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Understanding housing inequalities in urban Pakistan: An intersectionality perspective of ethnicity, income and education

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ABSTRACT

Urban housing inequality is a major academic and policy concern in Pakistan, but empirical investigations and, in turn, evidence-based policy interventions are limited. This study examines the nature of housing inequalities and their determinants focusing on ethnolinguistic groups using a nationally representative household survey, where housing inequality is measured using two indicators: housing space usage (room per capita) and access to utilities (an index based on access to piped water, sewerage, cooking gas, and electricity). Results show that housing inequality by ethnicity is very high, and ethnic belonging, along with socioeconomic factors, significantly influences space consumption and access to utilities. Intersectionality between ethnicity, income, and education plays a crucial role in housing inequality. Balochi, Sindhi, and Siraiki communities have a lower potential for achieving adequate housing than other communities. To reduce housing inequalities, identified disadvantaged communities along with the economic poor should be targeted through housing policies and programmes.

Introduction

Urban inequality has long been an important theme in social science research. The cause of urban inequality in western countries has shifted from poverty to the presence of the wealthy in the last 20 years (Glaeser et al., 2009; R. Wilkinson & Pickett, 2020; R. G. Wilkinson & Pickett, 2009). In developing countries' inequality is correlated strongly with poverty, inequality and poverty are still at their most acute, partly due to fast urbanization, rural to urban migration, neo-liberal market economic development, and the recent impact from Covid-19 pandemic. In large cities, inequality is manifested by a large proportion of the population living in slums or informal housing. Traditionally, inequality research tends to focus on income inequality, where analysis is often carried out at the national or city level (Hamnett, 2019). But inequality is also a multifaceted phenomenon with economic, social, spatial, environmental, and political dimensions, and it varies across culture, class, race, ethnicity, age, gender, religion, and citizenship status. The pattern of housing consumption and the housing system are good reflections of inequalities in societies, especially in developing countries where housing is the most important and basic human necessity.

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 Supplemental data for this article can be accessed [here](#).

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Pakistan, one of the largest developing countries, provides a good case for studying urban housing inequality. Ever since independence, urbanization has been a main feature of development accompanied by persistent poverty and inequality. In 2017, 37% of its population (out of a total of 207 million) lived in urban areas (PBS, 2017), and the majority of urban residents lived in inadequate housing¹ (Aizawa et al., 2020; Ellis & Roberts, 2015). Official data show that in 1998 six out of 10 households were living in a permanent housing unit and only three had access to piped water (PBS, 1998). Moreover, households have a vast disparity in space consumption and access to utilities by virtue of their socioeconomic status and spatial location. The share of households with adequate housing, for example, in the highest wealth quintile was 30.6%, whereas in the lowest wealth quintile was only 0.5% (Aizawa et al., 2020). About 30% to 50% of the urban residents were estimated to live in *katchi abadis* (temporary or informal settlements; UN-Habitat, 2018). Many scholars and policymakers looked at such disparity between individuals; they rarely examined the difference between social and economic groups. Therefore, rather than targeting disadvantaged groups (affirmative actions), universal policies (covering the entire population) have been adopted to address the challenges of housing inequality. To a certain extent, urban policies and programmes have targeted the economically poor and spatially disadvantaged (like slum-dwellers) but not other disadvantaged groups. Depending upon the context of group inequalities, a combination of targeted and universal interventions may narrow group differences (Stewart, 2016a). Therefore, the existence of group inequalities should be recognized and strategies should be framed accordingly to narrow them.

The distribution pattern of housing and access to utilities suggests the importance of ethnicity and class intersectionality in Pakistan. Some early studies claimed that Sindhi and Balochi are in a poor social position, therefore, appealed for affirmative action to help them (Ahmed, 1996). Recent empirical evidence to support such claims are rare. This study aims to shed light on urban housing inequality in Pakistan by addressing two related questions: whether and to what extent housing conditions differ between ethnicity and social class groups? and what are the main determining factors for these differences? This study uses the Pakistan Social and Living Standards Measurement Survey (PSLM) 2014–2015 focusing on two main indicators—housing space usage and access to utilities—given their importance on human wellbeing and availability of data. This article proceeds as follows. The next section discusses the housing policy context, followed by theoretical and empirical aspects of measuring housing inequalities. This follows data and methods sections, including approaches to regression analyses. The final section presents the discussion and conclusions.

Housing in Pakistan and ethnicity differentiation

A review of housing system and policy

With a 2.7% annual urban population growth rate, 37% of the 207 million people lived in urban areas of Pakistan in 2017 (GoP, 2018, p. 179). The human settlement patterns are spatially sorted according to the ethnolinguistic groups: Punjabi and Saraiki are in Punjab; Balochi and Pushtu are in Balochistan and Khyber Pakhtunkhwa (KPK); Sindhi are in Sindh; and the Urdu-speaking community is spread across the country (Figure 1).

The majority of urban households live in owner-occupied dwelling units, but the ownership is decreasing slowly. In 2018–2019, 72% of the urban households live in owner-occupied dwelling units, 21% in rental dwelling units, 5% in rent-free dwelling units, and only 2% in subsidized rental dwelling units (PBS, 2020). In comparison to 2014–2015, the share of urban households with owner-occupied and subsidized rental dwelling units has decreased by 2 and 1 percentage points, respectively, and the rental dwelling units has increased by 3 percentage points (PBS, 2020). Comparison of urban households at the province level shows that Balochistan has the highest share of owner-occupied dwellings (75%) and Sindh has the lowest (71%) in 2018–2019 (PBS, 2020).

Overall housing conditions across the country have improved but there is still a huge gap between demand and supply. Between 1980 and 1998, for instance, the number of units had increased by 2.47 million, an increase of almost 70%, and persons per room had declined from 3.2 to 2.6, a decrease of 19% (Hasan & Arif, 2018). Pakistan’s urban housing demand is estimated at 350,000 units annually: 62% in the low-income group; 25% in the lower middle-income group; and 10% in upper-middle and higher-income groups (Aftab,

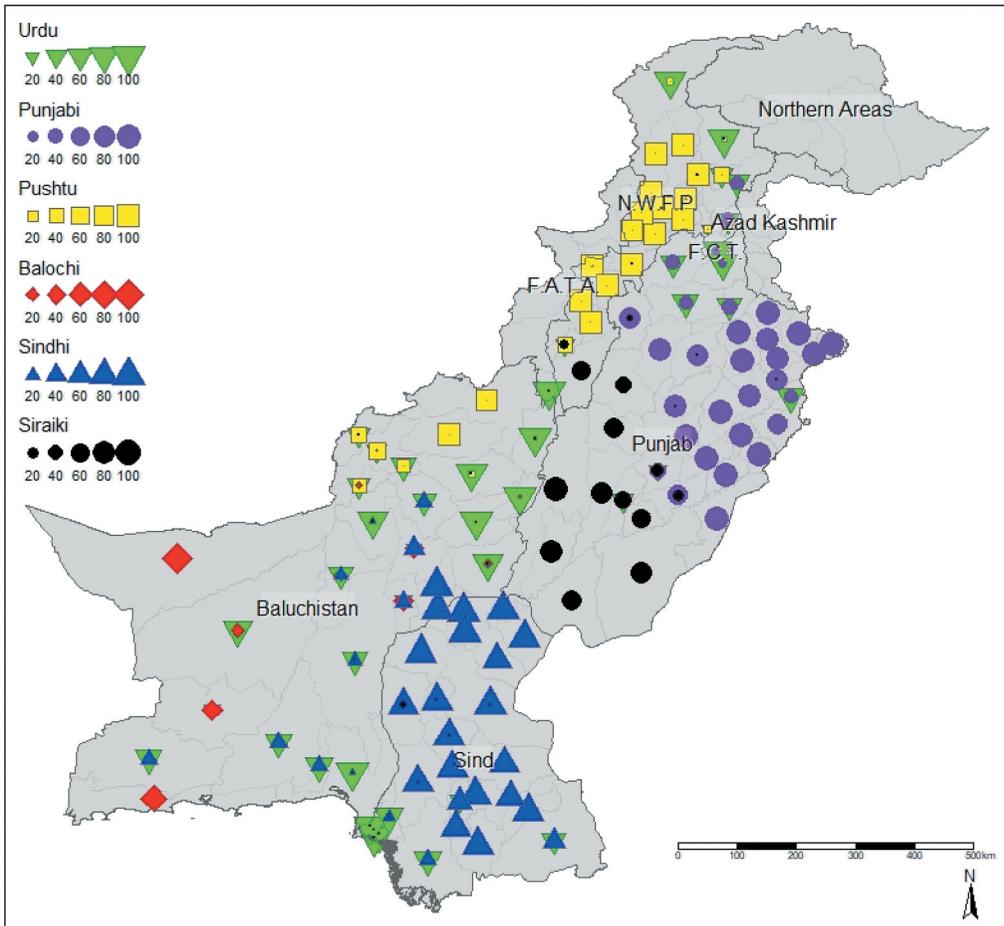


Figure 1. Location of ethnic population in Pakistan. Data Source: PBS (2016).

2019). The estimated supply is only about 150,000 units per year, about 43% of the total demand. Low-income groups have most of the housing needs, but the supply is meager. Lahore, for example, 68% of the low-income group has only 1% of the total housing units within their buying reach (Siddiqui, 2014). Like other emerging countries, adequate resources are not allocated in proportion to the low-income population (Siddiqui, 2014).

The country faces pervasive spatiotemporal inequality in housing. The 1998 census (data as yet unavailable from the 2017 census) shows 82% of the urban households had permanent (*pucca*) housing and the share varied by a factor of 2.5 across the provinces: 34% in FATA² to 84% in Sindh (PBS, 1998). Further, 51% of the urban households had separate latrines and the share varied by a factor of 2.0 across the provinces: 35% in Balochistan to 71% in FATA (PBS, 1998). Furthermore, spatial disparity exists in housing. Based on the analysis of the recent Demographic and Health Survey data, Aizawa et al. (2020) show large cities have only 29.5% adequate housing, whereas small cities and rural areas have only 10.6% and 7.5% adequate housing, respectively. Households living in large cities with higher economic inequality and lower housing affordability are likely to experience greater housing inequality (Aizawa et al., 2020). A study based on five cities—Faisalabad, Gujranwala, Lahore, Multan, and Rawalpindi (all from Punjab, Pakistan)—further reiterates the prevalence of spatiotemporal disparity on socioeconomic status and infrastructure development, where Lahore remains the most developed (Rana et al., 2017). Furthermore, the Lahore region shows that spatial disparity follows a core-periphery model, where the core is more developed than the periphery (Rana et al., 2020). Khalid Muhammad et al. (2019), further, reveal that the prevalence of spatiotemporal inequalities have decreased over time. It is found that the uneven income distribution is associated with higher inequality in consumption expenditure, whereas higher disparity in multidimensionality is associated with inequality in all dimensions in rural areas. These studies suggest a high occurrence of spatiotemporal housing inequalities.

Generally, but not intentionally, housing has received less policy attention than other sectors. The most recent national housing policy, framed in 2001, prioritizes the identification of land for housing and removes bottlenecks from the land-acquisition process, among others (GoP, 2001). It emphasized resource mobilization and encouraged institutions to provide mortgage loans for housing at market rates. Public sector-led infrastructure development remains a priority for successive governments.

Housing issues are mainly managed by the provincial governments via dedicated agencies such as Housing, Urban Development & Public Engineering Department (HUD&PED) in Punjab (Malik et al., 2020). At the province level, there are several programmes for exclusive facilities for the disadvantaged population, especially for Balochistan, Interior Sindh, and South Punjab, such as mass housing programmes, slum upgrades and the national low-cost housing program. These interventions have had partial success in reducing housing inequalities (Malik et al., 2020).

Recently, the federal government has launched two programmes that aim to provide affordable housing for low-income households: the *Ehsaas* Program (GoP, 2019); and the *Naya* Pakistan Housing Program (NPHP, 2019). The *Ehsaas* Program, launched in 2019, as part of the poverty alleviation and social safety aims to reduce inequality by investing in people and improving lagging districts. It aims to provide *Ehsaas* homes for 10,000 orphans, *panahgah* (temporary shelter) in several major cities and housing schemes for the poor through interest-free loans. NPHP is a flagship program of the federal government,

launched in 2019 with a mission to provide housing for all arrange shelter for homeless people, make housing affordability a mean not just an aim, and give rural people a life of contentment and ease (NPHP, 2019). This program targets 5 million housing units in 5 years. It seems to be a game-changer as it brought multiple structural changes to achieve its target, for example, the establishment of the Naya Pakistan Housing and Development Authority (NAPHDA). This program seeks to regulate housing and real estate development activities from the point of land identification to setting up schemes. It imposes a uniform tax rate of 2% on property transfers across the country and offers a fixed income tax (10%) from undisclosed sources as income on investment while exempting tax authorities from questioning sources of income. It also prescribes time limitation to issue clearance certificates, thus removing obstacles and endemic corruption.

Socioeconomic and cultural profile of the selected ethnic groups

There are six major language-based ethnic groups—Punjabi, Urdu, Pushtu, Sindhi, Saraiki and Balochi—in Pakistan, where Punjabi is the largest group with 44% of the population (Figure 2). The share of Urdu speakers is only 7.6%, but Urdu is the national language and lingua franca, and most Pakistanis speak it as a second language. Notably, the population is spatially distributed by ethnolinguistic groups (Figure 1). In absolute numbers, after Punjabi, the Urdu-speaking population forms the largest urban population. The Urdu-speaking community has the highest asset index (0.61), whereas Saraiki (0.46) and Sindhi (0.45) groups have the lowest asset index. Similarly, Urdu-speaking households have the highest mean years of schooling (7.7), whereas Baluchi households have the lowest mean years of schooling (3.3). Baluchi forms the largest household size (average 8.5 members) with the highest employment per household (average 2.3 employments), but the least room per person (0.37). Sindhi and Balochi live in overcrowded dwellings (over 3 persons per room) but Urdu-speaking households live in less crowded dwellings (less than 2 persons per room). As for utilities, Balochi has the least access to drinking water (78%) and cooking gas (34%). To sum up, the socioeconomic profiles indicate that the living standard of Urdu and Punjabi households is high, while that of Balochi, Saraiki and Sindhi households is low (Figure 2). Baluchi households consist of a small share of the population but are in the most disadvantaged position.

Approaching ethnicity-based group inequality in housing

Group inequalities (also known as “horizontal inequalities” in development economics) have many sources but mostly have been focused on those factors that are not subject to change such as gender, age, ethnicity or religion (Stewart, 2008). The high and persistent horizontal inequalities lead to deprivation within marginal groups, political tensions, and civil wars (Canelas & Gisselquist, 2019; Stewart, 2016b).

The concept of ethnic inequality is linked to the exclusion paradigm, as social scientists argue. The term *exclusion* has many definitional outcomes of a socio-economic nature, for instance, the minority class is culturally distinct from the mainstream population. The use of the term *exclusion* refers to relatively inadequate housing for a specific population group (Law, 1996; Murie, 1996). Exclusion applies only to a subgroup in a multi-ethnic society when the subgroup is differentiated in terms of a process, a function of an agency or a state.

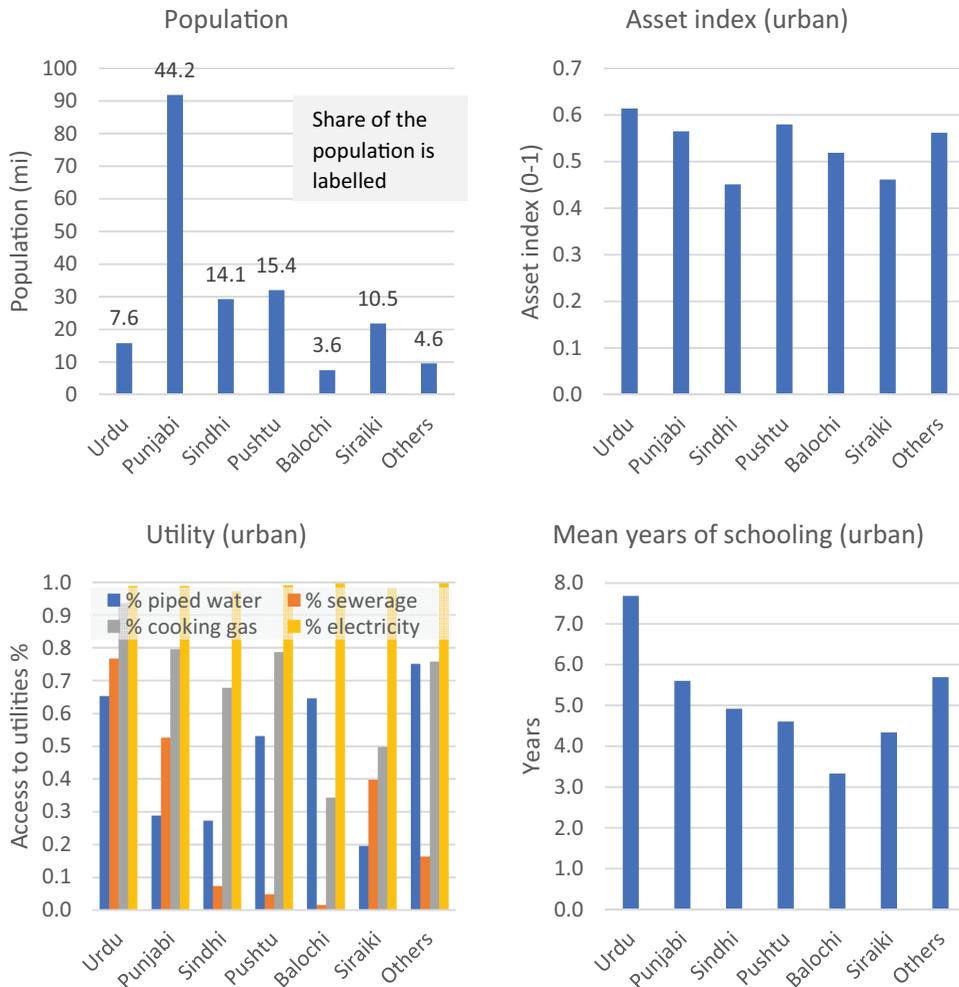


Figure 2. Distribution of population, asset, utility and mean years of schooling by ethnic group in Pakistan, ca. 2015. Data source: Population data is from PBS (2017) and other data from PBS (2016).

Tilly (1998) calls this “durable inequality,” where he argues that inequalities are not entirely the natural outcomes of differences in abilities, talent, and motivation, but are the results of institutional and social relations that have been deliberately crafted by individuals and groups for their advantage. Notably, disadvantaged groups (ethnic or other categories) fall into a vicious cycle of deprivation, relatively for a longer time.

The emergence of stratification economics reiterates that structural and intentional processes generate a hierarchy that leads to income and wealth inequality between ascriptive groups (Darity, 2005). This receives widespread support across disciplines, including urban and regional economies, where understanding inter-group and class-based inequality is crucial to achieving sustainable economic development (Obeng-Odoom, 2018, 2020). Group inequality is based on multiple aspects of horizontal inequality such as gender, income, and education, which can be defined as intersectionality (Crenshaw, 1987, 1989; Kabear, 2010). Andersen and Collins (2015) argue that ethnicity, race, class, and gender are

intersecting categories of experience that affect all aspects of human life, including the built environment. At any moment, ethnicity, race, class, or gender may feel more meaningful in each person's life, but they are overlapping and cumulative in their effects (López et al., 2018; Strand, 2014; Sulley, 2018). Thus, group inequality is linked to intersectionality as shown in Figure 3. Kabeer (2010) calls this intersection of groups a “new form” of inequality rather than simply a group inequality.

Social divisions can have a major impact on the quality of life, in return, being linked with underdevelopment and poor public goods provision (Alesina et al., 2016; Majid & Memon, 2019). Group inequalities in housing space consumption and access to utilities remain a significant challenge in urban areas of developing countries. As place-based infrastructures, these are an integral part of the community fabric and their inadequacy can impact the socio-economic and human well-being of communities (Ahmad et al., 2014, 2017; Foell & Pitzer, 2020). Overcrowding and unsustainable use of housing resources hamper human development (Tsenkova, 2008). Persistence of economic inequality among communities leads to inadequate housing consumption in the long run (Tilly, 1998).

Ethnicity-based housing inequality has been extensively studied in Europe and North America (DeSilva & Elmelech, 2012; Phillips & Harrison, 2010). In the U.S., Black people remain less likely to own homes and more likely to live in older, crowded, and structurally inadequate housing than White people (Bianchi et al., 1982; Howell & Korver-Glenn, 2018; De La Cruz-Viesca et al., 2018). Similarly, studies reveal housing inequality in China based on socio-economic profile and *Hukou system* (Chen, 2019; Huang & Jiang, 2009; Wang & Murie, 2000). India's Muslim and Dalit populations have a lower living standard than the mainstream population, as measured by living space and access to utilities, mainly on

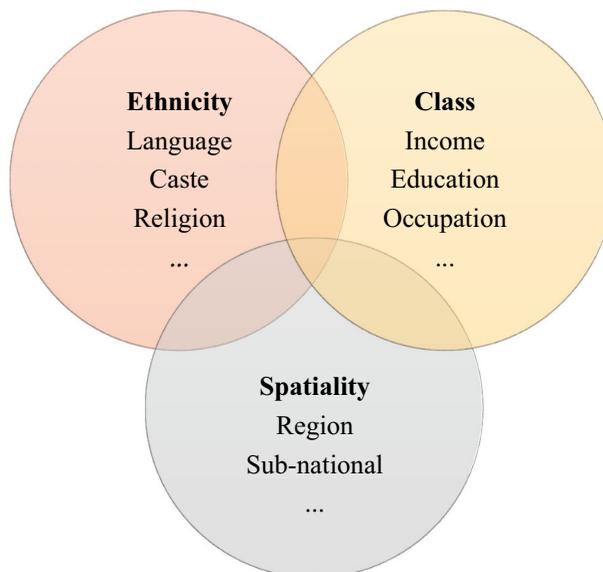


Figure 3. Analytical framework for intersectionality in group (horizontal) inequalities. Note: The Venn diagram shows the intersection of the selected set of determinants of inequalities. A household placed in a disadvantaged position between two or more groups may experience a higher level of inequality.

account of discrimination (Ahmad, 2012; Thorat et al., 2015). In the context of Pakistan, a few studies have indicated ethnicity as an essential category to study inequality such as Shafique (2013) and Gazdar and Mallah (2012) but have not delved into details.

Data and methods

This study uses data from a nationally representative Pakistan Social and Living Standards Measurement Survey (PSLM, 2014–15), consists of 78,635 sample households from 114 districts from four provinces of Pakistan, in both rural and urban areas (PBS, 2016). It excludes the Federally Administered Tribal Areas (FATA) and military restricted areas, about 2% of the national population. The survey collected information about income, wealth, health, education, pre/post-natal care of females, immunization, water and sanitation, household satisfaction by facilities and services and household perception of the economic situation. Since this study focuses on urban areas, it therefore uses only 13,965 urban households. This national survey employed a stratified two-stage sample design. The Pakistan Bureau of Statistics (PBS) has developed an area sampling framework for both rural and urban domains. Each city/town/district is divided into enumeration blocks, with 200 to 250 households each on average. The enumeration blocks have well-defined boundaries and maps. These enumeration blocks were the Primary Sampling Units (PSUs) for rural and urban domains. Table 1 presents the distribution of sample households across respondent groups.

Dependent variables

Based on the nature of the original data, housing consumption in our study is measured by the household's dwelling space usage and access to utilities. The former is measured by the number of rooms per household member (age 6 or above). Ideally, dwelling size per capita could be a better measurement, but it was not collected in the survey. The latter is measured by a facility index that combines four basic services related to the dwelling unit: piped water; cooking gas; electricity; and sewerage facility. These services are dichotomous (yes = 1, no = 0). The facility index forms with equal weights and rescaled score ranges between 0 and 1, where 0 is a household without any facilities, and 1 means with all four facilities. The

Table 1. Description of the collected data by respondent groups, PSLM, 2015.

Variable name	Respondent group	Rural (%)		Urban (%)	
Province	KP	11,898	(18.40)	1,184	(8.48)
	Punjab	29,465	(45.56)	7,106	(50.88)
	Sindh	14,336	(22.17)	4,399	(31.50)
	Baluchistan	8,971	(13.87)	1,276	(9.14)
Gender of the Head	Female	5,309	(8.21)	1,029	(7.37)
	Male	59,361	(91.79)	12,936	(92.63)
Language	Urdu	13,155	(20.34)	4,994	(35.76)
	Punjabi	17,123	(26.48)	3,285	(23.52)
	Sindhi	13,871	(21.45)	3,164	(22.66)
	Pushtu	9,190	(14.21)	1,175	(8.41)
	Balochi	1,259	(1.95)	211	(1.51)
	Siraiki	9,563	(14.79)	985	(7.05)
	Others	509	(0.79)	151	(1.08)
Total		64,670	(100)	13,965	(100)

computation approach follows Huang and Jiang (2009) and Bhan and Jana (2015). This choice is further justified, as the facility index was highly correlated with an index, generated using Principal Component Analysis (PCA) weights ($r = 0.98$). Therefore, this study preferred the facility index (range: 0–1) to make the interpretation simple. Another approach, where both dwelling size and access to utilities could be combined as Aizawa et al. (2020) but this study estimates that both discretely given policy interventions are laid out separately.

Independent variables

This study uses three key independent variables: ethnicity, income, and educational attainment. The ethnicity is based on the native language, income is represented by the asset index, and the educational attainment is the mean years of schooling. Ethnicity is measured based on seven native languages: Urdu, Punjabi, Sindhi, Pushtu, Balochi, Saraiki, and Others (Majid & Memon, 2019). An asset-based approach is used to measure household economic condition, alternative to income and consumption expenditure (Howe et al., 2008). This approach has arisen from demographic studies, such as the Demographic and Health Surveys (DHS), which collect information on ownership of a range of durable assets (e.g., air cooler, car, refrigerator, television and others),³ though they lack data on income or consumption expenditure. Observations on income are available in the PSLM, but its reliability is questionable (Jamal, 2011). Therefore, the weighted asset index is estimated using the PCA. The index ranges from 0 to 1; 0 means possession of none of the durable assets and 1 for possession of all durable assets in a household. The educational attainment, measured by the mean years of schooling, is computed using the average number of completed schooling years of all household members of age 25 or above (Canelas & Gisselquist, 2019).

The explanatory variables for the determinants of housing inequality are selected following the individual production function and the human capital model. Both the quantity and quality of housing consumption depend primarily on economic status. Thus, the number of household members employed, and the weighted asset index are considered to represent the economic situation. Household's educational attainment highlights the contribution of education to inequality. In addition, household's demographic characteristics are considered: household's head age; household's head gender; and household size.

Measurement of housing inequality: Gini coefficient

The augmented Gini coefficient by groups is the most widely used measure of inequality. Possible values range between 0 and 1, with 0 meaning a perfectly equal distribution and 1 a perfectly unequal one. Works of Stewart (2010), Stewart (2016a) and others on horizontal inequality offers arguably the most extensive consideration of the Gini coefficient along with the coefficient of variation and Theil index as good

measures to capture group dimensions in inequality. Since we are interested in estimating the housing inequality between population groups, so, we estimated group Gini as follows:

$$\text{GroupGINI} = \frac{1}{2\bar{y}} \sum_r^R \sum_s^S P_r P_s |y_r - y_s|$$

Where, \bar{y} is the mean of the distribution, y_i is the group i and n is the number of groups. Where y_r the share of households housing consumption of r group and P_r is the share of the population in r group among R groups. Since GGINI compares every group with all other groups, P_s is the proportion of the corresponding group and y_s is the value of the respective group in comparison.

Determinants of housing inequality: Regression-based decomposition

This study uses regression-based decomposition to estimate determinants of housing inequality, as produced by Fields (2003) and used by Naschold (2009). This follows a two-step procedure. First, we estimate determinants of housing space consumption and facility index by applying the ordinary least square method.

$$y = \alpha + X\beta + D\delta + \varepsilon \quad (1)$$

Where y is the N -vector of the household housing consumption equivalent, α is the intercept, X is the $N \times K$ matrix of k household characteristics. We combine a subgroup and source inequality decomposition in the same analysis. Subgroups are added to Equation (1) by including subgroup-specific dummy variables, and ε is the normally distributed error term $\varepsilon \sim N(0, \sigma_\varepsilon^2)$.

Since the primary interest lies in subgroup decomposition, using subgroup dummies in a regression-based inequality decomposition is preferable to standard inequality subgroup decomposition for two reasons: it is possible to simultaneously control for other household and community-specific variables through the X in Equation (1), and it is more convenient for handling multiple subgroup categories. The only restriction is that subgroups must be exogenous (Heltberg, 2003).

The second step is to use the estimates from the regressions to construct factor inequality weights for each variable in the regression by exploiting the analogy to Shorrocks (1984) inequality decomposition by sources (Fields, 2003). The relative factor inequality weight of x_k is given by Equation (2).

$$s_k = \frac{\text{cov}(\hat{\beta}_k x_k, y)}{\sigma_y^2} = \frac{\hat{\beta}_k \text{cov}(x_k, y)}{\sigma_y^2} = \frac{\hat{\beta}_k \sigma_{x_k} \rho(x_k, y)}{\sigma_y} \quad (2)$$

Then, the s_k s can then be computed by multiplying their respective $\hat{\beta}_k$ from Equation (1) by the coefficient obtained by an OLS regression of the respective x_k on housing quality using middle expression from equation (2) (Ravallion & Chen, 1998). The relative factor inequality weight indicates the percentage change in housing inequality due to x_k . The

factor inequality weight corresponding to the error term of the regression, ε , identifies the proportion of inequalities unexplained by the variables included in regression (1), and s_ε is calculated analogously to the other s_k s. Therefore,

$$s_k = \frac{\text{cov}(\varepsilon, y)}{\sigma_y^2} = 1 - R^2 \text{ and } \sum_{k=1}^k s_k = R^2 \quad (3)$$

To gauge the proportion of explained inequality that is due to factor k we can calculate the percentage contribution or ‘p weights,’ p_k , which are simply the factor inequality weight divided by the R squared of the regression (Fields, 2003):

$$p_k = \frac{s_k}{R^2}$$

Relative factor inequality weights for a subset of variables can be combined into a single group factor inequality weight, s_g , as shown in Equation (4).

$$s_g = \sum_{k \in g} s_k = \frac{\text{cov}\left(\sum_{k \in g} \hat{\beta}_k x_k, y\right)}{\sigma_y^2} \quad (4)$$

This adding up of s_k s also works for non-continuous x variables, such as dummies and categorical variables, regardless of the number of variable units. The total inequality can thus be expressed as the sum of an inequality due to household characteristics X , inequality due to differences in returns to subgroups D , and an unexplained residual inequality.

Validation of the estimated models is tested with standard diagnostic criteria. The selection of the appropriate model is based upon the significance of F-statistics, the significance of the regressors, adjusted R square, and R square. The Variance Inflation Factor (VIF) is estimated to check multicollinearity between regressors, which confirms that no significant multicollinearity exists among regressors. Heteroscedasticity is tested with Breusch-Pagan/Cook-Weisberg test for heteroskedasticity that rejects the null hypothesis of constant variance. In this regard, we estimate robust standard errors to ensure the validity of the findings.

Results

This section presents the housing conditions, horizontal inequalities, measured by the group Gini, and socio-economic determinants of housing inequality.

Housing inequalities in urban areas

The average room per capita is 0.45 and the facility index is 0.73 (out of 1) in urban areas (see Table 2). The distribution of room per capita and facility index reveals that the Urdu-speaking community has the highest room per capita (0.49) and facility index (0.84). Sindhis have the lowest room per capita and facility index (0.33; 0.49, respectively) and Balochis have similarly lower room per capita and facility index (0.36; 0.50, respectively). The lowest asset quintile households have 0.35 room per

Table 2. Facility index and room per capita for ethnicity and social class in urban Pakistan, 2015.

Social status		Facility index	Room per capita	Households (N)	HH %
Aggregate		0.731	0.445	13,965	(100)
Ethnicity	Urdu	0.836	0.493	4,994	35.76
	Punjabi	0.650	0.470	3,285	23.52
	Sindhi	0.499	0.348	3,164	22.66
	Pushtu	0.589	0.461	1,175	8.41
	Balochi	0.500	0.368	211	1.51
	Siraiki	0.518	0.420	985	7.05
	Others	0.667	0.478	151	1.08
	ANOVA (F value)	64.97*	62.08*	(13,965)	(100)
Income (asset index)	Quintile 1 (lowest 20%)	0.391	0.347	2,795	20
	Quintile 2	0.518	0.372	2,791	20
	Quintile 3	0.642	0.422	2,926	21
	Quintile 4	0.716	0.463	2,663	19
	Quintile 5 (top 20%)	0.786	0.623	2,790	20
	ANOVA (F value)	535.22*	284.99*	(13,965)	(100)
	Education	No schooling	0.650	0.378	4,231
Primary (1–5)		0.692	0.382	2,164	15.5
Secondary (6–10)		0.756	0.450	4,443	31.82
Higher (11–14)		0.794	0.532	1,253	8.97
Masters (16+)		0.804	0.600	1,874	13.42
ANOVA (F value)		128.95*	172.38*	(13,965)	(100)
Gender		Female	0.714	0.657	1,029
	Male	0.732	0.428	12,936	92.63
	ANOVA (F value)	7.43*	410.08*	(13,965)	(100)

Note: Group inequality is measured using Analysis of Variance, * indicates the ANOVA F-test significance at 1%. Data source: PBS (2016).

capita, and the highest asset quintile households have 0.62 room per capita. Households with heads having no schooling have the lowest room per capita and facility index (0.37 and 0.65) and households with higher education (postgraduate or above) have the highest room per capita and facility index (0.60 and 0.78). Female-headed households have higher room per capita (0.66) than male-headed households (0.43). Moreover, intersectionality between ethnicity, income (asset index), and educational attainment indicate the difference in returns. Sindhi, Balochi and Saraiki in the same income quintile and educational attainment category have lower potential to have housing compared to Urdu, Punjabi, and Pushtu (see Fig A1 and A2). The ANOVA F-tests have confirmed that the difference among groups is statistically significant.

To make the comparison of group-based inequality, we estimate the Group Gini for housing inequality among income group, education group, gender, region, and ethnicity. Figure 4 reveals that along with other group divisions, ethnic inequality is high in housing space consumption (third after education and income) and access to utilities (third after region and income). This finding points the way for further analyses on the determinants of housing inequalities by ethnicity, particularly with intersectionality with education and income. Thus, the next section presents determinants of housing space consumption and access to utilities incorporating intersectionality.

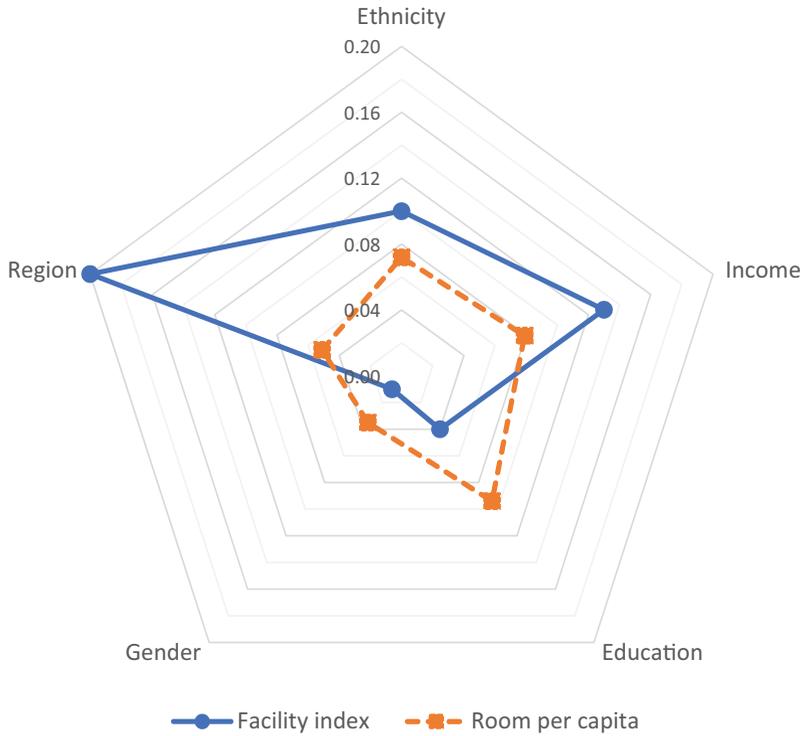


Figure 4. Group inequality in housing facility index and room per capita in urban Pakistan, 2015. Notes: Spider charts indicate the five group-based dimensions of housing inequality: linguistic ethnicity, income groups (5 quintiles), education categorical group, region of the household (urban-rural), and gender of the head.

Determinants of housing inequalities

Three models for facility index and room per capita are estimated. The first model (FI-1 and RPC-1) of each dependent variable does not include an interaction term, but the second and third models include an interaction term of ethnicity with asset index and educational attainment, respectively. The models with interaction terms have higher explanatory power. Table 3 presents the results of the first-stage regression models.

Household’s assets (a proxy to income) are associated with an increase in access to utilities and housing space consumption, *ceteris paribus*. On average, with one unit increase in asset index, facility index score increases by 0.236 (FI-I) and room per capita by 0.228 (RPC-I). An increase in mean years of schooling leads to a significant increase in facility index by 0.004 (FI-I) and dwelling size by 0.015 (RPC-I), and the impact of mean years of schooling on facility index and room per capita remains consistent, while the presence of intersectionality between ethnicity, income, and education. Ethnicity regressed as an independent variable in both models, it reveals that in comparison to the Urdu-speaking community, all others have poor facility index, *ceteris paribus*. In the case of room per capita without considering intersectionality, it indicates that except Punjabi and Pushtu other communities have more room per capita compared to the Urdu-speaking community. Demographic variables do play an important role in access to utilities and housing space consumption. Households with older heads expect to

Table 3. Determinants of housing quality in urban Pakistan, 2015.

Variables	Facility index (0–1)			Room per capita		
	FI-1	FI-2	FI-3	RPC-1	RPC-2	RPC-3
Asset index	0.236***	0.099***	0.231***	0.228***	0.293***	0.242***
Members employed	–0.001	0	–0.001	–0.063***	–0.063***	–0.063***
Mean years of schooling	0.004***	0.004***	0.003***	0.015***	0.015***	0.019***
HH size	–0.010***	–0.010***		–0.010***		
HH's head age	0.001***	0.001***	0.001***	0.004***	0.004***	0.004***
HH head gender (male)	0.031***	0.029***	0.031***	–0.164***	–0.163***	–0.163***
House ownership	–0.046***	–0.046***	–0.047***	0.024***	0.024***	0.026***
Room per capita	–0.024***	–0.022***	–0.023***			
Facility index				0.013	0.02	0.017
Ethnicity (reference = Urdu)						
Punjabi	–0.156***	–0.067***	–0.029***	–0.024***	0.019	0.030**
Sindhi	–0.271***	–0.104***	–0.039***	–0.067***	0.035	0.013
Pushtu	–0.211***	–0.119***	–0.053***	–0.022	0.055	0.028
Balochi	–0.262***	–0.091***	–0.100***	0.007	–0.087	0.077
Siraiki	–0.260***	–0.109***	–0.060***	–0.011	0.089**	0.052**
Others	–0.146***	–0.108***	–0.038**	–0.012	–0.015	0.058
Ethnicity × Asset index						
Punjabi × Asset index		0.267***			–0.067*	
Sindhi × Asset index		0.254***			–0.198***	
Pushtu × Asset index		0.230***			–0.126*	
Balochi × Asset index		–0.094			0.197	
Siraiki × Asset index		0.261***			–0.189***	
Others × Asset index		0.206			0.012	
Ethnicity × mean years of schooling (MYS)						
Punjabi × MYS			0.003***			–0.008***
Sindhi × MYS			0.004***			–0.014***
Pushtu × MYS			0.002			–0.008***
Balochi × MYS			0			–0.015
Siraiki × MYS			0.005**			–0.011***
Others × MYS			0.007			–0.011
Constant	0.701***	0.780***	0.713***	0.300***	0.257***	0.259***
Observations	13,568	13,568	13,568	13,568	13,568	13,568
R-squared	0.332	0.342	0.333	0.165	0.166	0.168

MYS: mean year of schooling; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

have large houses, but this does not affect the facility index. Male-headed houses have a higher facility index compared to female-headed houses. A larger household size leads to a lower facility indexing these. These results echo Huang and Jiang (2009) findings from China that reveal income, employment, education, and ethnicity are significant determinants of room per capita and facility index.

Interaction terms of *ethnicity with asset index* and *ethnicity with education* are included separately in both models, FI-2/RPC-2 and FI-3/RPC-3, respectively (Table 3). The FI-2 model reveals that, on average, for every 1-unit increase in asset index score, facility index scores increase by 0.099 units among Urdu-speaking households and 0.366 (0.099 + 0.267) among Punjabi households. The corresponding values for Sindhi, Pushtu and Saraiki households are 0.353 (0.099 + 0.254), 0.329 (0.099 + 0.230) and 0.360 (0.099 + 0.261), respectively. Thus, a 1-unit increase in asset scores resulted in the highest increase in facility index among Siraiki, followed by Pushtu, Sindhi, and the least among Balochi-speaking households (0.005). This means assets (correspondingly income) differently influence the outcomes of dwelling facility; interestingly, the ethnic communities with lower facility index the most with a similar increase in asset index. FI-

3 model reveals that on average for every 1 year of additional schooling, facility index score increases 0.003 among Urdu-speaking households and Punjabi can increase facility index by 0.006 (0.003 + 0.003) units, Sindhi by 0.007 (0.004 + 0.003) units, and Saraiki by 0.008 (0.005 + 0.003) units. Like assets, educational attainment also influences improvement in dwelling facilities among communities with different potentials.

Returning to economic gains in housing consumption for different ethnic groups is unequal. On average 1-unit increase in the asset index increases 0.293-unit room per capita for the Urdu community, and the Punjabi community can increase room per capita by (0.293–0.067), Sindhi will improve by 0.095 (0.293– 0.198), Pushtu 0.167 (0.293– 0.126), and 0.104 (0.293– 0.189) in Saraiki, *ceteris paribus*. Similarly, the RPC-III model reveals that the return to education for housing consumption is unequal, with the highest in Urdu-speaking households (0.02) and all other communities have significantly lower gains from education for increasing room per capita. These findings reveal that intersectionality significantly explains the housing situation in urban Pakistan. The joint effect of ethnicity and asset index indicates that the deprived communities, such as Balochi, Sindhi, and Saraiki, have poor access to adequate housing that further deteriorates with lower economic levels. Similarly, disadvantaged communities with lower educational attainment led to poor access to adequate housing.

Contributors of housing inequalities

Table 4 presents the results of the second stage of regression-based decomposition analysis, the first column, factor k , presents a contribution to housing inequality indices and the second column presents the percentage share in inequality. This decomposes socio-economic factors that contribute to housing inequality. Inequality in economic status, represented by asset index, mainly explains inequality in dwelling facility. Over 67% of inequality in the facility index is explained by ethnicity and 18% by variation in the asset index. Other factors do not contribute significantly to inequality in dwelling facilities. In housing space consumption, inequality in educational attainment contributes the largest share of inequality in space consumption, followed by inequality in the mean years of schooling (32%), the number of members employed per household (23%), assets (19%), the gender of the household's head (11%), and ethnicity (5%).

In our interest, ethnic inequality does contribute to housing inequalities in terms of housing utilities, but is not a major player in housing space consumption. Overall, the elimination of ethnic inequality will reduce housing inequality by 67% in utilities and 5% in living space. Nevertheless, converging economic inequality (in the form of assets or members employed) would be the most important means to reduce the housing inequalities in living space in urban Pakistan.

Discussion and conclusions

This study aims to bring a better understanding of the factors responsible for urban housing inequalities and housing conditions differentiation among ethnolinguistic social groups in urban Pakistan. Our analysis finds four important insights. First, urban households display a significant inequality in living space and access to utilities by ethnicity, where the magnitude of inequality in access to utilities is higher. By group, inequality in access to

utilities is the highest by region (urban/rural) followed by income and ethnicity, whereas inequality in space consumption is the highest by educational attainment followed by income and ethnicity. This also reflects a relatively low gender-based housing inequality. Second, Sindhi, Balochi, and Saraiki are more disadvantaged than other ethnolinguistic groups, as they live in overcrowded dwellings with fewer infrastructure facilities. Notably, these groups are geographically concentrated (see [Figure 1](#)). Third, housing inequality by ethnolinguistic groups intersects with assets and educational attainment, and correspondingly, disadvantaged ethnic groups with lower assets and educational attainment face an extreme form of inequality. Fourth, contribution to inequality in access to utilities is dominated by ethnicity followed by assets, whereas inequality in space consumption is dominated by the variation in educational attainment, followed by assets, gender, and ethnicity.

Taking a deductive approach, the analysis supports the hypothesis that inequalities exist between ethnolinguistic groups in intersectionality, as outlined in [Figure 3](#), between ethnic groups and income and educational attainment. This reflects a true picture of urban housing inequality by ethnolinguistic groups in urban Pakistan. Further, residential locations based on ethnic lines, as shown in [Figure 1](#), limits opportunities to access education, health, economic activities, and political engagement. The intersectionality indicates “durable inequality,” as Tilly (1998) pointed out, or a “new form” of inequality as Kabeer (2010) suggested.

Overall, improvements in income, along with other socioeconomic profiles such as employment and educational attainment will enhance housing conditions. Moreover, these improvements among the disadvantaged groups (e.g., Balochi and Sindhi communities) will greatly help in reducing housing inequality. Inequality in the living space is

Table 4. Decomposition of the level of housing inequality.

Variables	Contribution of factor levels of housing inequality			
	Facility index model		Room per capita model	
	Factor inequality weight ($S_{k,1}$)	Percentage contribution ($p_{k,1}$)(%)	Factor inequality weight ($S_{k,1}$)	Percentage contribution ($p_{k,1}$)(%)
Asset index	5.885	17.699	3.061	18.552
Member employed	0.050	0.149	3.771	22.855
Years of schooling	2.256	6.786	5.287	32.044
Household size	1.958	5.888		
HH's head age	0.157	0.473	1.682	10.196
HH's head – male	0.068	0.205	1.738	10.534
Housing ownership	1.221	3.673	0.066	0.399
Room per capita	–0.533	–1.602		
Facility index			0.122	0.741
Ethnicity		(66.727)		(4.679)
Punjabi	5.168	15.543	0.105	0.638
Sindhi	9.863	29.664	0.623	3.779
Pushtu	2.766	8.318	0.025	0.153
Balochi	0.689	2.071	–0.004	–0.022
Siraiki	3.585	10.783	0.021	0.128
Others	0.116	0.348	0.001	0.003
Residual	66.751		83.502	
Total	100	100	100	100

related more directly to household characteristics (e.g., education and income), while inequality in access to utilities is influenced more by public policy, infrastructure investment and planning (e.g., regions, ethnicity). The overall housing inequality, especially access to utilities, reflects the structural inequality created by the political economy of the society. A more equal distribution of public investment in infrastructure construction and improvement seems more important than housing improvement itself. Better, equal and pro-poor urban planning is another area politicians, and policymakers should consider.

This study faces some limitations. It does not allow to incorporate all possible factors of horizontal inequalities as some of the vital aspects, such as religion and the nature of employment, are missing. Moreover, further analysis is required to identify the causes of inequalities by ethnolinguistic groups, perhaps using panel regressions. A comparison between ethnolinguistic groups (better-off and deprived) can further shed light on inequalities. Further, spatial analyses can provide place-based interventions to reduce inequalities.

Most of Pakistan's recent housing programmes (for instance, the *Naya* Pakistan Housing Program and *Ehsaas* Program) aim to provide affordable housing to the economic poor. Our results provide evidence for focusing on ethnolinguistic disadvantaged groups along with the economic poor. Since the disadvantaged ethnolinguistic group spatially overlaps with the province (Figure 1), therefore, the national housing policy should also emphasize addressing housing inequality in a regional context via appropriate funds/incentives to provincial governments such that their housing policies and programmes help to reduce housing inequality at the national level. Interventions in this line are already pursued in the Indian subcontinent, for example, India's housing policies, and programmes have pursued affirmative action focusing on culturally disadvantaged groups such as through dedicated housing supply and enhanced subsidies (Kamath, 2012). This study, therefore, suggests recognizing the intersectionality of ethnolinguistic groups with due consideration of their economic and cultural circumstances while designing housing policies and programmes to reduce inequality in space consumption and access to utilities in Pakistan's cities and towns.

Notes

1. Based on four-dimensional housing adequacy—structural, sufficient living area, access to improved water, and access to improved sanitation.
2. The Federally Administered Tribal Areas (FATA) was a former semi-autonomous tribal region in north-western Pakistan that merged with neighboring province Khyber Pakhtunkhwa in 2018.
3. For detailed information of items included in index, see, appendix Table A2.

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Credit

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The data that support the findings of this study are openly available in the Pakistan Bureau of Statistics, Government of Pakistan at <http://www.pbs.gov.pk/content/pakistan-social-and-living-standards-measurement>, reference number Pakistan Social and Living Standards Measurement Survey (2014-15). Used codes along with data are also available at the UoG's research data repository at <http://dx.doi.org/10.5525/gla.researchdata.1190>.

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