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Occupational Status and Earnings Inequality: Evidence from PIHS 2001-02 and PSLM 2004-05

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Wage/earnings inequalities are one source of overall inequality in a country. The former inequalities in turn are closely linked with differential occupational status either defined in a contractual or productive/skill sense. Using the Pakistan Standard Classification of Occupations [PSCO (1994)], this paper estimates Gini coefficients for three types (all types, employee, self-employed) of individuals/earners by occupational status from the Pakistan Integrated Household Survey (PIHS) 2001-02 and Pakistan Social and Living Standards Measurement Survey (PSLM) 2004-05. Long-term trends in earnings inequality from 1992-93 to 2004-05 are documented with the benchmark estimates in the Ahmad (2002) study, while the short-term trends are measured from 2001-02 to 2004-05 for self-employed and paid employee. The long- as well as the short-term trends indicate rising earnings disparities within each occupational category. Over the longer period, these disparities have risen in the range of 50 to 100 percent. Shifts across occupation and across employment status indicate doubling of the share of Shop and Market Sales and Services Workers and the transition towards becoming self-employed. A few tentative explanations for the observed increasing occupational inequalities at the individual level are: (a) Availability of credit and improved efficiency of capital market may have relaxed capital constraints of former employees and enabled them to transit as self-employed. Right-sizing and down-sizing in public organisations may also have pushed the previous employees into utilising the 'golden handshake' packages towards self-employment. Assuming that returns on capital (internal or borrowed) are higher and financial contracts are more lucrative than wage contracts, the situation can lead to wider disparities. (b) At the paid employee level, the fall in the share of workers in elementary occupations improved the wage contracts of those still remaining in this occupation, and thereby increased the income/earnings inequality within this category. (c) Premium on skills, education, experience, and talent, in spite of the entry of a large number of individuals in the Service, Shop and Market Sales Workers category, has widened the inequalities within this category.

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1. INTRODUCTION

Income inequality refers to the disparities of income across the entire society. While absolute poverty declined in Pakistan between 2001 and 2005, consumption inequality increased marginally during the period.[1] Measures to reduce poverty do not necessarily guarantee that income/consumption inequality will also be reduced. While growth is a necessary condition to reduce poverty, it may not be 'pro-poor' to reduce

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[1]Income inequality at the household/per capita/per adult equivalent can not be estimated from the PSLM 2004-05 survey as income variables to measure household income from all sources and all earners is documented differently in the two surveys.

inequities in the system. As opposed to absolute poverty, both consumption and/or income inequality only reduce gradually from a high level. It depends mainly on historical, structural, institutional and economic environment of the country. Although inequalities in the society can be traced mainly to initial distribution of wealth, a meaningful policy intervention can only be made (even if it only impacts at the margin) by understanding the sources and dynamics of such inequalities in the society. Occupational choice influences and is influenced by the process of development through its effect on the distribution of income and wealth. One can define occupational choice in a contractual sense, i.e., employer, self-employed or employee, ala Banerjee and Newman (1993) or in productive sense as given in standard classifications internationally or nationally. The latter classification is sectorally oriented, i.e., professional, technicians, clerks and agriculture workers etc., but highlight the skill differentiation more explicitly than the former classification.

There are a number of scholarly articles related to the study of income/ consumption inequalities in Pakistan,[2] but this author understands that only a modest effort has been made to quantify the sources and their contribution to the income inequality. Kruijk (1987) disaggregated overall inequality into inequalities of various sources of income. He reached the conclusion that "the bulk of income inequality in Pakistan is generated by labour income inequalities within occupational groups and by inequalities of income from other sources than labour or property". In a more recent paper, Ahmad (2002) studied inequality by using Household Integrated Economic Survey 1992-93 (HIES) data set. He calculated Gini coefficients as a measure of inequality for various occupations as per Pakistan Standard Classification of Occupations [PSCO (1994)], using individuals as the frame of reference. He concludes that the highest level of inequality is observed among skilled workers and lowest level of inequality is seen among professionals. He also observed that relative inequality among occupations/professions is the same in all provinces of Pakistan.

This paper makes a modest attempt by looking at the occupational differences as source of understanding wage/earnings inequalities. In profiling and analysing the trends of income inequality between 2001 and 2005, the PSCO is used to interpret the dynamics of wage/earnings disparities of individuals selected from the household surveys of 2001 and 2004-05. Among the many indicators used to measure income inequalities, this paper uses the Gini coefficient to document the inequalities by occupation status.

The outline of the paper is as follows: In the next section we describe the sample size and variables. A brief description of methodology of estimating Gini is also outlined in this section. In Section 3, using all the earners sample and classification adopted by Ahmad (2002) we compare occupation-wise Ginis estimated by him for 92-93 with the estimates obtained from Pakistan Integrated Household Survey (PIHS) 2001-02 and Pakistan Social and Living Standards Measurement Survey (PSLM) 2004-05. This gives long-term inequality trends within and across occupations. Restricting ourselves to a more homogenous group i.e., employees, we compare the short-term trends in wage/earnings inequality across occupation nationally and provincially in Section 4. In Section 5, the short-term trends in earnings inequality for self-employed are documented for Pakistan. The last section gives plausible explanations for the observed trends in inequality.

[2]Haq (1964), Bergan (1967), Ahmad and Ludlow (1969), Mehmood (1984), Krujik (1987), Ercelawn (1988), etc., and recently by Kemal (1994), and Jaffery and Khattak (1995).

2. THE SAMPLE SIZE AND METHODOLOGY

Latest data set of Pakistan Social and Living Standards Measurement Survey 2004-05 (PSLM) and Pakistan Integrated Household Survey (PIHS) 2001-02 is used for this study. Both surveys conducted by the Federal Bureau of Statistics (FBS), gathered information on approximately 14000 households spread over all the four provinces. In Section 3 we use the information on approximately all the 21,000 earners from PIHS 2001 and PSLM 2004-05 to compare wage/earning disparities with ones obtained by Ahmad (2002). In Section 4 we use a sub-sample of 13,000 and 11,000 paid employees from PIHS 2001-02 and PSLM 2004-05 respectively, to document the short-term trend in wage disparities. Last section uses a sub-sample of 5010 and 3593 self-employed (excluding earners in agriculture) to assess the disparities by occupational status.

PIHS and PSLM surveys, in order to spell out nature and dimension of activities, use Pakistan Standard Classification of Occupation (PSCO), 1994 revised in the light of International Standard Classification of Occupation (ISCO), 1988. Detailed occupations list along with codes is given as Appendix A. In PIHS 2001-02 the question regarding occupation is more detailed and in two digits, while in PSLM 2004-05, one digit classification is used. There are ten basic occupational groups. Last group (identified by digit 0) of armed forces is excluded from the analysis.[3]

Employment and income module of PIHS and PSLM questionnaire cover information about employment, employment status, occupation, industry, and monthly/yearly income of all male and female household members aged 10 years and above.[4] Annual incomes of earners are converted into monthly incomes. To avoid complexity, income from main occupation (first occupation) is used. If an earner is engaged in two or more occupations then his main (first) occupation will be that, from where he/she is earning a major part (in monetary terms) of his/her income. This paper is mainly based on occupation of the earner, e.g., if there are more than one earner in a household and are engaged in different/same occupations then they will be covered in their respective occupations. The analysis is carried out on a weighted sample. The population weights assigned to each household are based on representative population shares of each primary sampling unit in urban and rural areas of all four provinces of Pakistan, Azad Jammu and Kashmir, FATA and FANA. However the sample from latter four areas is excluded as FBS did not supply their respective population weights.

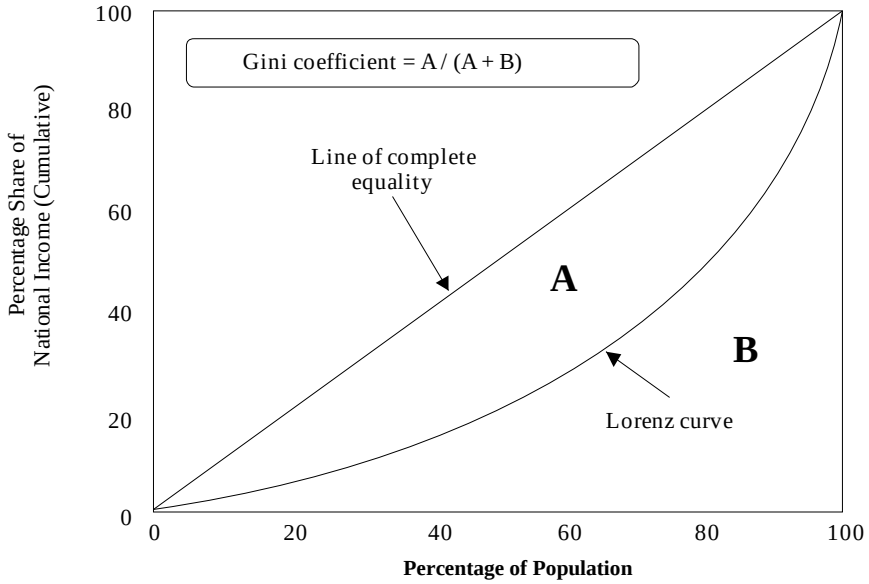
The Gini coefficient, invented by the Italian statistician Corado Gini, is a number between zero and one that measures the degree of inequality in the distribution of income in a given society. The coefficient would register zero (0.0 = minimum inequality) for a society in which each member received exactly the same income and it would register a coefficient of one (1.0 = maximum inequality) if one member got all the income and the rest got nothing. The Gini coefficient (or Gini ratio) *G* can easily be illustrated by the

[3]PSLM 2004-05 did not include personnel of armed forces in its sample survey. Consequently earnings data of armed forces given in PIHS 2001-02 cannot be compared. Moreover in the latter survey, cantonment (military) areas were excluded from the scope of the survey, restricting the sample to military personnel living in civil areas. Thus even sample from the survey of PIHS 2001-02 is not entirely representative of the occupational category of armed forces.

[4]In order to ensure compatibility and consistency across PIHS 2001-02 and PSLM 2004-05, the module on household information that records incomes, of individual working members as one line item is picked for analysis.

Lorenz curve that is an effective way of showing inequality of income within and between countries. The cumulative percentage of population is plotted along the horizontal axis whilst the cumulative percentage of income is plotted along the vertical axis. The curve shows the actual relationship between the percentage of income recipients and the percentage of income that they did in fact actually receive; it also represents the ratio between the diagonal and the Lorenz curve over the area of the triangle under the diagonal.

The Lorenz Curve and Gini Coefficient



Mathematically in a population of *N* individuals, if we couple each individual with all the other, we can have $\frac{N(N-1)}{2}$ different couples. In fact, each individual is coupled with other *N*–1 individuals, but then we need to divide by 2 to count only once each couple '*xy*' and '*yx*'. The Gini coefficient measures inequality by dividing the half of the average absolute differences between each couple of individual welfare values by the mean welfare. Therefore, it calculates all the gaps and it standardises them by the average welfare (μ).

It can be written as follows:

$$G = \frac{1}{\mu} \frac{1}{\frac{N(N-1)}{2}} \frac{\sum_{i>j} \sum_{j} \left| w_i - w_j \right|}{2}$$

"*w*" is the consumption (or income) of each person, and μ is the mean per capita consumption (or income) in the country.

The Gini index can also be written as follows:

$$G = 1 - \sum_{i=0}^{k-1} (Y_{i+1} + Y_i)(X_{i+1} - X_i)$$

Y = Cumulated proportion of Income variable
X = Cumulated Proportion of Population variable
G = Gini Coefficient.

In practice the last formula is easier to use. Income is sorted to ascending order to compute Gini. The Gini Measure is independent of the scale of welfare (no change between nominal or real welfare).

3. LONG-TERM TRENDS IN EARNINGS INEQUALITY

Ahmad (2002) slightly modified the PSCO classification and merged "Clerks", and "Service Workers and Shop and Market Sales Workers" (PSCO Code 4 and 5) to form a group named *White Collar Workers*, and "Skilled Agricultural and Fishery Workers", "Crafts and Related Trades Workers" and "Plant and Machine Operators and Assemblers" (PSCO Code 6, 7 and 8) to form another group and labeled them *Skilled Workers.* To ensure consistency and comparability we have also merged these occupational categories.

In Table 1, long as well as short term trends indicate rising earnings disparities (positive changes indicate increasing inequalities) within each occupational category. In a matter of 12 years they have almost increased by 50 to 100 percent in all occupational classes. The rapid worsening of earnings inequality is among the professional, technicians and associate professionals. In 1992-93 the lowest earnings inequality was reported in the professional group and highest was observed in the skilled worker group. The latter category continues with this distinction in 2001-02 and second highest in 2004-05. However since 2001-02, clerks and service workers have comparatively the lowest within occupation earnings inequalities. Moreover slowest increase in disparities over the period 1992-93 to 2001-02 is estimated in white collar group (Clerk, Service Workers and Shop and Market Sales Workers) and also second lowest for the next period. The per year increase over the entire period is the same, although magnitude of change in the first

Table 1

Pakistan: All Types of Earners

		Income Gini			Changes	
Code	Occupation/Profession	HIES 1992-93	PIHS 2001-02	PSLM 2004-05	1992-93 to 2001-02	2001-02 to 2004-05
1	Legislators, Senior Officials and Managers	0.273	0.406	0.443	0.133	0.037
2	Professionals	0.136	0.394	0.442	0.258	0.048
3	Technicians and Associate Professionals	0.217	0.400	0.460	0.183	0.060
4 & 5	Clerk, Service Workers and Shop and Market Sales Workers	0.265	0.381	0.421	0.116	0.040
6, 7, & 8	Skilled Agricultural and Fishery Workers, Crafts and Related Trades Workers, Plant and Machine Operators and Assemblers	0.299	0.437	0.447	0.138	0.010
9	Elementary Occupations	0.180	0.358	0.411	0.178	0.053
	Pakistan Overall	**–**	**0.434**	**0.457**	**–**	**0.023**

9 year period will appear to be higher than the latter 3 year period. Interestingly the inequality differentials across occupations narrowed considerably during the 12 year period. In 92-93 the Gini ranged from 0.136 to 0.299 across occupations. In the last half decade it has narrowed between 0.381-0.460 across occupations.

This dramatic increase in within-occupation earnings disparities is not uncommon. In case of US, Gittleman (1994) while quoting another study notes, "The 1980s were a decade of dramatic change for the earnings structure in the United States. Differentials in earnings by education widened considerably, the average pay of older workers increased relative to that of younger workers and the earning gap between men and women narrowed markedly. By some measures, these and other changes in the wage structure caused overall levels of earnings inequality to rise to heights not previously seen in the post-World War II period".

How does one interpret these increasing earnings disparities within occupations and lower inequality across occupations during the 12 year period? It is well-known in the labour economics and development literature that earnings in any occupation is affected by shifts in occupation shares due to demand and supply, employment status within occupations, educational, skill and experience level. In absence of comparable earnings data as well as profile of other dimensions for 92-93, it is difficult to relate 2004-05 within and across occupation disparities to the growth in earnings, positive/negative gap from average earnings and structural shifts during the period. However one can offer some tentative explanations for both these phenomena: (a) At a macro level, with a wave of liberalisation, deregulation and privatisation starting in early 90s, the demand for qualified and experienced professionals and technicians (to maintain a competitive edge in exports, and improve productivity) rose in the economy. During the transition from public to private hands, many enterprises shed (early retirement/golden hand shakes) their senior professional and hired new staff under enhanced private salary structure. In some cases by offering higher salaries they poached on senior and qualified staff of other public enterprises. Additionally after privatisation many enterprises may have raised salaries of experienced employed professionals. Hyder (2007) exploring the wage differentials between public and private sector employees using Labour Force Survey 2001-02 data notes, "although professionals are doing above average in the public sector, the *dispersion* looks more pronounced in the private sector". (b) Elementary occupation also witnessed the 3rd largest increase in disparities. This could be simple case of higher returns to increased on-the-job experience, as most in this category have little education, and tighter demand-supply conditions in the labour market for unskilled and semi-skilled workers during the nineties. (c) Relative slow increase in disparities of the senior officials and managers can partly be explained by the observation that the majority in this category are employed in public sector, where the growth in salaries is less frequent, in smaller steps, and less demand determined or skill sensitive. (d) The service and production workers categories (4–8) are the other two groups that experienced relatively less widening of earnings inequality. In this case the increased supply of high school graduates relative to demand and stagnancy in manufacturing may have slowed increase in earnings dispersion. (e) the reduction in disparities across occupations between 92-93 and first half of the new century can partly be attributed to entry of more educated labour force with better skill levels across occupations and replacement of older labour force who joined in 50s and 60s with younger cohorts.

The above aggregation/categorisation was adopted to compare it with Ahmad (2002) results. The weakness in this aggregation scheme is that skilled workers group subsumes a heterogeneous class of workers with wide variety of skill levels ranging from agriculture workers to machine operators. Moreover by including all type of earners, i.e., employees, self-employed and employers it lumps individuals with initial distribution of wealth (i.e., employers), with those who face capital market constraints, i.e., employees in their choice as well mobility within and across occupations. In the next section we thus focus on wage inequality of employee subset of total individual earners.

4. SHORT-TERM TRENDS IN EARNINGS INEQUALITY AMONG EMPLOYEES

Before we present the occupation-wise Gini estimates for 2001-02 and 2004-05, let us profile the short-term shifts across occupations and across employment status within each occupational group that took place in a matter of 3-years. These shifts may have taken place due to dynamics of growth, government policies (e.g., micro-credit and SMEs) and other non-economic and socio-demographic changes. We also present the 2-year national and province-wise profile of average incomes of individuals in these occupational groups. Table 2 gives the share of various earners in each occupation as well within each occupation by employment status obtained from the two surveys. We note the following: (a) In a short period of 3-years, the share of earners as service workers, shop and market sales workers has doubled from 15 to 30 percent. (b) There is a significant drop in the share of earners in elementary occupations, mostly unskilled and semi-skilled (from 23 to 16.6 percent) and crafts and related workers (from 11.4 to 3.4 percent). (c) The remaining occupations show either a marginal decline or an improvement. (d) Within each occupational category, earners classified as paid employee constitute the major group, except in case of skilled agricultural and fisheries workers. The share of employees as clerks ranged from above 90 percent to 50 percent in case of service, shop and sales workers. (e) During the last 3 years, in 6 out of 9 occupational categories, the fall in the share of paid employee has been offset by an increase in the share of self-employed. These between and within shifts in occupational and employment status have implications for across and within trends of wage/earnings inequality among occupations.

Table 3 gives the mean individual earnings of paid employee nationally and province-wise for 2001-02 and 2004-05. In nominal terms the overall earnings of paid employee increased by 62.1 percent at the national level. The highest growth was in the province of Sindh followed by other three provinces that recorded increase near about the national average.[5]

Table 4 summarises the growth in earnings between the two periods, nationally and province-wise across the 9 occupational categories. Senior officials and managers, clerks, skilled agricultural and fisheries workers and plant and machinery operators recorded increases below the national average across most of the provinces. Among the lower salaried categories, workers in the elementary occupations and crafts and related trade workers recorded higher growth than the national increase. A proxy or an indirect

[5]Given the estimated CPI inflation rate 21.45 percent during the inter-survey period, the growth in mean nominal earnings also imply a significant increase in real mean earnings.

Table 2

Profile of Occupational Groups

Code	Occupation/Profession	PIHS 2001-02	PSLM 2004-05
1	**Legislators, Senior Officials, and Managers[a]**	**1.19**	**1.82**
	Employer	6.2	5.2
	Self-employed	22.8	16.8
	Paid Employee	69.8	76.3
		*(98.8)	*(98.3)
2	**Professionals**	**3.84**	**3.88**
	Employer	1.9	0.9
	Self-employed	8.5	16.4
	Paid Employee	89.5	82.5
		(99.9)	(99.8)
3	**Technicians and Associate Professionals**	**3.29**	**2.60**
	Employer	2.7	0.2
	Self-employed	11.6	14.0
	Paid Employee	85.6	85.8
		(99.9)	(100)
4	**Clerk**	**2.58**	**2.17**
	Self-employed	2.3	1.2
	Paid Employee	96.8	98.8
		*(99.1)	(100)
5	**Service Workers, Shop and Market Sales Workers**	**15.47**	**30.12**
	Self-employed	46.9	49.6
	Paid Employee	51.0	48.7
		*(97.9)	*(98.3)
6	**Skilled Agricultural and Fishery Workers**	**34.00**	**35.38**
	Self-employed	5.4	3.3
	Paid Employee	9.2	14.7
	Owner Cultivator	50.1	50.2
	Share Cropper	18.3	14.8
	Contract Cultivator	6.9	6.2
	Live Stock Only	9.7	10.5
		(99.6)	(99.7)
7	**Crafts and Related Trades Workers**	**11.42**	**3.36**
	Employer	1.6	0.5
	Self-employed	21.4	36.1
	Paid Employee	77.0	63.2
		(100)	(99.8)
8	**Plant and Machine Operators and Assemblers**	**5.21**	**4.03**
	Employer	1.7	0.6
	Self-employed	23.3	27.0
	Paid Employee	74.6	71.9
		(99.6)	(99.5)
9	**Elementary Occupations**	**22.99**	**16.62**
	Employer	1.1	0.6
	Self-employed	12.7	19.1
	Paid Employee	84.9	78.7
		*(98.7)	*(98.4)

[a]The numbers against each occupational category in the Table are the weighted percentage share of the respective occupations in the sample.

*The total of employment status may not add up to 100 due to classification errors.

Table 3

Mean Individual Earnings of Paid Employees

Area	Mean Income (Rs)		Increase (%)
	PIHS 2001-02	PSLM 2004-05	
Punjab	2374	3749	57.9
Sindh	2999	5374	79.2
NWFP	2523	3944	56.3
Balochistan	3151	5002	58.7
Pakistan	**2625**	**4256**	**62.1**

Table 4

Growth in Monthly Wages/Earnings (in current Rs)

Code	Occupation/Profession	Pakistan	Punjab	Sindh	NWFP	Balochistan
1	Legislators, Senior Officials and Managers	23.6	21.9	21.6	31.6	62.7
2	Professionals	62.6	58.8	63.4	88.0	40.1
3	Technicians and Associate Professionals	51.2	48.5	61.2	21.9	51.6
4	Clerk	46.7	55.0	39.7	35.2	27.1
5	Service Workers and Shop and Market Sales Workers	50.7	49.2	56.7	70.6	48.6
6	Skilled Agricultural and Fishery Workers	26.7	47.4	32.1	32.6	7.3
7	Crafts and Related Trades Workers	78.1	66.8	111.0	72.7	189.5
8	Plant and Machine Operators and Assemblers	31.5	30.2	38.3	43.7	27.8
9	Elementary Occupations	73.5	74.6	87.1	65.3	72.3
	Overall Change	**62.1**	**57.9**	**79.2**	**56.3**	**58.7**

estimate of assessing widening/narrowing of earnings inequalities across occupations is the ratio of highest to lowest mean earnings. It decreased marginally from 5.8 in 2001-02 to 5.7 times in 2004-05 at the national level. However recalculating it with the second highest earnings, this ratio widened significantly from 2.8 times to 3.6 times during the period (see table in Appendix B for detailed mean earnings province and occupation-wise).

In Table 5 we compare the trends in wage/earnings inequality of employees sub-sample for Pakistan and for all the four provinces between 2001-02 and 2004-05. Comparing with overall Gini in Table 1, note that the Gini for employees is less than for all type of earners in both the years. In other words the wage disparities among paid employees whatever the occupation, is less than for all type of earners. Only in the case of Punjab, the wage inequality did not increase over the period, while it went up marginally in Sindh and significantly in the other two provinces. Occupation-wise change in Gini for Pakistan and provinces between 2001-02 and 2004-05 is given in Table 6 and corresponding absolute values are given in table in Appendix C. We note the following from Table 6: Wage/earnings inequalities have widened within most of the occupations at the national and provincial level during the period under study. However the trends towards greater inequality or equalisation in few cases, is not consistent across Pakistan and the provinces. For instance, one observes narrowing of wage inequalities at the national level for technicians and associate professionals, but the same is not true for the other three provinces, i.e., Sindh, NWFP and Balochistan. Similarly marginal worsening

Table 5

Gini Values of Wage/Earnings of Employees

Area	Income Gini PIHS 2001-02	Income Gini PSLM 2004-05	Increase (%)
Punjab	0.4358	0.4362	0.0004
Sindh	0.406	0.422	0.016
NWFP	0.365	0.416	0.051
Balochistan	0.302	0.375	0.073
Pakistan	**0.417**	**0.435**	**0.018**

Table 6

Changes in the Value of Gini Coefficient from 2001-2 to 2004-05

Code	Occupation/Profession	Pakistan	Punjab	Sindh	NWFP	Balochistan
1	Legislators, Senior Officials and Managers	0.064	0.146	0.034	–0.106	0.028
2	Professionals	0.039	0.020	0.039	0.137	–0.036
3	Technicians and Associate Professionals	–0.013	–0.070	0.002	0.045	0.114
4	Clerk	0.042	0.097	–0.018	–0.037	0.000
5	Service Workers and Shop and Market Sales Workers	0.029	–0.005	0.047	0.070	0.043
6	Skilled Agricultural and Fishery Workers	0.007	–0.008	–0.003	–0.107	0.073
7	Crafts and Related Trades Workers	–0.064	–0.071	–0.054	–0.093	–0.074
8	Plant and Machine Operators and Assemblers	0.023	0.023	–0.012	0.062	0.082
9	Elementary Occupations	0.048	0.000	0.089	0.098	0.180
	Overall Change	**0.018**	**0.0004**	**0.016**	**0.051**	**0.073**

of wage/earnings inequality in skilled agricultural and fishery worker category at the national level is due to Balochistan, while in all other three provinces the trend is towards reduced disparities. Only in the case of crafts and related trades workers category, a significant narrowing of wage/earnings inequalities is observed nationally and for all the four provinces. In the case of Punjab, narrowing of wage/salary inequalities in 5 out of 9 occupations during the period explain the unchanged income disparities. The summary information on growth in average earnings in Table 4 and changes in inequality as measured by Gini in Table 6 can be used to crudely measure the association between the two variables.

Table 7 gives simple correlation between growth in earnings and change in Gini coefficient across all the occupations for Pakistan and the four provinces. Except NWFP, the inter-dependent relationship is negative. If one assumes that causality flows from growth to inequality in the short-run, (it may very well flow in other direction in the long-run), and the estimates indicate that those occupations that experienced higher growth in average earnings also experienced reduced earning disparities. A caveat is in order here. The correlations are not high and their statistical robustness is doubtful due to just nine observations in each case.

Table 7

Correlation between Growth Rate of Individual Earnings and Change in Gini

Area	Correlation
Punjab	–0.5928
Sindh	–0.1240
NWFP	0.4945
Balochistan	–0.4237
Pakistan	**–0.4087**

5. SHORT-TERM TRENDS IN EARNINGS INEQUALITY AMONG THE SELF-EMPLOYED

In this section income Gini has been computed for self-employed persons engaged in different occupation groups. The values given in Table 8 have been computed only for Pakistan, as province level breakdown will yield a very small sample for reliable estimates. Moreover we exclude the Clerk category as more than 90 percent are paid employees. Skilled agriculture and fisheries workers are also excluded because of small sample size. In both years the income reported against the earner in the SES module of the survey is used for estimation purposes.

Table 8

Pakistan—Self-employed

		Income Gini		
Code	Occupation/Profession	PIHS 2001-02	PSLM 2004-05	Change 2001-02 to 2004-05
1	Legislators, Senior Officials and Managers	0.489	0.420	–0.069
2	Professionals	0.481	0.524	0.043
3	Technicians and Associate Professionals	0.489	0.694	0.205
5	Service Workers and Shop Market Sales Workers	0.395	0.424	0.029
7	Crafts and Related Trades Workers	0.506	0.562	0.056
8	Plant and Machine Operators and Assemblers	0.348	0.345	–0.003
9	Elementary Occupations	0.379	0.460	0.081
	Pakistan Overall	**0.431**	**0.460**	**0.029**

In 2001-02 highest level of income inequality existed within the self-employed crafts and related workers, followed closely by technicians and associate professionals. In a matter of 3 years this ranking has been reversed along with widening of gap across these two professions. The within incomes of two groups, i.e., self-employed senior officials and managers and plant and machine operators are slightly more equal (indicated by lower value of Gini) in 2004-05 as compared to 2001-02.

6. RISING EARNINGS INEQUALITIES WITHIN OCCUPATIONS: CONCLUDING COMMENTS

The increase in disparities in earnings of individuals within occupations is just one among many sources of observed increase in income/consumption inequality in the

country during the last 12 years as well as between 2001 and 2005. Widening disparities in income in the middle stages/phases of development of an economy are an observed empirical regularity Kuznets (1955). Linking the dynamics of occupational choice (in a contractual sense) and development, Banerjee and Newman (1993) state, "Conversely the process of development also affects the structure of occupations. It alters the demand for and supply of different types of labour and hence the returns to and allocations of occupations. It transforms the nature of risks and the possibilities for innovation. And of course it changes the distribution of wealth".

Some of the plausible explanations or linkages of the above evidence on increasing earnings inequality at the individual level is as follows: (a) Taking into account all type of earners, in 6 out of 9 occupations, the share of self-employed increased during the inter-survey period. For many in the employee category, availability of credit and improved efficiency of capital market may have relaxed capital constraints and thus may have allowed them to work as self-employed. Right and down-sizing in public organisations may have also pushed the previous employees into utilising 'golden hand shakes' for the purpose of self-employment. Assuming that returns on capital (internal or borrowed) is higher and financial contracts are more lucrative than wage contracts it can lead to wider disparities. (b) At the paid employee level, the fall in the share of workers in elementary occupations improved the wage contracts of those still remaining in this occupation and thereby increased income/earnings inequality within this category. (c) In spite of the doubling of share of the service, shop and market sales workers, this group recorded average increase in earnings and rising inequality. In other words there existed a premia on skills, education, experience and talent accompanying entry of large number of individuals in this occupation.

What are the policy implications of the above evidence on rising earnings disparities within occupations? Policy interventions can be devised to narrow these disparities based on the assumptions of educational and skill levels. If one assumes that entry-level educational requirements within each occupation are roughly similar, than earning disparities are more a function of individual factors. The individual factors relate to skills, experience, nature of job contracts, and gender. Affirmative action that specifically aims at redressing earning disparities due to gender can be devised. Vocational training and formal acquisition of marketable skills can be promoted in occupations where the returns to on-the-job experience are high. This will help to reduce within occupational disparities. If within occupation earnings disparities are due to differences in entry-level education levels, than gradual increase in the education levels of the society will reduce the disparities. Wide variation in adopted technologies and therefore productivities within occupations are another reason for the existence of these disparities. Fiscal incentives can be devised for their uniform and rapid adoption by economic agents and thereby reduce within occupation earnings inequalities. At a conceptual, generic and macro level, earnings disparities are reduced if the earnings of the bottom 20 percent grow faster than those of the top 20 percent. Barring active and effective asset re-distribution, a macro policy mix that would not only accelerate the growth in earnings of lower class (e.g., through increase in physical, human and financial asset base) but cap the run away growth in the earnings of the top quintile through fine tuned growth neutral fiscal policies would help to narrow the earning differentials.

Appendices

Appendix A

Pakistan Standard Classification of Occupations (PSCO)

Group	PSCO Code	Detail
Major	**1**	**Legislators, Senior Officials, and Managers**
Minor	11	Legislators and Senior Officials (Legislators, Senior Government Officials, Traditional Chiefs and Heads of Villages, Senior Officials Of Special-Interest Organisations)
‘’	12	Cooperate Managers (Directors and Chief Executives, Production and Operations Department Managers, Other Department Managers)
‘’	13	General Managers
Major	**2**	**Professionals**
Minor	21	Physical, Mathematical and Engineering Science Professionals (Physicists, Chemists and Related Professionals, Mathematicians, Statisticians and Related Professionals, Computing Professionals, Architects, Engineers and Related Professionals)
‘’	22	Life Science and Health Professionals (Life Science Professionals, Health Professionals (Except Nursing), Nursing and Midwifery Professionals)
‘’	23	Teaching Professionals (College, University and Higher Education Teaching Professionals, Secondary Education Teaching Professionals, Primary and Pre-primary Education Teaching Professionals, Special Education Teaching Professionals, Other Teaching Professionals)
‘’	24	Other Professionals (Business Professionals, Legal Professionals, Archivists, Librarians and Related Information Professionals, Social Science and Related Professionals, Writers and Creative or Performing Artists, Religious Professionals)
Major	**3**	**Technicians and Associate Professionals**
Minor	31	Physical and Engineering Science Associate Professionals (Physical and Engineering Science Technicians, Computer Associate Professionals, Optical and Electronic Equipment Operators, Ship and Aircrafts Controllers and Technicians, Safety and Quality Inspectors)
‘’	32	Life Science and Health Associate Professionals (Life Science Technicians and Related Associate Professionals, Modern Health Associate Professionals (Except Nursing), Nursing and Midwifery Associate Professionals, Traditional Medicine Practitioners and Faith Healers)
‘’	33	Teaching Associate Professionals (Primary Education Teaching Associate Professionals, Pre-primary Education Teaching Associate Professionals, Special Education Teaching Associate Professionals, Other Teaching Associate Professionals)
‘’	34	Other Associate Professionals (Finance and Sales Associate Professionals, Business Services Agents and Trade Brokers, Administrative Associate Professionals, Customs, Tax and Related Government Associate Professionals, Police Inspectors and Detectives, Social Work Associate Professionals, Artistic, Entertainment and Sports Associate Professionals, Religious Associate Professionals)
Major	**4**	**Clerk**
Minor	41	Office Clerks (Secretaries and Keyboard-Operating Clerks, Numerical Clerks, Material-Recording and Transport Clerks, Library, Mail And Related Clerks, Other Office Clerks)
‘’	42	Customer Services Clerks (Cashiers, Tellers and Related Clerks, Client Information Clerks)
Major	**5**	**Service Workers and Shop and Market Sales Workers**
Minor	51	Personal and Protective Services Workers (Travel Attendants and Related Workers, Housekeeping and Restaurant Services Workers, Personal Care and Related Workers, Other Personal Services Workers Astrologers, Fortune-Tellers and Related Workers, Protective Services Workers)
‘’	52	Models, Salespersons and Demonstrators (Fashion and Other Models, Shop Salespersons and Demonstrators, Stall and Market Salespersons)

Continued—

Appendix A—(*Continued*)

Major	**6**	**Skilled Agricultural and Fishery Workers**
Minor	61	Market-Oriented Skilled Agricultural and Fishery Workers (Market Gardeners and Crop Growers, Market Oriented Animal Producers and Related Workers, Market Oriented Crop and Animal Producers, Forestry and Related Workers, Fishery Workers Hunters and Trappers)
‘’	62	Subsistence Agricultural And Fishery Workers
Major	**7**	**Crafts and Related Trades Workers**
Minor	71	Extraction and Building Trades Workers (Miners Shot Firers, Stone Cutters and Carvers, Building Frame and Related Trades Workers, Building Finishers and Related Trades Workers, Painters, Building Structure Cleaners and Related Trades Workers)
‘’	72	Metal, Machinery and Related Trades Workers (Metal Moulders, Welders, Sheet-Metal Workers, Structural-Metal Preparers, and Related Trades Workers, Blacksmiths, Tool-Makers and Related Trades Workers, Machinery Mechanics and Fitters, Electrical and Electronic Equipment Mechanics and Fitters)
‘’	73	Precision, Handicrafts, Printing and Related Trades Workers (Precision Workers in Metal and Related Materials, Potters, Glass-Makers and Related Trades Workers, Handicrafts Workers in Wood, Textile, Leather and Related Materials, Printing and Related Trades Workers)
‘’	74	Other Crafts and Related Trades Workers (Food Processing and Related Trades Workers, Wood Treaters, Cabinet-Makers and Related Trades Workers, Textile Garment and Related Trades Workers, Pelt, Leather and Shoemaking Trades Workers)
Major	**8**	**Plant and Machine Operators and Assemblers**
Minor	81	Stationary-Plant and Related Operators (Mining and Mineral Processing Plant Operators, Metal Processing Plant Operators, Glass, Ceramics and Related Plant Operators, Wood Processing and Paper Making Plant Operators, Chemical Processing Plant Operators, Power Production and Related Plant Operators, Automated Assembly Line and Industrial Robot Operators)
‘’	82	Machine Operators and Assemblers (Metal and Mineral Products Machine Operators, Chemical Products Machine Operators, Rubber and Plastic Products Machine Operators, Wood Products Machine Operators, Printing Binding and Paper Products Machine Operators, Textile, Fur and Leather Products Machine Operators, Food and Related Products Machine Operators, Assemblers, Other Machine Operators and Assemblers)
‘’	83	Drivers and Mobile-Plant Operators (Locomotive Engine Drivers and Related Workers, Motor Vehicle Drivers, Agricultural and Other Mobile Plant Operators, Ships’ Deck Crews and Related Workers)
Major	**9**	**Elementary Occupations**
Minor	91	Sales and Services Elementary Occupations (Street Vendors and Related Workers, Shoe Cleaning and Other Street Services Elementary Occupations, Domestic and Related Helpers, Cleaners and Laundrers, Building Caretakers, Window and Related Cleaners, Messengers, Porters, Doorkeepers and Related Workers, Garbage Collectors and Related Labourers)
‘’	**92**	**Agricultural, Fishery and Related Labourers**
‘’	93	Labourers in Mining, Construction, Manufacturing and Transport (Mining and Construction Labourers, Manufacturing Labourers, Transport Labourers and Freight Handlers)
Major	**0**	**Armed Forces**
Minor	01	Armed Forces

APPENDIX-B

Mean Monthly Wages/Earnings (in current Rs)

		Self-employed						Paid Employee					
		Pakistan		Punjab		Sindh		NWFP		Balochistan		Pakistan	
Code	Occupation/Profession	PIHS 2001-02	PSLM 2004-05	PIHS 2001-02	PSLM 2004-05	PIHS 2001-02	PSLM 2004-05	PIHS 2001-02	PSLM 2004-05	PIHS 2001-02	PSLM 2004-05	PIHS 2001-02	PSLM 2004-05
1	Legislators, Senior Officials and Managers	8919	11166	9846	12003	10315	12539	8439	11107	6413	10433	9849	12177
2	Professionals	5533	8985	4433	7039	5620	9181	4006	7532	5292	7415	4802	7808
3	Technicians and Associate Professionals	5348	14515	3894	5781	4877	7864	4004	4879	4628	7018	4291	6487
4	Clerk	–	–	4073	6315	4633	6474	3803	5143	4667	5930	4255	6240
5	Service Workers and Shop and Market Sales Workers	3948	6406	2289	3415	2820	4419	2100	3582	3225	4792	2497	3763
6	Skilled Agricultural and Fishery Workers	–	–	1258	1854	2165	2860	1645	2182	2494	2676	1698	2151
7	Crafts and Related Trades Workers	2701	5099	1984	3310	2116	4465	2001	3455	1566	4533	2020	3598
8	Plant and Machine Operators and Assemblers	3507	5876	2948	3838	3625	5012	2793	4014	3822	4886	3157	4153
9	Elementary Occupations	2865	4291	1700	2969	2066	3866	1860	3074	2610	4496	1874	3252
	Overall	**3609**	**6196**	**2374**	**3749**	**2999**	**5374**	**2523**	**3944**	**3151**	**5002**	**2625**	**4256**

APPENDIX-C

Gini Coefficients for Paid Employees

		Punjab		Sindh		NWFP		Balochistan		Pakistan	
Code	Occupation/Profession	PIHS 2001-02	PSLM 2004-05	PIHS 2001-02	PSLM 2004-05	PIHS 2001-02	PSLM 2004-05	PIHS 2001-02	PSLM 2004-05	PIHS 2001-02	PSLM 2004-05
1	Legislators, Senior Officials and Managers	0.301	0.447	0.375	0.409	0.463	0.357	0.260	0.288	0.359	0.423
2	Professionals	0.402	0.422	0.367	0.406	0.292	0.429	0.280	0.244	0.378	0.417
3	Technicians and Associate Professionals	0.430	0.360	0.366	0.368	0.296	0.341	0.195	0.309	0.382	0.369
4	Clerk	0.227	0.324	0.267	0.249	0.276	0.239	0.226	0.226	0.247	0.289
5	Service Workers and Shop and Market Sales Workers	0.392	0.387	0.305	0.352	0.330	0.400	0.291	0.334	0.354	0.383
6	Skilled Agricultural and Fishery Workers	0.447	0.439	0.332	0.329	0.382	0.275	0.217	0.290	0.405	0.412
7	Crafts and Related Trades Workers	0.458	0.387	0.464	0.410	0.425	0.332	0.559	0.485	0.461	0.397
8	Plant and Machine Operators and Assemblers	0.274	0.297	0.304	0.292	0.263	0.325	0.141	0.223	0.281	0.304
9	Elementary Occupations	0.373	0.373	0.277	0.366	0.275	0.373	0.224	0.404	0.331	0.379
	Overall	**0.4358**	**0.4362**	**0.406**	**0.422**	**0.365**	**0.416**	**0.302**	**0.375**	**0.417**	**0.435**
	Frequencies	5219	4786	4399	2701	1841	2200	2103	1575	13562	11262

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