

## THE 'TRUE' LEVEL OF INCOME INEQUALITY IN PAKISTAN

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### Abstract

The Household Integrated Economic Surveys (HIES) of the Pakistan Bureau of Statistics (PBS) reveal a low level of income inequality in Pakistan. However, this is due to large sampling and non-sampling errors. Appropriate adjustments for the size and inequality in income from different sources reveal that inequality is much higher. The Gini coefficient rises by over 30 per cent and a new measure of inequality, the Pashum ratio, by 42 per cent. Numerous policy implications are derived from the findings.

*Keywords:* Income Inequality, Imputed Rent, Gini Coefficient, Pashum Ratio, Quintile.

*JEL Classification:* O15, D31, D73.

### I. Introduction

There is a general perception that inequality is low in Pakistan, especially in household incomes. The latest estimate of the Gini coefficient for 2019 is as low as 0.294. According to the World Bank (2021), the Gini coefficient lies between 0.3 and 0.5 for most developing countries.

The fundamental reasons for the understatement of inequality in the Pakistani context are the sampling and non-sampling errors in the Household Integrated Economic Survey (HIES) carried out periodically by the Pakistan Bureau of Statistics. There is substantial underreporting of the national estimate of household incomes. This is the consequence of understatement of earned income by upper-income households due to fear of detection of any tax evasion. Further, the unearned income in the form of dividends, interest realized capital gains are not covered by the HIES. These accrue mostly to upper income households.

Haroon Jamal (2018) has made an attempt to adjust the estimates of the Gini coefficient derived from the Household Integrated Economic Surveys (HIES) carried out by the Pakistan Bureau of Statistics (PBS) since 1987. The approach adopted has been

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to undertake an extensive cleaning process of the data sets. Household data has been scrutinized in terms of food shares, item-wise per capita food consumption and expenditure. A number of observations have been dropped from each data set due to inconsistencies.

The last survey analyzed was in 2016. The estimate derived directly from the quintile-wise estimates of income shares and reported by the PBS was 0.319. Following the cleaning process, it was raised by over 31 per cent to 0.419. However, the nature of the cleaning process has been inherently ad hoc and arbitrary in nature.

Zafar Mehmood (1984) has highlighted that over the years if the Lorenz curves derived to estimate the Gini coefficients intersect, then different measures of inequality could reveal divergent trends. Also, a different approach was adopted for getting a better estimate of the Gini coefficient. The personal income tax data was spliced into the upper part of the income distribution, but this did not affect the results significantly.

The objective of this paper is to present other evidence to establish that inequality is substantially higher in Pakistan. This includes an analysis of the distribution of income from assets in the country from sources other than the PBS and their splicing into the income distribution. Further, a new inequality measure is presented. This is the Pashum Ratio, which was first developed in the United Nations Development Program (UNDP) Human Development Report for Pakistan of 2020. The objective is to highlight better the sources and nature of inequality.

Section II of the paper describes the Pashum Index. Section III presents the recent estimates of income inequality in Pakistan according to the HIES. Section IV derives estimates from different data sources of the national magnitude of different forms of household incomes from different sources. Section V presents the methodology used to estimate household income from different sources. Section VI arrives at a closer estimate of the underlying inequality in income in Pakistan. The concluding Section VII highlights the policy implications of the analyses.

## II. A New Measure of Inequality

The Pashum Index is the weighted aggregation of inequality between successive parts of a distribution. The derivation proceeds as follows in Equation (1):

The share of each quintile of the distribution is represented by  $S_i$  where;

$$\sum_{i=1}^5 S_i = 100 \quad (1)$$

The Pashum Index, PSI, is derived as follows in Equation (2):

$$PSI = \left( \frac{1}{1-S_1} \right) \left\{ \left( \frac{S_2}{S_1} \right) (0.2) + \left( \frac{S_3}{S_2} \right) (0.2) + \left( \frac{S_4}{S_3} \right) (0.2) + \left( \frac{S_5}{S_4} \right) (0.2) \right\} - 1 \quad (2)$$

In effect, PSI derives the average difference in successive shares of the income distribution. It is a measure of inequality with a very transparent interpretation.

The Pashum Index also satisfies the axioms of inequality related to scale invariance, translation invariance, decomposability and the Pigou-Dalton principle of transfers.

In the particular case of income distribution where;

$$S_i = 0.2 \text{ for } i = 1, \dots, 5$$

The Pashum Index has a value of zero. At the other extreme of there is complete inequality we have;

$$S_i = 0 \text{ for } i = 1, \dots, 4 \text{ and } S_5 = 1$$

In this case, the Index has the value of infinity. Therefore, there is substantial scope for variation in the magnitude of the Index, unlike the Gini coefficient which can range only from 0 to 1.

### III. Estimates of Inequality in Pakistan

Three measures of inequality are used, namely, the Gini coefficient, the Pashum Index and a modified Palma Ratio, which derives the ratio of shares between the top and the bottom quintiles.

The income distributions as revealed by the recent Household Integrated Economic Surveys (HIES) by the PBS from 2013-14 to 2018-19 are given in Table 1.

The derived magnitudes of the three measures of inequality are presented in Table 2.

**Table 1**  
Income Shares of Different Quintiles in Pakistan  
According to the HIES

	2013-14	2015-16	2018-19
Top Quintile	44.83	44.18	43.26
4 <sup>th</sup> Quintile	20.47	20.40	20.50
3 <sup>rd</sup> Quintile	14.77	15.06	15.27
2 <sup>nd</sup> Quintile	11.62	11.69	12.39
Bottom Quintile	8.31	8.67	8.58
Total	100.00	100.00	100.00

Source: PBS.

**Table 2**

## Magnitude of Indicators of Inequality

	2013-14	2015-16	2018-19
Modified Palma Ratio*	5.391	5.102	5.041
Gini Coefficient	0.328	0.319	0.310
Pashum Ratio	0.549	0.54	0.532

\*Ratio of shares of top quintile and bottom quintile.

Source: PBS.

All three measures indicate relatively low inequality and a declining trend. The modified Palma Ratio is close to 5. The Gini coefficient in the latest year is slightly above 0.3, while the Pashum Ratio is close to 0.5.

#### IV. Inequality in the Income from Ownership of Assets

Analysis of two assets is included in this section, viz, farmland and residential property. These are assets where other evidence highlights the existence of greater income inequality.

##### 1. Farm Land

The Agricultural Census of 2010 gives the distribution of farms in the country by farm area and by cultivated area. The estimates are given below in Table 3.

There is evidence of extreme inequality. The number of smallest farms is over 43 per cent of the total number of farms but the share in the area owned is only 8 per cent. At the other extreme, just over 1 per cent of the farms account for 22 per cent of the area.

The estimated magnitudes of the inequality measures are derived on the assumption that the net income per acre does not vary substantially by farm size. However, given better access to irrigation water, mechanization and pesticides the yields may be somewhat higher in larger farms. If this is the case, then the inequality measures are understated. The estimates are presented in Table 4.

The magnitudes are very high, above unity in the case of the Pashum Ratio and Gini coefficients above 5. This highlights the stark inequality in the distribution of income from farmland in Pakistan.

The HIES gives the quintile wise distribution of agricultural income. According to the 2018-19 Survey, the resulting estimates of measures of inequality are also presented in Table 4. There is an extremely large understatement of the inequality in agricultural incomes in the HIES. This source of income constitutes over 17 per cent of the total household income in Pakistan. Therefore, the overall inequality is

**Table 3**  
Distribution of Farms by Size in Pakistan

Farm Size (Acres)	% of Farms	% of Farm Area (Acres)	% of Cultivated Area
< 2.5	43.52	8.07	9.06
2.5 – 5.0	21.22	11.62	13.14
5 – 12.5	24.80	27.13	32.90
12.5 – 25.0	6.79	18.11	19.40
25.0 – 50.0	2.55	13.01	12.64
50.0 – 150	0.96	10.73	9.24
More than 150	0.16	11.37	3.62
Total	100.00	100.00	100.00
TOTAL	Number 8263	Area 51592	Area 42622
0	0	0	0

*Source:* Agricultural Census, 2010.

significantly biased downwards by the HIES, due probably more to sampling error. It is unlikely that a PBS surveyor will be able to make a large landlord respond to the HIES.

## 2. Imputed Rent of Owner-Occupied Property

A significant source of income is the imputed rent of the owner-occupied property. This is estimated in the HIES of 2018-19 as being equivalent to almost 11 per cent of the total household income in the country. However, given the large quality differential in housing it is likely that the imputed rent of large dwellings occupied by high income households is understated in the Survey. This will tend

**Table 4**  
Magnitude of Inequality in Farm Area, Cultivated Area and Income

Measure	Agri Census		HIES Agricultural Income
	Farm Area	Cultivated Area	
Palma Ratio*	-	-	2.655
Gini Coefficient	0.610	0.552	0.190
Pashum Ratio	1.518	1.432	0.276

\*The Palma Ratio could not be computed due to lack of information in the Agricultural Census on distribution by quintile.

**Table 5**  
Distribution of Housing Units by Number of Rooms

Number of Rooms	% of Housing Units	% of Quality* - Adjusted Rooms
1	31.39	6.42
2	30.22	16.34
3	18.25	18.40
4	10.17	17.33
5	4.37	11.27
6	2.59	10.12
7	1.25	6.31
8	0.76	5.16
9 or more	1.00	8.65

\*the quality rises with the size of a housing unit as measured by the material used for construction of roof and walls.  
*Source:* Population Census, 2017.

to understate the inequality in the distribution of imputed rent from the owner-occupied property.

The Population Census of 2017 gives the distribution of housing units by the number of rooms. The distribution of imputed rents is derived on this basis. This will understate the inequality in the ownership distribution as 32 per cent of the households live in rented housing. As such, the approach adopted gives the minimum estimate of inequality.

The distribution of housing units reported in the Population Census by the number of rooms is given in Table 5. The distribution of quality-adjusted rooms is also given. The imputed income from a property owned is a function of the number of rooms and the quality of construction.

The estimated magnitudes of the measures of inequality are given in Table 6. The Pashum Ratio, in particular, indicates that the inequality is substantial and much higher than the estimate derived from the HIES.

**Table 6**  
Extent of Inequality in Imputed Rent of Owner-Occupied Property

	Population Census	HIES
Palma Ratio	-	9.115
Gini Coefficient	0.452	0.426
Pashum Ratio	1.978	0.820

*Source:* Author's estimation.

## V. Methodology

### 1. Estimated Income by Source

The reported income of households in Pakistan in the HIES has been verified with relevant information on income from other data sources.

The income from wages and salaries is derived from the Labor Force Survey carried out by PBS in 2018-19. The total employment is reported at 64.03 million, of which 39.8 per cent are employees. The average monthly wage is Rs 21326. These magnitudes yield an annual wage and salary income of Rs 6522 billion.

The income from crop production is reported at Rs 2712 billion in the sectoral estimates of the GDP in 2018-19. Based on data on wage labour inputs of approximately 15 per cent, the net crop income is derived as Rs 2305 billion. A similar methodology has been adopted for income from livestock. Self-consumption of agricultural outputs is assumed to be part of income.

Other non-agricultural activities income corresponds to income from self-employment in the various sectors of the economy excluding agriculture. The number of self-employed workers, according to the Labor Force Survey is 15.53 million. The income per worker is assumed to be 70 per cent of the average wage of an employee, mostly in the formal sector. The resulting estimate of income from non-agricultural incomes is Rs 2795 billion, as compared to the reported magnitude in the HIES of Rs 2631 billion.

Property-related income is assumed to be the same as reported in the HIES. The share of imputed income from owner-occupied property is 80 per cent.

Foreign remittance income of households is grossly underreported at Rs 820 billion, which is under 40 per cent of the actual inflow into Pakistan in 2018-19. Domestic remittances have been estimated by finding the share of the migrant working population from the Labor Force Survey. It was 12.7 per cent in 2018-19 and the number is 8.12 million. The remittance per worker is assumed as Rs 8000 per worker. This yields an estimate of Rs 780 billion as the income received by households from domestic remittances.

The quantum of unearned income from the ownership of financial assets is derived from the withholding income tax data for 2018-19 from the FBR Year Book. Unearned income in the form of dividends, interest on bank deposits and National Saving Schemes and realized capital gains on shares are subject to fixed rates of deduction in the form of presumptive income tax levied at source. The revenues from the withholding income tax on these forms of unearned income yield an estimate of Rs 2210 billion.

Based on the above estimates a comparison is made between the estimated magnitude and the HIES reported value of income from different sources in Table 7.

**Table 7**  
HIES Reported Value and Estimated Magnitude of Income from Different Sources  
(Rs in billion)

	Reported Income in HIES	Estimated Income	Difference
Wages and Salaries	6893	6521	-372
Agricultural Income <sup>a</sup>	2532	4864	2332
Other Non-Agricultural Income	2631	2795	164
Property (Rental Income)	426	426	-
Owner-Occupied (Imputed Income)	1740	1740	-
Social Insurance and Gifts	846	846	-
Foreign Remittances	820	2958	2138
Domestic Remittances	598	780	182
Unearned Income and Others	50	2510	2460
<b>TOTAL</b>	<b>16536</b>	<b>23440</b>	<b>6904</b>

<sup>a</sup> both crop and livestock income.

Source: Diverse.

## VI. Estimated Level of Income Inequality

The quintile-wise distribution of income has been changed in the case of agricultural income and imputed income from owner-occupied property from that given in the HIES. This has been achieved by interpolation within the distributions given in Tables 3 and 5 respectively.

Income from dividends and capital gains is allocated 80 per cent to the top quintile and 20 per cent to the next quintile. Interest income is distributed among the quintiles on the basis of size distribution of personal bank deposits, as reported in the SBP publication, Statistics on Scheduled Banks of Pakistan, for 2018-19.

The magnitude of different measures of inequality in the distribution of income from different sources is given in Table 8.

The distribution by source of income within a quintile is given in Table 9.

Income sources of the upper quintile households are more diversified. The top three sources, viz, wages and salaries, agricultural income and income from self-employment contribute 72.7 per cent to the income of the bottom quintile. This share is lower at 55.9 per cent in the case of the top quintile. Foreign remittances and unearned capital income are significant sources of income for this quintile.

The share of different quintiles in income from different sources is presented in Table 10. The skewness in the distribution among quintiles is most pronounced in income from agriculture, rental income from property pensions, foreign remittances



**Table 8**  
Extent of Inequality in Different Sources of Income\*

	Modified Palma Ratio	Pashum Ratio	Gini Coefficient
Wages and Salaries	3.930	0.448	0.277
Agricultural Income**	14.603	1.039	0.471
Non-Agricultural Income	2.378	0.272	0.140
Property Income (Rented)**	32.381	1.891	0.604
Imputed Property Income	9.711	0.802	0.425
Social Security and Gifts	4.186	0.490	0.293
Foreign Remittances	15.307	1.060	0.483
Domestic Remittances	2.414	0.278	0.155
Unearned Capital Income***	45.397	1.787	0.589

\*Derived from HIES | \*\*Estimated from Tables 3 and 6 | \*\*\*Methodology described in the text.

Source: Author's estimation.

and unearned capital income. The share of the bottom two quintiles is relatively high in wages and salaries, cash transfers and gifts and domestic remittances.

Overall, the top quintile pre-empts over 51 per cent of the total household income in Pakistan. The combined share of the two bottom quintiles is 16 per cent, while the share of the middle class, that is, the third and fourth quintiles is 33 per cent.

**Table 9**  
Quintile-wise Distribution of Household Income by Source, 2018-19

	Quintiles					Total
	1	2	3	4	5	
Wages and Salaries	47.4	37.4	32.8	28.2	22.4	27.8
Agricultural Income	13.3	16.6	15.7	20.1	23.4	20.8
Income from Non-Agricultural Activities*	12.0	16.2	13.8	13.4	10.1	11.9
Property Income**	5.5	6.4	7.0	8.5	11.0	9.2
Social Security and Gifts	6.0	4.5	4.4	3.5	3.0	3.6
Foreign Remittances	7.7	9.2	12.1	12.9	14.2	12.6
Domestic Remittances	5.5	6.1	5.3	3.6	1.6	3.3
Unearned Capital Income and others	2.6	3.6	8.9	9.8	14.3	10.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

\*Derived from HIES | \*\*Estimated from Tables 3 and 6 | \*\*\*Methodology described in the text.

Source: Author's estimation.

**Table 10**  
Share of Quintiles in Different Types of Income, 2018-19

	Quintiles					Total	Total Income (Billion Rs)
	%						
	1	2	3	4	5		
Wages and Salaries	10.6	12.7	15	20.1	41.6	100.0	6521
Income from Agricultural	4.0	7.6	9.7	20.2	58.5	100.0	4864
Other Non-Agricultural Income	6.3	12.9	14.7	22.3	43.8	100.0	2795
Imputed Property Income*	4.1	7.0	10.8	19.3	58.8	100.0	1740
Rental Income from Property	2.3	4.9	5.6	13.8	73.4	100.0	426
Social Insurance Including Pension	2.2	4.3	10.8	20	62.7	100.0	489
Gifts and Assurances	21.6	22.1	21.8	17.6	16.9	100.0	357
Foreign Remittances	3.8	6.9	12.3	18.6	58.4	100.0	2958
Domestic Remittances	10.3	17.3	20.5	27.2	24.7	100.0	780
Unearned Capital Income	1.5	3.2	10.4	16.3	68.6	100.0	2510
<b>TOTAL INCOME</b>	<b>6.3</b>	<b>9.6</b>	<b>12.8</b>	<b>19.8</b>	<b>51.5</b>	<b>100.0</b>	<b>23440</b>

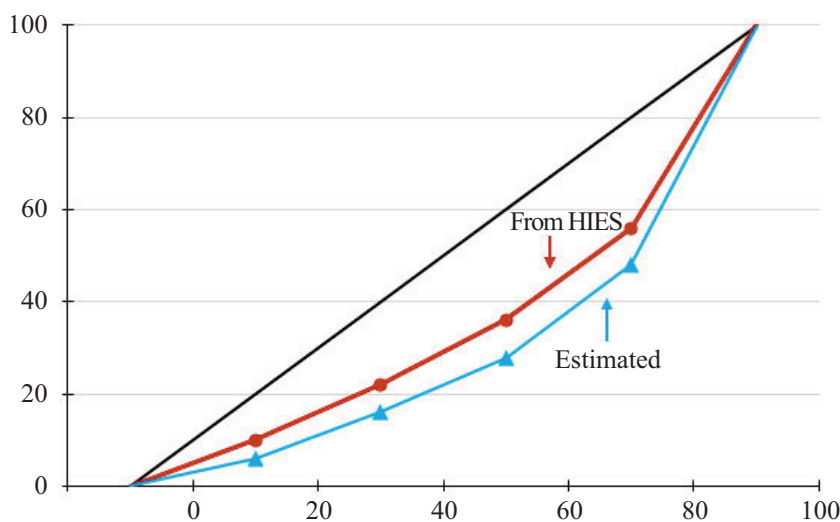
Source: Author's estimation.

The comparison of an overall distribution of household income between the HIES and derived estimates by quintile is given in Table 11. The first distribution is derived directly from the HIES estimates. The second represents the adjusted estimates for the level of income from each source and its underlying distribution by quintile. The Lorenz curves in the two cases are given in Figure 1.

**Table 11**  
Quintile-wise Distribution of Estimated and Reported Household Income, 2018-19

	Quintiles					Total
	1	2	3	4	5	
Estimated Household Income (Billion Rs)	1455	2213	2956	4593	12223	23440
Share (%)	6.2	9.44	12.61	19.59	52.16	100
HIES Reported Household Income (Billion Rs)	1418	2049	2525	3388	7156	16536
Share (%)	8.58	12.39	15.27	20.49	43.27	100
Ratio of Average per House- hold Income, Estimated vs Reported (%)	102.6	108	117.1	135.5	170.8	141.8

Source: HIES.



**Figure 1**

The Lorenz Curves, 2018-19

The increased skewness in the income distribution is amply demonstrated by Table 11. The adjustments lead to an increase in income in the lowest quintile of only 3 per cent, whereas the increase is much larger for the top quintile of over 70 per cent. The level of inequality is likely to be significantly greater than that derived from the HIES directly.

The magnitude of different measures of inequality is presented in Table 12.

**Table 12**

Magnitude of the Measures of Inequality, 2018-19

	From HIES	Estimated	% Increase
Modified Palma Ratio	5.041	8.305	64.7
Gini coefficient	0.310	0.405	30.6
Pashum Ratio	0.532	0.758	42.5

*Source:* Author's estimation.

Therefore, the alternate estimate implies a substantially higher level of inequality. The Gini coefficient goes up by 35 per cent from 0.310 to 0.405 and is now comparable to other South Asian countries. The other two measures show even bigger increases of 42.5 per cent in the case of the Pashum Ratio and 42.9 per cent in the Palma Ratio.

## VII. Conclusion and Policy Implications

The research has led to the conclusion that household incomes are very unequally distributed in Pakistan, contrary to perceptions. At the upper end, the top quintile receives as much as 51 per cent of the total income while at the bottom end the lowest quintile gets only 6 per cent of the income.

There are two fundamental policy implications of this finding. First, a strong and progressive tax system along with large cash transfers have to be put in place to restore more equality in the economic system. Second, the process of structural change in the economy should focus on increasing the share in the income of sources which provides for a more egalitarian distribution of income. This could include changes in the distribution of assets.

The existing income tax system of Pakistan is characterized by low progressivity. Table 13 presents the estimates of the nominal incidence of the personal income tax on different types of income, based on income estimates derived above.

Some of the incidence magnitudes are extremely low. Agriculture income is subject to a provincial income tax, as per the Constitutional allocation of fiscal powers. The total collection by the four provinces combined is only Rs 3 billion, whereas the total agricultural income of the top two quintiles was as much as Rs 3830 billion in 2018-19. The tax is subject to a high exemption limit, extremely low tax rates and

**Table 13**  
Nominal Incidence of Taxes in Pakistan

*(Rs in billion)*

	Income in the Top Two Quintiles	Tax Revenues	Nominal Incidence*(%)
<b>PERSONAL INCOME TAX</b>			
• Agriculture Income	3830	3	0.08
• Wages and Salaries	4022	76	1.89
• Income from Self-Employment	1849	39	2.1
• Unearned Capital Income**	1876	115	6.13
<b>PROPERTY INCOME</b>			
• Urban Immoveable Property	686***	10	1.46
• Rental Income	271	20	7.38

\*Revenues as % of Income | \*\*Income from non-agricultural activities excluding wages and salaries | \*\*\* Urban share of 67 per cent.

Source: FBR | Ministry of Finance, Fiscal Operations.

very inadequate collection efficiency due to the dominance of the feudal class in the political structure of the country.

The nominal personal income tax incidence in the case of wages and salaries is under 2 per cent. This is attributable to a high annual exemption limit of Rs 600,000, equivalent to 240 per cent of the per capita GNI. Beyond this limit, there are as many as ten slabs, with a gradual increase only in the marginal tax rate. The highest rate of 35 per cent is attained at the annual personal income of Rs 750 million, corresponding to over 300 times the per capita income. The reform process should involve the cutting down of the number of slabs to a maximum of five, with the highest marginal tax rate attained at, say, Rs 30 million.

Another extreme example of under-taxation is the urban immovable property tax, which is collected by provincial governments and largely reverted to local governments. The effective tax rate in 2018-19 was only 1.5 per cent. Here again, the problem is low collection efficiency. The tax rate of 20 per cent to 25 per cent on a property is levied on the assessed Gross Annual Rental Value. The fundamental problem is that the GARVs are decades out of date. These should be updated by linking them to property valuation in different cities undertaken recently by the FBR.

Another big surprise is the low nominal incidence of the presumptive income tax on different forms of unearned capital income from financial assets like bank deposits and company shares in the stock market. The tax rates range from 5 per cent to 15 per cent, with wide-ranging exemptions, especially on realized capital gains. The reform required is the conversion of these fixed and final taxes on blocs of income to advance taxes. Taxpayers should be required to declare their unearned capital income in their total taxable income, liable for payment of the personal income tax. This will raise the effective tax rate on such income.

Overall, the above-mentioned reforms of increasing tax revenues have the potential of generating over 1.5 per cent of the GDP, especially for the lower levels of government. This will enable larger outlays on basic social and economic services.

The next set of reforms relates to the move towards a more equal distribution of assets. The pattern of agricultural land ownership is extremely unequal as highlighted above in Table 3. In fact, as highlighted earlier, only one per cent of the largest farms account for 22 per cent of the farm area. The time has come for the implementation of deep land reforms.

Table 5 has also demonstrated the high inequality in home ownership and the size of housing units. Home ownership is estimated as 30 per cent among households in the lowest quintile, rising to over 85 per cent in the case of the top quintile households. The banking system needs to raise the share of housing finance in total credit to the private sector and facilitate small loans by appropriate tax deductibility provisions on bad debt.

Turning to the role of cash transfers there is a need to recognize that their magnitude is low. During 2018-19, the average transfer, both public and private com-

bined, was only Rs 1257 per month to a typical household in the lowest quintile. This was equivalent to only 5 per cent of the average household income. The total transfer was Rs 77 billion. This could be raised substantially with financing by the additional revenues generated from the above-mentioned personal income tax reforms leading to a bigger coverage of the poverty gap. It is estimated at 28 per cent in the lowest quintile, with the poverty line as identified by the World Bank at \$1.50 per day per adult equivalent.

There is, in conclusion, the need to recognize that the 'true' level of income inequality in Pakistan is substantially higher than that indicated by the HIES data. Strong and wide-ranging reforms will need to be implemented if we are to move towards a more egalitarian society and improvement in the quality of life of the bulk of the population.

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