

Sources of Earnings Differentials Among Migrants and Natives

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I. INTRODUCTION

The theory of human capital postulates that earnings of different categories of workers, be they male or female, black or white, unionised or non-unionised depend on the level of human capital endowment of these individuals [Becker (1964) and Mineer (1974)]. Besides educational attainment and on-the-job experience, part of the earnings differential, at least in the short run, can also result from market imperfections such as restrictions on factor mobility or other artificial distortions. However, despite concerted efforts by public and social institutions to remove social injustice, the automatic long run market clearance as envisaged by classical economists is not always there. It is not uncommon to find workers with identical background and skills receiving differential treatment in terms of wages and other rewards. This suggests that *unobservable* personal characteristics are also positively valued at the market and that the market has a "taste" for discrimination.¹ The theory of discrimination thus hypothesises that differential wages can exist if market differentiates and treats distinct categories of workers on the basis of race, gender or similar categorisations [Becker (1957)].

A meaningful explanation of earning differentials, can be found when the theories of human capital and discrimination are combined together. The resulting combination suggests that average wages of two well-defined groups could differ not only because of differences in productivity and skills, but also because of differences in the treatment received by a group of workers against the other group, level of skills notwithstanding [Cotton (1988)].

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¹A perfectly competitive labour market has been assumed where wages paid to equally productive workers include compensating or equalising differences that depend on the attributes of the job.

The mathematical formulation of quantity the extent of these earning differences was introduced in the economics literature by Blinder (1973) and Oaxaca (1973). Since then a number of researchers, both from developed and developing countries, have successfully applied this method to isolate the magnitude of discrimination in earnings by decomposing earnings into endowment or skill effect and treatment or discrimination effect.²

Despite the obvious problems of index numbers and omitted variables inherent in this decomposition procedure, it has largely withstood the challenges of time. In recent years, however, slight modifications have been suggested where this formula either takes into account Backer's fundamental assumption of perfect substitution of factors in the absence of discrimination [Cotton (1988)] or rather than measuring yearly earnings differentials as proposed by the Blinder-Oaxaca model, its change is measured over the time [Wellington (1993)]. More recently Oaxaca and Ransom (1994) have proposed a further refinement in the original formula. According to them, the non-discriminatory wage should be treated as a blend of the current wage structure of the two groups and the corresponding common wage structure derived from an equation of pooled sample. Beside these modifications, one can also find studies where alternative measures have also been used to capture the extent of discrimination in labour market. For example, the study by Winter-Ebmer (1995) uses an extended Mincerian model to highlight the role of *monopsonistic power* in labour market that also results in gender wage discrimination in Austria.

The present study aims at analysing the differences in earnings among migrants and natives. Unlike the much publicised cases of gender or race discrimination, we expect that the employer in the present case may differentiate between migrant workers and their native counterparts on the basis of his confidence in natives as compared to his lack of confidence in migrants. As such the employer may offer differential wage to migrants believing that hiring these relatively unsettled workers will raise his cost of production and hence erode his profits due to potential loss in output. The evidence may prove otherwise on the basis of selectivity hypothesis which conjectures that migrants are relatively more ambitious and achievement oriented. As such they invest more in human capital in anticipation of higher rewards for their effort as compared to natives. However, the latter proposition can only be verified if migrants have a fairly long period of post-migration experience.

²Some of the relatively recent papers on this issue are by O'Neill and Polachek (1993); Wellington (1993); Zweimuller and Witner-Ebmer (1994); Baker *et al.* (1995); MacIsaac and Patrinos (1995); Okunade (1995) and Hotchkiss and Moore (1996). With reference to Pakistan, studies by Ahmed (1991) and Ashraf and Ashraf (1993, 1993a) are useful contribution to the literature on earning differentials.

II. DATA AND THE SAMPLE

The empirical investigation in this paper focuses on internal migration only. More specifically, it does not evaluate migration flows of 1947. The data set is based on a nationwide survey of Pakistan known as the "Population, Labour Force and Migration (PLM) Survey" conducted in 1979-80.³

The empirical analysis in the ensuing pages is based on a sample of 5186 cases. While more than 90 percent of these households were classified as natives, the remaining 9.4 percent of the cases were classified as migrants. Of these migrants, 72.1 percent belonged to the province of Punjab, 22.3 percent were from Sindh and only 5.5 percent belonged to the NWFP province. Similarly the highest proportion of the natives was from the Punjab province and the remaining non-migrants belonged to the other two provinces. This pattern is consistent with the total population of Pakistan where according to the latest census, Punjab continues to be the most populous province followed by Sindh, the NWFP, and Balochistan.

III. MODEL AND PROCEDURE

Since migration is considered as investment in human capital, we contend that potential migrant calculates the stream of benefits that would result from the move and compares it with the costs of migration. In other words, such a person seeks to maximise the present value of net gains resulting from locational change. The objective function in this case not only includes a differential term for income or wage, but also has an explicit treatment for costs.

Selection Bias and Earning Functions

Since migration decision is not random but rather the outcome of the maximising behaviour of the individual, it introduces the problem of selectivity bias in the earnings functions and thus the error term is not zero. Using the two-step procedure of Heckman (1976) and Lee (1976), the selectivity corrected earning functions can be specified as:

$$[Y_m | I_i = 1] = \alpha_0 + \sum_j \alpha_j Z_{mj} - \alpha_{k+1} \lambda_m + v_1 \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

$$[Y_m | I_i = 0] = \beta_0 + \sum_j \beta_j Z_{mj} - \beta_{k+1} \lambda_m + v_1 \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

Where I is the decision rule regarding migration, Z_{ij} is a vector of observable personal characteristics of migrants ($i=m$), and natives ($i=n$). α_{k+1} and β_{k+1} capture the impact of variances and covariances of error terms in the participation and the earning functions and λ_0 are the inverse Mills ratios. By incorporating the selection-effect in earnings, the

³The details of the survey can be found in Ahmed (1991), and Ahmed and Sirageldin (1993).

error term v satisfies the assumptions of the classical least square and, therefore, OLS procedure is applicable.⁴

Earning Differentials

When comparing the earnings of migrants and natives, it is understandable that part of the differential arises because workers differ in personal characteristics such as level of education and potential or actual years of job experience. However, part of the difference continues to exist even after controlling for the productivity enhancing attributes. Following Blinder (1973) and Oaxaca (1973). The extent of earnings differential can be determined by evaluating expressions (1) and (2) at mean values of endowments as;

$$(LnY_m - LnY_n) = (\alpha_0 - \beta_0) + \sum_j (\alpha_j Z_{mj} - \beta_j Z_{nj}) \dots \dots \dots (3)$$

where $\sum_j (\alpha_j Z_{mj} - \beta_j Z_{nj})$ captures the earnings differential explained by the regression and $(\alpha_j - \beta_j)$ is the difference that arises due to shift parameters. The productivity effect can now be separated from treatment effect by adding and subtracting $\sum_j \alpha_j Z_{nj}$ in (3),⁵

$$(LnY_m - LnY_n) = (\alpha_0 - \beta_0) + \sum_j \alpha_j (Z_{mj} - Z_{nj}) + \sum_j Z_{nj} (\alpha_j - \beta_j) \dots \dots (4)$$

In this break-down $\sum_j \alpha_j (Z_{mj} - Z_{nj})$ is the value of the productivity advantage possessed by migrants as evaluated by the earnings of the migrants and $\sum_j Z_{nj} (\alpha_j - \beta_j)$ is the difference between how the migrant's would value the characteristics of natives and how the earnings of natives actually value them. When the difference arising due to shift parameters is added to the difference attributable to coefficients, the resulting sum constitutes the total effect of discrimination or treatment that results because market favours one group of workers over the other [Blinder (1973)].

Since the Blinder-Oaxaca decomposition procedure does not provide a unique solution and it also does not adequately capture Backer's original assumptions of prevalence of wage structure in the absence of discrimination. Cotton (1988) suggested a revised decomposition formula that explicitly includes a non-discriminatory wage structure. The crux of such a revision lies in the fact that in a perfectly competitive market and absence of discrimination both migrants and natives will be perfect substitutes in production. Thus, barring productivity differentials, both types of workers

⁴In the empirical analysis even though both original and selectivity corrected models have been estimated, nonetheless, the results of the decomposition analysis are explained on the basis of the latter models only.

⁵There is an obvious index number problem associated with this type of decomposition. A simple algebraic manipulation will reveal that Equation (3) can also be decomposed by adding and subtracting $\sum_j \beta_j Z_{mj}$ and in this case expression (4) would be

$$(LnY_m - LnY_n) = (\alpha_0 - \beta_0) + \sum_j \beta_j (Z_{mj} - Z_{nj}) + \sum_j Z_{mj} (\alpha_j - \beta_j) \dots \dots (4)$$

i.e., difference in endowments evaluated at beta and difference in coefficients evaluated at migrants' personal attributes. Since expression (4) is in no way preferable to expression (4), we have decomposed and analysed earnings differentials on the basis of both these formulations.

should receive similar wages, that is, $\alpha = \beta = \alpha^* = \beta^*$ in a discrimination-free environment. Thus, $\sum_j \alpha_j^* (Z_{mj} - Z_{nj})$ will be the true value of productivity or skill component of wage differential that would prevail in the absence of discrimination. Similarly, $\sum_j Z_{mj} (\alpha_j - \alpha_j^*)$ and $\sum_j Z_{nj} (\beta_j^* - \beta_j)$ will be the differences in the way migrants and natives are treated and the way they would be treated in the absence of discrimination.⁶ The average earnings differential in this revised decomposition procedure takes the following form;

$$(LnY_m - LnY_n) = \sum_j \alpha_j (Z_{mj} - Z_{nj}) + \sum_j Z_{mj} (\alpha_j - \alpha_j^*) \sum_j Z_{nj} (\beta_j^* - \beta_j) \quad \dots \quad (5)$$

where the treatment component now isolates the over- and under-valuation of natives' and migrants' productivity characteristics respectively.

IV. RESULT AND ANALYSIS

The results of the decomposition analysis are based on the estimated earning models which explicitly incorporate selectivity effect resulting from migration decision. the migration decision rule in its structural form can be generated as a linear combination of income and wage differential at two locations and the associated cost of migration. However, it can immediately be observed that a straightforward estimation of the structural form decision rule is not possible as earnings of migrants and natives are conditional on the values taken by the decision rule which in itself is a latent variable. The problem of estimation is sorted out by deriving the reduced form migration decision rule that incorporates all those factors which influence earnings as well as cost of migration.

The results reported in Table 1 indicate that migration decision was motivated, to a large extent, by investment in human capital especially education which served as a signalling device and increased the likelihood of securing employment at the destination. Commitment to job and the place of residence, and the cost of migration, on the other hand, reduced family's decision to migrate.

The Mincerian Earnings Models

The differentials in earnings of the two categories of workers is derived by estimating an augmented Mincerian earnings model. The model is specified to include personal characteristics such as the level of education, on-the-job experience, occupation of husband disaggregated into six categories and a dummy variable for place

⁶The coefficient with asterisk represent the non-discriminatory wage structure which in Cotton's formulation is derived as a linear combination of wage structure of the two groups. In Oaxaca-Ransom procedure it is estimated from a wage equation using pooled sample.

Table 1

Maximum Likelihood Probit Estimates of Reduced Form Migration Decision Rule

Variables	Estimated Coefficients	t-Statistics
Constant	-0.860	-5.16
AGE (H)	-0.003	-1.21
EDUCATION^a (H)		
Primary (1-5)	0.137	1.80**
Middle (6-8)	0.165	1.88**
High (9-10)	0.232	2.47*
College/Univ.	0.400	3.10*
Education ^b (W)	-0.009	-0.82
Husband Self-employed	-0.336	-5.30*
Occupation ^c (H)	0.303	2.43*
Clerical	0.178	1.34***
Sales	0.089	0.85
Agriculture	0.130	1.38***
Skilled	0.195	2.26**
Other	0.432	1.16
LF Participation (W)	-0.067	-0.86
Ownership of		
House	-0.506	-6.94*
Land	-0.145	-1.81**
Children in School	-0.060	-1.65
Family Type ^d	0.070	1.30***
Residence Dummy ^e	-0.163	-2.28*
Province Dummy ^f	0.235	4.29*

(a) Reference Group = Husband possesses no education.

(b) Reference Group = Wife possesses no education.

(c) Reference Group = Husband engaged in HH work or his occupation is unspecified.

(d) Reference Group = Respondent belongs to extended family.

(e) Reference Group = Respondent belongs to rural area.

(f) Reference Group = Respondent belongs to provinces other than Punjab.

*Significant at $\alpha < 0.01$.**Significant at $\alpha < 0.05$.***Significant at $\alpha < 0.1$.**Summary Statistics**

Log Likelihood Ratio -1527.2.

Restricted Log-1 -1617.6.

Chi-squared (20) 180.8.

Significance Level 0.32173E-13.

Sample Size 5186.

of residence.⁷ The results of the selectivity corrected models for the two groups presented in Table 2 highlight the role of education on the earning capacity of the individuals. The level of schooling turned out to be the most important determinant of the level of earnings. The statistical significance and expected signs of the four categorical variables confirmed a positive relationship between income and education. As far as the growth path of earnings over the life cycle is concerned, it was explained by the potential years of job experience and its squared term. It may be mentioned that in the absence of information on actual years of experience, the potential years of job experience was estimated by subtracting years of schooling and pre-school infancy years from the age of the respondent. The experience and earnings for the squared term sketched a rather flat nature of the experience-earning profile for the migrants. On the other hand, the experience-earning profile of natives displayed a relatively pronounced curvature with its peak appearing between 40 to 43 years depending upon the specification of the model. McNab and Psacharopolous (1980) seems to suggest that it may not be the amount of education but the type of education that really matters in such cases. The quality of education received by 'movers' in their relatively disadvantaged native backgrounds serves as a signalling device for employers who may believe that poor quality of education of these workers could result in lower productivity and thus erode part of their expected profits! While low productivity of migrants, at least in the short run, could partially be explained on the basis of disruption hypothesis, the quality concern may not be totally relevant if selectivity hypothesis is considered. There is ample evidence to suggest that migration decision is strongly influenced by educational achievements of the movers.⁸

The Mincerian earnings model was extended by introducing controls for occupational groups to measure the impact of differences in skills on earnings. The evidence was mixed in this case as only professionals appeared to have gained from migration. This may reflect the presence of information gap which might have forced workers belonging to other categories of occupation to join the informal sector where the returns are usually low. Alternatively, due to low demand for them, the non-professionals might have accepted lower level public or private formal sector jobs.

⁷The theoretical justification for inclusion of occupational and regional dummies is based on the existence of such equalising differences as (1) hazards associated with job, (2) interregional differences in climate, pollution, crowding, and cost of living, (3) special work-time schedule or irregular working hours, (4) the risk of being laid off and the length of subsequent unemployment period, and (5) the benefits associated with the pay package, such as pensions, paid vacations, sick leave and other benefits [Rosen (1986)].

⁸A number of studies such as Oberai and Singh (1983); Lee (1985); Robinson and Tomes (1982) and Krieg (1990) have shown that migrants are, in general, more ambitious and achievement oriented and as such they invest more in education as compared with non-movers. However, due to possible disruption and assimilation effects, the earnings of migrants are relatively lower. The latter proposition was also tested by [Ahmed and Sirageldin (1994)] who confirmed that gains from migration take time to materialise as disruption, adaptation, and assimilation stages are time consuming.

Table 2

*Structural Earning Estimates of Migrants based on Heckman's Two Step
Procedure and OLS Dependent Variable: Log (Monthly Income)*

Variables	Estimated Coefficients with <i>t</i> -Statistics	
	Migrants' Sample	Natives' Sample
Constant	5.419 (20.98)	5.970 (60.93)
EDUCATION^a (H)		
Primary (1-5)	0.148 (1.97)*	0.132 (3.36)*
Middle (6-8)	0.331 (3.86)*	0.333 (7.01)*
High (9-10)	0.522 (5.78)*	0.504 (9.64)*
College/Univ.	0.747 (6.55)*	1.094 (15.53)*
Experience	0.012 (1.24)	0.024 (4.88)*
Experience Squared	-0.0001 (-0.42)	-0.0003 (-3.71)*
Occupation ^b (H)		
Professional	0.350 (3.07)*	0.149 (1.97)*
Skilled	0.029 (0.36)	0.179 (0.04)*
Clerical	-0.193 (-1.67)**	-0.033 (-0.41)
Sales	-0.100 (-1.08)	0.156 (3.36)*
Agriculture	-0.008 (-0.10)	0.198 (4.97)*
Other	-0.115 (-1.08)	-0.013 (-0.22)
Residence Dummy ^c	0.131 (2.21)*	0.194 (5.90)*
LUMBDA (Mills Ratio)	0.331 (2.88)*	1.170 (6.29)*

(a) Reference Group = Husband possesses no education.

(b) Reference Group = Husband engaged in HH work or his occupation is unspecified.

(c) Reference Group = Those who belong to rural areas.

*significant at one percent level.

**significant at five percent level.

***significant at ten percent level.

Summary Statistics

R Squared	0.240	0.213.
Adjusted R Squared	0.218	0.210.
St. Error of Regression	0.503	0.530.
Sample Size	488	4698.

The Decomposition Analysis

The decomposition of earnings into productivity and treatment effect are reported in Table 3. Figures in Panels A and B of this table are calculated on the basis of two variants of the Blinder-Oaxaca decomposition procedure and Panel C reports the decomposition of earning differentials on the basis of Cotton's formulation. In terms of Blinder's terminology, the earnings differential has been decomposed into (a) amount attributable to personal characteristics or the productivity effect (PE), and (b) the differential attributable to coefficients or the treatment effect (TE). Under Cotton's formulation the treatment effect is further disaggregated into pure treatment disadvantage of migrants over natives and pure treatment advantage of natives over migrants.

Table 3

Decomposition of Earnings Differentials

	Productivity	Treatment Effect (TE)
A. Differences Evaluated at Migrants'	0.709	0.194
Parameters—(Blinder-Oaxaca Model)	(78.52 %)	(21.48 %)
B. Differences Evaluated at Natives'	2.282	1.767
Parameters—(Blinder-Oaxaca Model)	(56.36 %)	(43.64 %)
C. Differences Evaluated on the	2.134	1.601 & 0.018
Basis of Cotton's Formulation	(56.86 %)	(42.66 %) & (0.48 %)

Source: The results are based on the estimates of Tables 1 and 2.

Note: (1) The figures in parentheses report the percentage of earnings differential.

(2) The treatment effect confirms discrimination against migrants.

The results indicate that the proportion of earnings differential between migrants and natives on the basis of productivity or endowment effect ranged between 56.36 percent and 78.52 percent depending upon the choice of the Blinder-Oaxaca decomposition procedure. As also observed by Cotton, this indeed is a very wide range to deal with. The earnings differential due to skill effect arising from Cotton's procedure was estimated to be 56.86 percent which is quite close to the Blinder-Oaxaca result when the latter was evaluated at natives' parameters (Panel B). The same situation prevailed when the results were decomposed to measure the treatment effect. These results reconfirmed Cotton's conclusion that the decomposition of earnings differential on the basis of the Blinder-Oaxaca procedure, reported in Panel A, overestimates the productivity or skill component and underestimates the treatment component.

Within the amount attributable to endowments, a further analysis revealed that nearly 67 percent to 76 percent of the difference in earnings can be attributed to superior endowments of migrants. The main contributing factors to these large gains

were migrants investment in education and skill formation.⁹ On the other hand, native were favoured and paid higher wages only because they had relatively longer years of job experience. This situation reversed completely when treatment effect was scrutinised further. In this case, all the three variants of the decomposition formula confirmed discrimination against internal migrants.¹⁰

V. SUMMARY AND CONCLUDING REMARKS

A decomposition analysis to evaluate the sources of earning differentials among migrants and natives was conducted in this paper. The basis of the analysis were the theory of human capital and the theory of discrimination. In the light of non-randomness of the migration decision, the methodology part was strengthened by introducing correction for sample selection bias in the earnings model. In this regard, two types of earning models were estimated, i.e., models where sample selection bias was corrected and those where it was ignored. The important conclusions that emerged from this study are the following. Migrants, in general, performed better on account of their better endowments, especially education. On the other hand, the most important contributing factor of earnings of natives was their potential years of job experience. In terms of pay structure, the natives were favoured over migrants. However, depending upon the choice of the decomposition procedure, the range of the earning differential between the two categories of workers was fairly large. While interpreting the results, the following concerns require particular mentioning. First, when earning functions were estimated, no account was made for the quality of education or the innate abilities of the respondents. Many authors, including Shabbir (1989); Taubman (1977); Behrman and Wolfe (1984), have suggested that omitting a measure of innate ability from the human capital specification of the earnings function results in biased estimation. However, lack of data on family background variables and an index for other environmental or genetic influences was the prime restriction for an extended specification of the earnings model. Second, in the decomposition analysis, the sum of the structural coefficients is usually referred to as the extent of discrimination or favouritism. For this to be true, it is important that the vector of the objective characteristics must explain all unidentified differences in earnings. Otherwise, the intercept term picks up the unexplained variations. This point of omitted variables was also raised by Filer (1983). Third, since the analysis on earnings differential is based on cross-section data, it implicitly assumes

⁹It is important to point out that while generating the experience variable, both pre and post migration experience of migrants were lumped together. The merging was essential for comparison purposes even though it overlooks discontinuity at the time of migration. The decomposition of the earning differentials of migrants and non-migrants, similar to Table 3, was carried out by splitting the pre-and post-migration experience of the migrants. The results (not reproduced here) indicate that the differential continues to favour non-migrants. The dominant component favouring non-migrants was once again their job experience.

¹⁰This result is consistent with the data as the average monthly earnings of migrants was found to be lower than that of natives.

that the average quality of migrants remains invariant over time. This stationarity assumption has been questioned by Borjas (1985, 1988) and Heckman and Robb (1983) as it precludes the decomposition of the economic progress into assimilation and quality effects. Even though the observation is valid in its own right, nonetheless, quality and economic progress are relatively long term issues. For the current sample, where the migration duration is no more than nine years, these concerns may not be quite relevant. Finally, the paper is not an attempt to prove superiority of one procedure over the other. While the Blinder-Oaxaca method of decomposition has its own limitations, a serious weakness of the Cotton's procedure, which has also been acknowledged by Cotton, is the derivation of the non-discriminatory wage structure. Even though under certain restricted assumptions, an estimate of such wage structure can be derived through a linear combination of the wage structure of the two groups or it can be estimated by pooling data as has been suggested by Oaxaca and Ransom, there is no guarantee that the derived or the estimated wage structure will replicate the non-discriminatory wage structure as no one knows the non-discriminatory wage structure anyway.

REFERENCES

- Ahmed, A. M. (1991) Migration, Earnings, and Fertility in Pakistan: A Simultaneous Model Approach. Ph.D. Dissertation. The Johns Hopkins University, Maryland, USA.
- Ahmed, A. M., and I. Sirageldin (1993) Socio-economic Determinants of Labour Mobility in Pakistan. *The Pakistan Development Review* 32:4 1031-41.
- Ahmed, A. M., and I. Sirageldin (1994) Internal Migration, Earnings and the Importance of Self-selection. *The Pakistan Development Review* 33:3 211-27.
- Ashraf, J., and B. Ashraf (1993) An Inter-temporal Analysis of Male-Female Earnings Differential in Pakistan. *The Pakistan Development Review* 32:4 895-904.
- Ashraf, J., and B. Ashraf (1993a) Estimating the Gender Wage Gap in Rawalpindi City. *Journal of Development Studies* 29:2 365-76.
- Baker, M., D. Benjamin, A. Desaulniers, and M. Grant (1995) The Distribution of Male/Female Earnings Differential, 1970-1990. *Canadian Journal of Economics* 479-501.
- Becker, G. S. (1957) *The Economics of Discrimination*. Chicago: The University of Chicago Press.
- Becker, G. S. (1964) *Human Capital* (2nd ed). Chicago: The University of Chicago Press.
- Behrman, J. R., and B. L. Wolfe (1984) Labour Force Participation and Earnings Determinants for Women in the Social Conditions of Developing Countries. *Journal of Development Economics* 15: 259-88.
- Blinder, A. S. (1973) Wage Discrimination: Reduced Form and Structural Estimates. *Journal of Human Resources* 8:4 436-55.

- Borjas, B. J. (1985) Assimilation, Changes in Cohort Quality, and Earnings of Immigrants. *Journal of Labour Economics* 3:4 463–89.
- Borjas, G. J. (1988) *International Differences in the Labour Market Performance of Immigrants*. W. E., Upjohn Institute of Employment Research, Kalamazoo, Michigan.
- Cotton, J. (1988) On the Decomposition of Wage Differentials. *Review of Economics and Statistics* 70: 236–43.
- Filer, R. K. (1983) Sexual Difference in Earnings: The Role of Individual Personalities and Tastes. *Journal of Human Resources* 18: 82–99.
- Heckman, J. J. (1976) The Common Structure of Statistical Models of Truncation, Sample Selection and Limited Dependent Variables and a Simple Estimator for such Models. *Annals of Economic and Sociological Measurement* 5: 475–92.
- Heckman, J. J., and R. Robb (1983) Using Longitudinal Data to Estimate Age, Period, and Cohort Effects in Earning Equations. In H. Winsborough and O. Duncan (eds) *Analysing Longitudinal Data for Age, Period, Cohort Effects*. New York: Academic Press.
- Hotchkiss, J. L., and R. E. Moore (1996) Gender Compensation Differentials in Jamaica. *Economic Development and Cultural Change* 44:3 657–76.
- Krieg, R. G. (1990) Does Migration Function to Reduce Earning Differentials by Race and Gender? *The Annals of Regional Science* 24: 211–21.
- Lee, L. F. (1976) Estimation of Limited Dependent Variables Models by Two Stage Method. Ph. D. Dissertation, University of Rochester.
- Lee, Sun-Hee (1985) *Why People Intend to Mover: Individual and Community Level Factors of Out-migration in the Philippines*, *Studies in Population and Development*. Boulder: Westview Press.
- MacIssac, D. J., and H. A. Patrinos (1995) Labour Market Discrimination Against Indigenous People in Pery. *The Journal of Development Studies* 32: 218–33.
- McNab, R., and G. Psacharopolous (1980) Racial Earnings Differentials in the UK. Centre for Labour Economics, London School of Economics. (Discussion Paper 76.)
- Mineer, J. (1974) *Schooling, Experience and Earnings*. New York: National Bureau of Economic Research.
- Oaxaca, R. (1973) Sex Discrimination in Wages. In O. Ashenfelter and A. Rees *Discrimination in Labour Markets*. New Jersey: Princeton University Press.
- Oaxaca, R., and M. R. Ransom (1994) On Discrimination and the Decomposition of Wage Differentials. *Journal of Econometrics* 61: 5–21.
- Oberai, A. S., and H. K. M. Singh (1983) *Causes and Consequences of Internal Migration: A Case Study in Indian Punjab*. Delhi: Oxford University Press.
- Okunade, A. A. (1995) A Note on Benefit Differentials of Black and White Female Workers. *Applied Economic Letters* 2: 351–54.

- O'Neill, J., and S. Polachek (1993) Why the Gender Gap in Wages Narrowed in 1980s. *Journal of Labour Economics* 11: 205–28.
- Robinson, C., and N. Tones (1982) Self-selection and Interprovincial Migration in Canada. *Canadian Journal of Economics* 15:2 474–502.
- Rosen, S. (1986) The Theory of Equalising Differences. In O. Ashenfelter and R. Layard (eds) *Handbook of Labour Economics* 1. Amsterdam: Elsevier Science Publishers. 642–92.
- Shabbir, T. (1989) Latent Structure of Earnings Model. *The Pakistan Development Review* 28:4 903–910.
- Taubman, P. (1975) *Sources of Inequality in Earnings*. Amsterdam: North Holland Publishing.
- Wellington, A. J. (1993) Changes in the Male/Female Wage Gap, 1976–85. *Journal of Human Resources* 28: 383–411.
- Winter-Ebmer, R. (1995) Sex Discrimination and Competition in Product and Labour Markets. *Applied Economics* 27: 849–57.
- Zweimuller, J., and R. Winter-Ebmer (1994) Gender Wage Differentials in Private and Public Sector Jobs. *Journal of Population Economics* 7: 271–85.

Comments

There have been considerable efforts in the past to investigate the determinants of migration in the developing countries. This study goes a step further by investigating the factors that may lead to earnings differentials between migrants and natives. The fundamental proposition is that the place of origin plays a significant role in explaining the earning differentials between the two groups. Following Sjaastad (1962), Becker (1964), Todaro (1970), and Mineer (1974), this study takes the position that migration is viewed by the potential migrants as an investment in human capital that enhances their future earning capacity. Acting rationally, therefore, individual economic agents opt for migration if net present benefits of such a move exceed the net benefits derived from the alternative. To explain the factors that lead to earning differentials between migrants and native, the study contends that, among other explanatory factors, the earnings disparities are the manifest of a bias that exists against the migrant workers. The study tests this proposition by extending the Blinder—Oaxaca analytical procedure by introducing correction for selectivity bias in the earning model owing to non-randomness of the migration decision.

To meet its objectives, the study starts well by providing a comprehensive outline of its various elements, the objectives of the study, the hypothesis to be tested, and the methodology to be applied. The thesis adapts a conventional approach in applied research by: reviewing various elements of the theoretical framework; highlighting the migration flows in Pakistan; outlining the nature of data set and the sample characteristics; developing a methodology to test key hypotheses; and providing a comprehensive analysis of the empirical results. Overall, the research methodology adapted is sound and adhere to an identifiable thesis. In the context of set objectives, the author's selection of the analytical tools is appropriate. The analysis undertaken in Section V and in Section VI forms the core of this study. The study contributes to its analytical part by extending the analysis to incorporate the Heckman's procedure. The analysis carried out in these sections is of good quality and underlines the author's grasp on the relevant analytical tools and the working of the migration decision-making process in Pakistan.

A major weakness of the study lies in its failure to provide a rationale for this work. While there is little doubt that the application of the above methodology in the context of gender or ethnicity is important for the formulation of appropriate public policy responses, the focus on earning differentials between migrants and natives has no relevance in the Pakistani context. This can be seen from the fact only 6.1 of the country's population can be termed as internal migrants—out of which two-thirds or

4.1 percent of them are in fact intra-provisional migrants who usually are better positioned than inter-provisional migrants. In its present form, therefore, there is a need to explicitly spell out the motivation behind selecting the current topic.

There are a few other points of lesser gravity. Firstly, the paper defines wage discrimination as a situation where workers have identical endowments or abilities but are subject to different wage structure. It is however critical to note that wage discrimination is also present when workers with different abilities face an identical wage structure. Secondly, the study concludes that migrants are discriminated against the natives on the basis of their origin. The source of such a wage differential, however, could be due to a self-selection mechanism—with migrants choosing industries with no or little productivity growth and thus opting for low-wage employment. Thirdly, the paper takes a snapshot of a dynamic process and thus ignores the impact of learning-by doing, skill up grading, and re-training on employers' preferences and wage structures. Overall, the work is clearly written and makes progress in defining, modeling and testing the problem in question. However, as outlined above, the study has its weaknesses that need to be addressed while embarking on further research in this area.

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