $n_4 = \frac{11}{104} \times 15 = 2$

Stratum5:  $n_5 = \frac{7}{104} \times 15 = 1$

Stratum6:  $n_6 = \frac{5}{104} \times 15 = 1$

**Transferred = 10**

**Non-transferred=5**

# METHODOLOGY

Sr. No.	Selected Katchi Abadis	No of dwelling units
1	Bishan Singh Wala	42
2	Chowk Choudhry Floor mills	56
3	Muslim High School, Tariq Abad	58
4	Gharib Abad	66
5	Madan Pura 279/R.B	78
7	Malik Pura	133
8	Old Water Works	116
9	Manawala Sq. 80	180
10	Malkhanwala	256
11	Railway Phatak No. 8	288
12	Pull Tariq Abad, Girga Ghar	408
13	Fire Brigade	443
14	Partab Nagar	638
15	Mai Di Jhugi (Bilal Gunj)	2851

# METHODOLOGY

A selection of sample size on the basis of variation per capita income

Stratum	Mean	S.D	* $S_h^2$	$N_h$	$N_h \times S_h^2$
A	1810	809.1971	0.199872	2135	426.7267
B	1433.333	615.042	0.181726	3703	671.8205
C	1556.333	581.0393	0.139382	4648	647.8475
D	2126.667	772.1118	0.131814	5957	785.216
E	1299.767	285.6644	0.048348	4466	215.9222
F	1320	319.9375	0.058747	19957	1166.888
<b>Total</b>					<b>3914</b>

# METHODOLOGY

## Selection of Sample Respondents

### Proportion Allocation Method

$$n = \frac{N \cdot \sum N_h S_h^2}{\frac{N^2 d^2}{Z^2} + \sum N_h}$$

Where

**N** = Total number of households in 15 Katchi Abadis = 40866

**N<sub>h</sub>** = Total number households in “h” stratum.

**S<sub>h</sub>** = Socio-economic variation among the households in “h” Stratum.

**d** = Sampling error acceptable for the study (Due to lack of resources 0.0414 error was accepted at household level)

**Z** = Confidence level = 95%

$$n = \frac{40866 \times 3914}{\frac{(40866)^2 \times (0.0414)^2}{(1.96)^2} + 3914} = 213$$

# METHODOLOGY

- This over all sample size was proportionally distributed in different strata

$$n_i = \frac{N_h}{N} \times n$$

Stratum 1	$= \frac{5}{15} \times 213 = 71$	Stratum 2	$= \frac{4}{15} \times 213 = 58$
Stratum 3	$= \frac{2}{15} \times 213 = 28$	Stratum 4	$= \frac{2}{15} \times 213 = 28$
Stratum 5	$= \frac{1}{15} \times 213 = 14$	Stratum 6	$= \frac{1}{15} \times 213 = 14$

- Again in each Katchi Abadi the sample size was distributed according to the weight of number of households

$N_h =$  Number of households in 'h' Abadi

$N =$  Number of households in selected Abadi of the stratum

$n =$  Distributed sample of the Katchi Abadi



# METHODOLOGY

## Selection of Sample Respondents

Sr. No.	Name of Selected Katchi Abadi	Distribution of Sample
1	Bishan Singh Wala	10
2	Chowk Choudhry Floor Mill	13
3	Muslim High school Tariq Abad	14
4	Gharib Abad	15
5	Madan Pura	18
6	Bahadar Sing Wala	11
7	Old Water works	13
8	Malik Pura	14
9	Manawala Sq.80	19
10	Malkhanwala	13
11	Railway Phatak No. 8	15
12	Pull Tariq Abad Girga Ghar	13
13	Fire brigade	15
14	Partab Nagar	14
15	Mai Di Jhugi	14

# METHODOLOGY

## Socio-Economic Opportunity Index (SEOI)

- **Socio-Economic Opportunity Index (SEOI).... Poverty of opportunity index (POPI) introduced by UNDP**
- **Four variables .... health, education, income and housing**
- **SEOI..... level of deprivation of slum dwellers of Faisalabad**
- **Atkinson formula of deprivation is applied to formulate SEOI.**

$$X_A = (P_1 X_1^\mu + P_2 X_2^\mu + P_3 X_3^\mu + P_4 X_4^\mu)^{1/\mu}$$

$X_A$  is the average required,  $X_1, X_2, X_3$  and  $X_4$  are four deprivations.... equal weights i.e;  $P_1, P_2, P_3$  and  $P_4 = 0.25$  and  $\mu = 1/4$

# Results of Socio-Economic Opportunity Index

## Education Deprivation:

- Illiteracy rate= 34.09
- Cut-of-school children as a percentage of primary school- age population= 31.9
- Sample population (10 year and above)=1430
- Primary school age sample population= 160
- Weight = Sample population (10year and above) / Primary school-age sample population=1430/16 = 8.93
- Education deprivation =  $34.9 * 8.93 + 31.1 * 1/8.93 + 1 = 37.86\%$

## Income Deprivation

People below poverty line = 80%

# Results of Socio-Economic Opportunity Index

## Housing Deprivation:

- People living more than 3 per room =  
 $23.47 + 42.25 = 65.67\%$
- People having semi pakka house =  $36.60 + 4.20 = 40.80\%$
- People deprived of kitchen, bathroom and Toilet =  
 $(61.00 + 0.9) / 2 = 30.95\%$
- Housing deprivation =  $(65.72 + 40.80 + 30.95) / 3 = 45.82\%$

# Results of Socio-Economic Opportunity Index

## Health Deprivation:

- Population deprived health access (Average of three variables i.e no access to clean drinking water, sewerage facility, no access to LHV / Doctor)

$$[(65.71+7.14) + 30.5+32.64] = 45.33\%$$

$$\text{Infant mortality rate} = 11.11\%$$

- Total sample population = 1590
- Under one year sample population / under one year sample population:  $1590/39=40.76$
- Health deprivation =  $(45.33 * 40.76 + 11.11 * 1) / 40.76+1=44.51\%$

# Results of Socio-Economic Opportunity Index

- Atkinson formula of deprivation is applied....SEOI

$$X_A = (P_1 X_1^\mu + P_2 X_2^\mu + P_3 X_3^\mu + P_4 X_4^\mu)^{1/\mu}$$

$X_A$  is the average required,  $X_1, X_2, X_3$  and  $X_4$  ...education, income, health and housing ...equal weights i.e;  $P_1, P_2, P_3$  and  $P_4 = 0.25$  and  $\mu = 1/4$

- $X_A = (0.25 * 37.86^4 + 0.25 * 80^4 + 0.25 * 44.51^4 + 0.25 * 45.82^4)^{1/4}$   
 $X_A = 59.85\%$
- 60% of population ....slums of Faisalabad
- 65 % .....slums of Lahore ((Rukhsana & Sheraz, 2006).

# CONCLUSION & POLICY IMPLICATION

## **Conclusion:**

- **Socio economic opportunity index (SEOI)...four variables (Income, Education, housing and health)**
- **Education Deprivation =37.86 %, Income Deprivation=80%, Health Deprivation=44.51%, Housing Deprivation=45.82%, Overall Deprivation= 60%**

## **Policy implication:**

- **Health and Education facilities, Employment Opportunities, Social Development, Community Participation – Oringi Pilot Project, NGO's Role**

# References

- Ahmed, R., Mustafa, U., & Khan, A. U., (2015). Socio-economic Status of Transferred and Non Transferred Urban Slums: A Case Study from Faisalabad. *Pakistan Development Review (PDR)*, 54(2), 947-962.
- Alkire, S., & Foster, J. (2014) "Global Multidimensional Poverty Index 2014. *Oxford Poverty & Human Development Initiative* [Online]. Available: [http:// www.ophe.org.uk](http://www.ophe.org.uk)
- Naveed, M. & M. Anwar (2014). Socio- Economic Conditions and Health Status of Urban Slums: A Case Study of Jogo Chak , Sialkot. *Asian Journal of Humanities and Social Sciences* 3:4.
- Britannica, Encyclopedia (2010). *Encyclopedia of Britannica*. Encyclopedia Britannica Inc. Corporate site.





**Thanks**