The Effects of Migration and Remittances on Inequality in Rural Pakistan

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I. INTRODUCTION

In the Third World remittances – defined as money and goods that are transmitted by migrant workers to their households back home – can have a profound impact upon rural income distribution. This is true for both internal remittances, which are often small but widespread among the rural population, as well as for international remittances, which are typically larger and more concentrated.

Despite these considerations, there is still no general consensus about the effect of internal or international remittances on rural income distribution in the Third World. On the one hand, Lipton (1980) argues that in India internal remittances worsen rural inequality because they are earned mainly by upper-income villagers. With respect to international remittances, Gilani, Khan and Iqbal (1981) in Pakistan and Adams in Egypt (1991, 1989) produce similar findings. On the other hand, some empirical studies suggest a very different outcome. For example, Stark, Taylor and Yitzhaki (1986) find that internal and international remittances in Mexico have an egalitarian effect on rural income distribution.[1]

Two major reasons appear to account for such lack of consensus on the effect of remittances upon rural income distribution: the use of local-level data collection techniques that preclude making unambiguous empirical judgements about the effects of remittances; and the reluctance or inability to use predicted income functions to accurately estimate income before and after remittances.

This paper attempts to overcome these, and similar, problems by presenting a framework for analysing the impact of internal and international remittances

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[1]For international remittances alone, Stark, Taylor and Yitzhaki (1986) find that remittances from abroad had an equalising influence on incomes in one village and an unequalising influence in another.

on rural income distribution. This framework uses predicted income equations to predict (estimate) the incomes of households in two situations: excluding and including remittances. The results are then used to evaluate the changes in income distribution that occur when internal and international remittances are excluded, compared to when they are included.

The analysis presented here is quite focused. Most notably, the study concentrates on the direct, first-order effects of remittances on income distribution. While the author is quite aware of the second- and third-round effects of remittances on income distribution through wage and employment linkages, these issues are largely ignored in this study.

DATA

Data come from a three-year study (1986-87 to 1988-89) of 727 households in three provinces in rural Pakistan.[2] This study was *not* designed as either a migration/remittances study or as one representative of rural Pakistan as a whole. Rather the primary purpose of the study was to analyse the determinants of rural poverty. In each of the three survey provinces the "poorest" district was selected on the basis of an production and infrastructure index elaborated by Pasha and Hasan (1982). The selected districts included Attock (Punjab province), Badin (Sindh province) and Dir (Northwest Frontier province). Since rural poverty also exists in relatively prosperous areas, a fourth district Faisalabad (Punjab province) was added to the survey.[3]

In the third year of the study (1988-89) a migration module was administered to all survey households. In this migration module detailed socio-economic data were collected from each household as well as each individual within that household. For migrant households, internal or international remittances were valued in terms of the income that households reported receiving from returned or current migrants. Remittance figures in this study are therefore net figures (i.e. net of all migration expenses) and do not include the savings held outside the household by migrants).

[2]This study was undertaken by the International Food Policy Research Institute (IFPRI) working in collaboration with Pakistani research institutes – Applied Economic Research Centre (University of Karachi), Punjab Economic Research Institute (Lahore) and the Center for Applied Economic Studies (University of Peshawar). For more details on the study, see Alderman and Garcia (1991).

[3]The sample was randomly drawn with all rural residents in the selected districts having an equal probability of being included. Landowners who reside in urban areas, therefore, are not included in the sample. Since unweighted samples generally tend to miss the apex of a distribution, the fact that there are, for example, far fewer households owning 3,000 acres of land than there are households owning 3 acres may lead to a slight under representation of the skew of landholding in any moderately sized sample.

Of the total 727 households in the survey, 25 were excluded because of incomplete data. The analysis is therefore based on data from 702 households.[4]

Two aspects of this study need to be noted. First, this study focuses on remittances received by migrant households. While this may seem axiomatic, in this study a surprising number of *non-migrant* households also receive remittances. However, since these remittances are sent by extra-familial members – mainly male relatives – and tend to be quite small,[5] they are not included in this study. Second, the emphasis here is on economic migrants, that is, on people who left their households to work either inside or outside of Pakistan. Thus, both female migrants and males below the age of 15 years are excluded from consideration, because most females migrated in order to marry while younger males migrated for educational purposes.[6]

Table 1 presents summary data from the survey. It shows that 239 households (34.0 percent) of the sample have an internal male migrant over 15 years of age and 74 households (10.5 percent) have an international male migrant. These figures include both returned and current migrants. With respect to current migrants alone, the data reveal that 14.2 percent of all households have a current internal migrant and 7.0 percent have a current international migrant. These rates of current migration are slightly higher than those reported by other studies in Pakistan. For example, data from the 1987-88 Pakistan Household Income and Expenditure Survey (HIES), which covers 18,100 urban and rural households, show that only 7.0 percent of all households have a current internal migrant and 2.8 percent have a current international migrant.[7]

Table 1 shows that remittances play an important role in the economies of the surveyed households. For internal migrants, remittances account for 4.6 percent of mean per capita annual household income; for international migrants, remittances account for 12.8 percent of such income. These percentage figures are slightly higher than those reported in the 1987-88 Pakistan HIES Survey. According to that survey, internal remittances account for 4.0 percent of mean per capita annual income for internal migrant households and 5.5 percent of such income for international migrant households.

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[4]The 702 households were distributed as follows: 147 from Attock District (Punjab), 234 from Badin District (Sindh), 176 from Dir District (Northwest Frontier Province) and 145 from Faisalabad District (Punjab).

[5]In this study 279 of the 416 non-migrant households report receiving remittances. However, actual mean per capita internal and international remittances for these 416 non-migrant households are only 37 rupees (US $ 2.30) and 10 rupees (US $ 0.62), respectively.

[6]According to the data, the 702 survey households produced a total of 78 female migrants and 10 male migrants under the age of 15 years. For more on the propensity of Pakistan females to migrate in order to marry, see Irfan (1986).

[7]These rates of migration from the 1987-88 Pakistan Household Income and Expenditure Survey were calculated by determining the number of households reporting (at the time of survey) the receipt of either internal or international remittances.

Table 1

*Selected Characteristics of Non-Migrant, Internal Migrant
and International Migrant Households, Pakistan,
1986-87–1988-89 Pakistan Survey*

Item	Non-Migrant Households	Internal Migrant Households[a]	International Migrant Households[a]
Migration and Remittances			
1. Number of Households	416	239	74
2. Actual Mean Per Capita Annual Household Income (Including Remittances) (Rupees)	3,269.75	3,121.43 (−0.69)	4,314.80 (−3.04)**
3. Actual Mean Per Capita Remittances (Rupees)	–	142.96	552.72
4. Share of Remittances in Actual Mean Per Capita Annual Household Income (Percent)	–	4.58	12.81
Socio-economic			
5. Mean Irrigated Land Owned in Village (Acres)	5.25	2.00 (4.10)**	2.36 (2.12)**
6. Mean rainfed Land Owned in Village (Acres)	1.76	4.30 (−2.87)**	4.20 (−1.96)**
7. Mean Household Size	8.67	9.99 (−3.76)**	11.98 (−6.24)**
8. Mean Number of Males over 15 Years Old in Household	2.39	3.14 (−6.08)**	3.58 (−6.44)**
9. Mean Education of Males over 15 Years in Household (One in Middle School or Higher, Zero otherwise)	0.26	0.38 (−4.18)**	0.44 (−3.96)**

Notes: N = 702 households. 1 Rupee = US $ 0.062. Sum of households in row (1) exceeds 702 because 27 households have both an internal and an international migrant. Household means are those recorded in 1987.
Numbers in parentheses are *t*-statistics (two-tailed), which measure differences between non-migrant households and internal migrant or international migrant households.
[a]Includes both returned and current migrants.
**Difference between households is significant at the .05 level.

MODEL SPECIFICATION AND ESTIMATION

To pinpoint the effect of remittances on income distribution, it would be easiest to analyse the actual income data collected on non-migrant, internal migrant and international migrant households. This appears to be the procedure followed by other studies [Stark, Taylor and Yitzhaki (1986); Gilani, Khan and Iqbal (1981)]. However, this procedure cannot be followed here because of the following methodological problem. In this study 130 of 702 households (18.5 percent) have an internal or international migrant currently working outside of the household. Thus, in attempting to determine income without remittances for all households, it is not known what the per capita incomes of these 130 households would have been had these migrants stayed home. It therefore becomes necessary to *predict* the per capita incomes of all migrant households excluding remittances. And then, to be consistent in the treatment of incomes, it is also necessary to *predict* the per capita incomes of all migrant households including remittances.

In pursuit of these ends, the parameters predicting per capita household income (excluding remittances) (*PREX*) were estimated from the 416 households that did not have a migrant. These parameters were then applied to internal migrant and international migrant households in order to predict per capita household income (excluding remittances) for all migrant households.[8] The equation used was:

$$PREX = f\ (IRLND,\ RNLAND,\ EDUC15,\ HS,\ PROMALE15)\ ...\qquad(1)$$

where

$IRLND$ = irrigated land owned in village by household.[9]
$RNLND$ = rainfed land owned in village by household.

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[8]This method of predicting the incomes of migrants households assumes that the only way in which non-migrant households differ from migrant households is that the latter had or still have a migrant. Internal migrant and international migrant households are not assumed to differ in any entrepreneurial or other way which might affect their income in a manner apart from the relationships captured by the variables used in the predicted income equations.

[9]To avoid the problem of endogeneity, it would be best if the land variable – irrigated land (*IRLND*) and rainfed land (*RNLND*) – used in this paper were measured at time of migration, rather than at time of survey. This is a concern because many studies have found that migrants tend to devote their remittance expenditures on land. Two points, however, need to be noted. First, more recent studies [e.g. Adams (1991); Gilani, Khan and Iqbal (1981)] have found that migrants tend to devote only a small portion (15–20 percent) of their *total* remittances expenditures on land. Second, these studies have found that migrants – especially international migrants – tend to spend more on land for *building* purposes (e.g. house construction), rather than on agricultural land. On these bases, it seems unlikely that using agricultural land variables measured at time of survey – rather than at time of migration – introduces any serious bias into the predicted income equations used in this paper.

$EDUC15$ = mean education of male household members over 15 years (one if middle school or higher, zero otherwise).

HS = household size.

$PROMALE15$ = males in household over 15 years as proportion of household size.

In order to predict per capita incomes *with* remittances for migrant households, it is necessary to address another methodological problem. In this study a number of migrant households receive both internal and international remittances;[10] thus, using a single equation to estimate per capita incomes with remittances would have the effect of overestimating the internal or international remittances of households with both sets of income. To overcome this problem, it is useful to predict incomes with remittances by revising Equation (1) into two separate equations. In the first equation, the dependent variable becomes predicted per capita annual income (including internal remittances) for internal migrant households ($PRINTMIG$). In the second equation, the dependent variable becomes predicted per capita annual income (including international remittances) for international migrant households ($PREXTMIG$).[11] Migration dummy variables are also added to each equation.[12] The revised equations can be written as:

$$PRINTMIG = F(IRLND, RNLND, EDUC15, HS, PROMALE15, INTMIG) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

$$PREXTMIG = F(IRLND, RNLND, EDUC15, HS, PROMALE15, EXTMIG) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (3)$$

where

$INTMIG$ = households with internal migrants.

$EXTMIG$ = households with international migrants.

In Equations (1), (2) and (3), the household size variable (HS) includes the migrant when the equations are applied to migrant households. This HS variable captures the effect of family size on household income. In the equation it is hypothesised that the variables irrigated land ($IRLND$), rainfed land ($RNLND$) and mean education of male household members over 15 years ($EDUC15$) are

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[10]In this study, 26 of the 239 internal migrant households receive international remittances and 11 of the 74 international migrant households receive internal remittances.

[11]The dependent variables in Equations (2) and (3) include the remittances of households with both current and returned migrants.

[12]In Equations (2) and (3), per capita household income (including remittances) for non-migrant households is calculated by setting the migration variables ($INTMIG$ and $EXTMIG$) to zero.

positively correlated with per capita household income. The variable proportion of males over 15 years (*PROMALE*15) is entered in the equations to capture the effect of males on household income. The migration dummy variables – *INTMIG* and *EXTMIG* – capture the impact of internal and international migration on incomes in the including remittances situation.

Table 2 summarises the parameter results obtained from using Equation (1) to estimate predicted per capita household income (excluding remittances). All of the coefficients in Table 2 are significantly different from zero at the 5 percent level.

Table 2

Regression to Estimate Predicted Per Capita Annual Household Income, (Excluding Remittances)

Variable	Regression Coefficient	*t-Ratio*
Irrigated Land Owned in Village (IRLAND)	125.564	14.217**
Rainfed Land Owned in Village (IRNLAND)	78.499	8.050**
Mean Education of Male Household Members over 15 Years (EDUC15) (One if Middle School or Higher, Zero otherwise)	1388.828	4.950**
Household Size (HS)	–106.808	–4.214**
Males in Household over 15 Years as Proportion of Household Size (PROMALE15)	2442.472	3.549**
Constant	2320.399	6.655**
R^2 = 0.442		

Notes: Regression is based on 416 non-migrant households. The parameters are used to estimate predicted per capita annual income (excluding remittances) for internal migrant and international migrant households. The dependent variable is per capita annual household income (excluding remittances) (PREX).
**Difference is significant at the .05 level.

Table 2 shows that both irrigated land (*IRLND*) and rainfed land owned in village (*RNLND*) are strongly and positively correlated with predicted per

capita household income (excluding remittances). This is to be expected, given the importance of land in this, and most other rural Third World areas. The variables *EDUC15* (mean education of males over 15 years) and *PROMALE15* (male members over 15 years as proportion of household size) are also strongly and positively correlated with predicted per capita household income (excluding remittances). These relationships are also to be expected in an environment where education has positive rates of return, and social custom and tradition normally "permit" only males to earn income outside of the household.

Table 3 reports the results obtained from using Equation (2) to estimate predicted per capita income (including internal remittances) for internal migrant households. Five of the six coefficients are significantly different from zero at the 5 percent level. Although it is not statistically significant, the internal migration dummy variable (*INTMIG*) is positive, as expected. The results for this variable suggest that the presence of an internal migrant raises predicted

Table 3

Regression to Estimate Predicted Per Capita Annual Income,
(Including Internal Remittances) for Internal Migrant Household

Variable	Regression Coefficient	t-Ratio
Irrigated Land Owned in Village (RNLAND)	125.855	19.510**
Rainfed Land Owned in Village (RNLAND)	77.970	13.532**
Mean Education of Male Household Members over 15 Years (EDUC15) (One if Middle School or Higher, Zero otherwise)	1445.406	8.039**
Household Size (HS)	−106.960	−7.135**
Males in Household over 15 Years as Proportion of Household Size (PROMALE15)	2487.458	5.706**
Internal Migrant (INTMIG)	103.417	0.762
Constant	2293.159	10.437**

$R^2 = 0.530$

Notes: Regression includes 655 households: 416 non-migrant and 239 internal migrant households. The parameters are used to estimate predicted per capita income (including remittances) for internal migrant households. The dependent variable is per capita annual household income (including internal remittances) (PRINTMIG).
    **Difference is significant at the .05 level.

per capita annual household income (including remittances) by 103.4 rupees (US $ 6).

Table 4 reports the results obtained from using Equation (3) to estimate predicted per capita income (including international remittances) for international migrant households. As in the previous table, all of the coefficients are statistically significant except the migration dummy variable (*EXTMIG*). The coefficient for the *EXTMIG* variable suggests that the presence of an international migrant raises predicted per capita annual household income (including remittances) by 407.7 rupees (US $ 25).[13]

Table 4

Regression to Estimate Predicted Per Capita Annual Income, (Including Internal Remittances) for International Migrant Household

Variable	Regression Coefficient	t-Ratio
Irrigated Land Owned in Village (IRLAND)	125.307	15.936**
Rainfed Land Owned in Village (RNLAND)	78.034	9.121**
Mean Education of Male Household Members Over 15 Years (EDUC15) (One if Middle School or Higher, Zero otherwise)	1381.204	5.715**
Household Size (HS)	−107.230	−5.144**
Males in Household Over 15 Years as Proportion of Household Size (PROMALE15)	2377.704	3.983**
International Migrant (EXTIMIG)	407.709	1.631
Constant	2347.128	7.822**

$R^2 = 0.461$

Notes: Regression includes 490 households: 416 non-migrant and 74 international migrant households. The parameters are used to estimate predicted per capita income (including remittances) for international migrant households. The dependent variable is per capita annual household income (including international remittances) (PRINTMIG).
*Difference is significant at the .05 level.

[13]The results of the migration dummy variables – *INTMIG* and *EXTMIG* – are predicted values and thus may not equal the actual values recorded in Table 1.

EMPIRICAL RESULTS: REMITTANCES
AND INCOME DISTRIBUTION

The impact of remittances on rural income distribution depends on answers to two questions. Which income groups of households produce migrants? And how much do different income groups of migrants remit?

Table 5 attempts to answer these questions by using the results of the predicted income equations. Column (1) ranks all 702 households by income quintiles on the basis of their predicted per capita annual income (excluding remittances). Columns (2) and (4) show the percent of internal and international migrant households in each quintile. Columns (3) and (5) reveal the mean per capita annual remittances received by internal and international migrant households in each quintile. In this analysis remittances include the income contributions of both returned and current migrants.

Table 5

Distribution of Migrant Households and Mean Per Capita Remittances
Among Income Quintiles Ranked by Predicted Per Capita Annual
Household Income, Excluding Remittances

Percent of 702 Households Ranked by Predicted Per Capita Annual Income (Excluding Remittances)	Percent of Internal Migrant Households[a] in Group (N = 239)	Mean Per Capita Annual Internal Remittances Received by Internal Migrant Households in Group (Rupees)	Percent of International Migrant Households[a] in Group (N = 74)	Mean Per Capital Annual International Remittances Received by International Migrant Households in Group (Rupees)
Lowest 20 percent	12.55	38.91	14.86	236.79
Second 20 percent	17.57	66.19	20.27	693.80
Third 20 percent	25.52	65.57	22.97	409.13
Fourth 20 percent	22.59	191.17	25.68	348.64
Top 20 percent	21.76	120.81	16.22	214.59
(Top 10 percent)	(6.70)	(89.81)	(5.41)	(138.97)
All	100.0	105.33	100.00	398.22

Notes: 1 Rupee = US $ 0.062.
[a]Includes both returned and current migrants.

On the question of who produces migrants, Table 5 shows that both internal and international migrants are distributed fairly equally through the income order. For internal migrants, Column (2) shows that only the two lowest quintile groups

produce less than their percentage share of migrants. Similarly, for international migrants Column (4) shows that only the lowest and the highest income groups fail to produce their quintile share of migrants.

Table 5 also addresses the question of how much do different income groups remit. For internal migrants, Column (3) shows that – with the exception of the top quintile group – the level of mean per capita internal remittances rises by quintile group. This pattern, however, does not hold for international migrants. According to Column (5), the second quintile actually receives the highest level of mean per capita international remittances.

Since internal and international migrants are distributed fairly equally through the income order, and poorer groups tend to receive a larger share of international remittances, the results of Table 5 suggest that remittances may have a favourable effect on income distribution. To evaluate this effect, it is necessary to compare the changes in income distribution that occur when internal and international remittances are excluded with those that occur when such remittances are included.

Table 6 analyses the impact of internal and international remittances on income distribution in the two situations: excluding and including remittances. Column (1) ranks the 702 households according to their predicted per capita annual income (excluding remittances). Column (2) shows the share of income going to each quintile group excluding remittances. The next two columns show the share of income going to each quintile group when internal remittances (Column 3) and international remittances (Column 4) are included. The final two columns summarise the percentage changes in shares of income between the excluding and including remittances situation for internal and international remittances.

Table 6 is instructive because it shows that both internal and international remittance have an essentially neutral effect on income distribution. Column (5) reveals only very small changes (less than 5.0 percent) in income for the different quintile groups when internal remittances are included. Column (6) shows that the same situation prevails for international remittances.

Changes in income distribution between the excluding and including remittance situations are also small when measured by two standard indices of inequality: the Gini coefficient and Theil's entropy measure. Table 6 shows that when internal remittances are included the Gini coefficient rises from 0.298 to 0.305, while the Theil measure increases from 0.151 to 0.164. When international remittances are included, the Gini coefficient increases from 0.298 to 0.300, while the Theil measure rises from 0.151 to 0.162. For both internal and international remittances, the Theil measure reveals a higher percentage increase in inequality – 8.78 and 7.78

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Table 6

Effects of Internal and International Remittances on
Rural Per Capita Household Income Distribution

Percent of 702 Households Ranked by Predicted Per Annual Income (Excluding Remittances)	Percent of Predicted Per Capita Annual Income			Percent of Change between Columns (2) and (3) for Internal Remittances[a]	Percent of Change between Columns (2) and (4) for International Remittances[a]
	Excluding Remittances	Including Internal Remittances[a]	Including International Remittances[a]		
Lowest 20 Percent	8.71	8.36	8.40	-4.06	-3.52
Second 20 Percent	13.57	13.33	13.64	-1.72	0.54
Third 20 Percent	17.14	16.88	16.97	-1.54	-0.97
Fourth 20 Percent	21.85	22.16	21.95	1.42	0.49
Top 20 Percent	38.74	39.27	39.08	2.47	0.95
(Top 10 Percent)	(24.40)	(24.86)	(24.78)	(1.91)	(1.56)
Gini coefficient[b]	0.298	0.305	0.300	2.21	0.47
Theil's Entropy Measure[c]	0.151	0.164	0.162	8.78	7.78

Notes: [a]Internal and international remittances include remittances from both returned and current migrants.
[b]The Gini coefficient is an index commonly used to measure the inequality of a distribution of income.
It can be represented as:

$$G = I + \frac{I}{H} - \frac{2}{HY} \sum_{1}^{H} p(h)y^h,$$

where

H, = number of units,
y = quantity over which inequality is measured,
Y = total inequality, and
$p^{(h)}$ = rank assigned to household h ranked by y.

[c]Theil's entropy measure is another index used to measure inequality of distribution of income.
Scaled to lie between 0 and 1, it can be expressed as

$$T = 1 - \frac{Y}{h} \exp\left(-\sum \frac{y^h}{Y} Ln y^h\right)$$

percent for internal and international remittances, respectively – then the Gini coefficient. This is probably due to the different character of the two inequality measures: in general, the Theil measure has a greater sensitivity to changes in extreme incomes than the Gini coefficient. Nevertheless, even the results for the Theil measure suggest only a very small rise in income inequality when internal or international remittances are included in predicted per capita household income.[14]

CONCLUSION

This study shows that both internal and international remittances have an essentially neutral impact on rural income distribution in Pakistan. When internal remittances are included, the Gini coefficient of inequality rises less than 3.0 percent, while the Theil entropy measure increases less than 9.0 percent. Virtually the same results hold for international remittances. When overseas remittances are added, the Gini coefficient increases by less than 1.0 percent, while the Theil measure rises less than 8.0 percent.

In this study remittances have a neutral effect on income distribution because they are distributed fairly equally through the income order. With the exception of the lowest income quintile, most quintile groups of households manage to produce their percentage share of both internal and international migrants. The latter result is particularly surprising, given the high – and ostensibly prohibitive – "entry costs" to international migration in Pakistan. At the time of this study, the average estimated cost of international migration in Pakistan was 21,000 rupees (US $, 302).[15] The results of this study suggest that international migrants from the lower income quintile groups actually *were* able to either find or borrow such large sums of money in order to migrate.

At this point, one final question remains: Why do remittances have such a neutral effect on rural income distribution in Pakistan? Other empirical studies

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[14]It can be argued that the use of predicted income figures to calculate these changes in inequality may have the effect of *underestimating* the actual degree of increase in income inequality. According to this argument, depending on the percentage of variance explained by the predicted equations, the predicted income figures will have a smaller variance than actual incomes. This in turn may cause estimates of changes in the degree of inequality to be smaller than they actually were. However, when *actual* – rather than predicted – per capita household incomes are used in calculate these changes in inequality the results are almost identical to those reported in the text. When actual income figures are used, neither the Gini coefficient nor the Theil measure increase more than 3.0 percent when internal or international remittances are included.

[15]During the period 1986–89 the costs of international migration in Pakistan included the expenses of travel (8,000 rupees) plus the fees (13,000 rupees) paid to an labour-recruiting agent in Pakistan for visa,, work permit and other documentation in the country of destination.

[e.g., Adams (1991); Gilani, Khan and Iqbal (1981)] have found that remittances – particularly international remittances from the Middle East – have a negative impact on income distribution. Why is this case different?

There are, perhaps, two answers to this question. The first pertains to the distribution of remittances. As we have seen, in rural Pakistan remittances are well-distributed among different groups of the income order. The second answer, however, pertains to the volume or size of remittances. In rural Pakistan the contribution of remittances – both internal and international – to total household income is relatively small. For migrant households, the share of internal remittances in mean annual predicted per capita household income is only 3.0 percent, while the share of international remittances in such income is only 10.5 percent. By contrast, a recent study using similar methodology in rural Egypt found that for migrant households the share of international remittances in mean annual predicted per capita income was 30.4 percent [Adams (1991): Table 2]. In the Egyptian case both the large size of international remittances and their unequal distribution among upper income groups led remittances to have a decidedly negatively impact on rural income distribution.

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Comments on
"The Effects of Migration and Remittances on Inequality in Rural Pakistan"

I found this paper to be quite interesting. It offered some new insights on the effects of remittances on income inequality in rural Pakistan. Moreover, it is based on a new data set of 702 households.

Because of the nature of a different data set, the methodology and the time period of the study, the results of the paper are quite different than other studies on the same topic in Pakistan. That is, the result of a neutral effect of internal and international remittances on rural income inequlaity in Pakistan. These results, however, seem a bit counter-intuitive, if not counterfactual, given the fact that since the mid-1970s massive emigration of workers on contract basis and the resulting remittances were the two factors which had influenced the economy of Pakistan more than any other factor.

The analysis of (only) the direct effect, that is the first order effect, of internal and international remittances on rural income distribution conceals changes in income distribution. The absence of the second-order and third-order effects – the effects on wages and employment which were so prominent in the economy – makes it difficult to justify the result of the neutral effect [see, Mahmood (1990); Mahmood (1991)].

Some important differences of the present study with other studies on the same topic are worth noting before making any judgement about the findings of the study. While Irfan (1986) reported that remittances accounted for nearly 35 percent of the total earnings of the migrant families, the present study reports that internal migrants' remittances accounted for 4.6 percent and international migrants' remittances accounted for 12.8 percent of total income of the migrant families. On the other hand, the remittances estimates reported by Farooq-i-Azam (1987) are more than three times than that reported in the present study. The author has justified his low estimates of remittances on the basis of an overall decline in international remittances received by Pakistan after the mid-1980s. But from this evidence, it is difficult to conclude that the average annual per capita remittances have also declined. It may be noted that this is the period when the (net) reverse migration was observed in Pakistan. And as is well-known that return migrants bring in even their accumulated foreign savings. Therefore, low remittances per family cannot be justified on the basis of an overall decline in international remittances.

Contrary to the present study finding of a neutral inequality effect of remittances, Irfan (1986), for instance, found that remittances have led to a concentration of income. On the other hand, I have computed both Gini and Theil's inequality indices which are reported in the following table. These are for rural areas and are based on Household Income and Expenditure Surveys. These estimates of inequality suggest that between 1979 and 1984-85, which was a period of high migration and the inflow remittances, income inequality in rural Pakistan went and thereafter income inequality went down upto 1986-87 a period which coincides with the return migration and slow down in remittances.

Table

Rural Household Income Inequality in Pakistan

Year	Gini-coefficient	Theil-coefficient
1979	0.33	0.21
1984-85	0.34	0.22
1985-86	0.33	0.20
1986-87	0.32	0.18

Source: Based on Household Income and Expenditure Survey (various issues).

Keeping in view these findings, it is difficult to generalise that the effect of remittances on income distribution is neutral. The present study appears to be a special case of 4 districts.

Although, the methodology adopted in the paper is fairly well-established, yet one can point out some problems with its execution. For instance, from Tables 4 to 6, it can be noted that unadjusted R^2 ranges between 0.37 and 0.46. That is, much of the variations remained unexplained. Given these results, if the difference between actual and predicted incomes are statistically significant, then the use of the predicted income function technique will obviously give biased results. Although one can argue that in a cross-section data R^2 are generally low, yet the question arises whether given the cross-section data the present methodology is the best choice.

As far as the selection of inequality measures are concerned they also have a deep bearing on the results. Inequality indices used in the paper are relatively insensitive to changes in the extreme income classes. This is one of the reasons why it did not capture the unequal distribution of migrants reported for the lowest 20 percent household. To overcome this problem, I suggest that the author may also try the coefficient of variation as it gives equal weights to transfers of income

at different income levels.

Finally, the author has used overall inquality measures which often conceal a considerable amount of information about inequalities. The neutrality found in this study may not be so pronounced had the author used some disaggregated inequality measures.

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