Ind. Jn. of Agri. Eco.
Vol.67, No.2, April.-June, 2012

Compensating Wages for Occupational Risks of Farm Workers in India

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I

INTRODUCTION

Risk management in agriculture is often producer-centered. It encompasses the risks associated with price and supply management of inputs, and products as well as technological and climate risks. It, in general, ignores the other stakeholders' risks. For instance, farm workers incur various risks when they handle agricultural machines, implements and tools. They also incur the health risks due to prolonged exposure to sun and other weather factors, bites and allergic reactions due to the flora and fauna in the field, specific aliment due to prolonged posture, and improper sanitation facilities, exposure to agrochemicals (pesticides) etc. Some of the agricultural operations like coconut/arecanut harvesting involve the risk of falling from trees.

As nearly 60 per cent of people in countries like India depend on agriculture, the health risks faced by agricultural workers more often exceed than those that faced by the workers in other sectors. As a result the social cost of health risks is relatively high as compared to other sectors (Navamukundan, 2005; Fernandez, 2006; Wang, 2007; Suke *et al.*, 2007). For example, in Philippines, the health cost to the farmers exposed to pesticides is 61 per cent higher than that of unexposed farmers (Pingali and Roger, 1995). Wilson (2002), following the cost-of-illness approach, estimated that a farmer in Sri Lanka on an average incurs one month income as cost per year due to exposure to pesticides. The estimates from Nepal amount to US $ 2.05 (Atreya, 2007). Devi (2007) estimated the value of short term morbidity due to pesticide exposure by the farm worker population (pesticide applicators) and established a very close link between pesticide exposure and health damages. With the modest assumption regarding the proportion of pesticide applicators among the agricultural laborers in Kerala, India, she estimated that the value of health damage was Rs. 18 crore for the society as a whole per year.

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The authors wish to acknowledge with gratitude the financial support from Indian Council of Social Science Research, New Delhi for the study based on which the paper is written.

To our knowledge, no study so far has emerged to analyse whether farm labourers are adequately compensated for their occupational risks. However, numerous studies have attempted to analyse whether manufacturing workers are compensated adequately for incurring job related fatal and health risks (Viscusi, 1979; Cousineau *et al.,* 1992; Meng, 1989 and Martin and Psacharopoulos, 1982). These studies used the hedonic wage approach to measure the wage compensation received by manufacturing workers for facing occupational hazards. Studies by Shanmugam (1997, 2000) and Madheswaran (2004, 2007) have analysed whether the manufacturing workers in India are adequately compensated for incurring job related fatal and non-fatal injury risks.

In this study, an attempt is made to estimate the wage premium received by the farm workers in India for incurring job related health risks. This is the first study to use the hedonic wage approach to measure the compensation received by farm labourers for occupational risks. This study proceeds as follows. Section II presents the conceptual framework employed in the study. Section III explains the data, the model and the variables used in the study while Section IV presents and discusses the empirical results. The final section provides the concluding remarks and policy implications of the study.

II

CONCEPTUAL FRAMEWORK

The theory of compensating differentials, which was originally conceived by Adam Smith and its reconstruction of hedonic theory by Rosen (1976), forms the basis of this study. This theory develops the relationship between job characteristics and income or wage. It posits that jobs with less desirable characteristics require a wage premium to attract workers. This is in contrast with human capital and screening models in which homogenous conditions of employment are assumed.

Adam Smith (1776) in his *Wealth of Nations* suggests that “the whole of the advantages and disadvantages of the different employments of labor and stock must, in the same neighborhood, be either perfectly equal or continually tending to equality…..The wages of labor vary with ease or hardship, the honorableness or dishonorableness of employment”. If non-pecuniary advantages and disadvantages of different employments are unequal, then the pecuniary rewards must be unequal in the opposite direction to preserve the equality of total advantages.

Adam Smith (1776) lists five principles of compensating non-pecuniary characteristics of employment: agreeableness or disagreeableness of employment, difficulty and expense of learning, constancy or inconstancy of employment, degree of trust required and probability or improbability of success. These principles have inspired the development of two applied economic models, namely, human capital model and hedonic wage model. While the former considers the length of training (formal schooling and informal training) as the principle explaining compensating wage differentials while the latter focuses on the quality variations in both worker and job attributes as an explanation for wage differences.

The hedonic approach treats jobs as bundles of characteristics such as working condition, and levels of job related health risk. Employees are described by the amount they require as compensation for different risk levels while firms (employers) are characterised by the amount they are willing to offer workers to accept different risk levels. An acceptable match occurs when the preferred choice of an employee and that of an employer are mutually consistent. Thus, the actual wage embodies a series of hedonic prices for various job attributes including job related health risk and other prices for worker characteristics.

Suppose that there are ‘m’ such indicators of worker’s personal and job attributes other than job risk level (p), denoted by a vector c = (c_1, c_2, …, c_m). Let w represent the schedule of hourly wages or earnings. Then, w (p, c) reflects the market equalising differential function. Controlling for other aspects of the job would provide an estimate of the wage premium that workers receive for occupational hazards. The wage function W (p; c) is a generalisation of Adam Smith’s equalising differences over risks and income with employer’s willingness to compensate workers for taking risk. The theory considers both sides of the market and examines how equilibrium wage-risk choices are achieved. Since providing greater workplace safely is costly to the employer, he must pay a lower wage to offset the cost of providing a safe work environment in order to maintain the given level of profit. The other option is to pay extra wage compensation in order to attract workers for jobs involving risks. For full description of the hedonic wage model, see Thaler and Rosen (1976), Viscusi (1993), Viscusi and Aldy (2003) and Shanmugam and Madheswaran (2011).

A simple model of worker choice is explained as follows. We assume that there are two possible states of the world for workers: injury (or sick) state and no injury (healthy) state. U (w) represents the utility of a healthy worker at wage w and V (w) represents the utility of an injured person at wage w.

We assume that workers prefer health state to injury state, (i.e., U (w) > V(w)) and that marginal utility of income is positive (i.e., U' (w) > 0 and V' (w) > 0). By assuming that worker’s optimal choice among hazardous job alternatives is determined by maximizing his expected utility Z = (1-p) U (w) + p V (w), we can show that:

$$\frac{dw}{dp} = \frac{-Z_p}{Z_w} = \frac{u(w) - v(w)}{(1-p)u'(w) + p v'(w)} > 0 \qquad \text{….(1)}$$

Technically, W (p; c) locus is the double envelop of tangencies of worker’s indifference curves and employer’s job risk offers. $\partial W/\partial p > 0$ represents the market equilibrium wage risk premium, the wage increase necessary to entice a worker to accept an increment of risk. That is, the estimated $\partial W/\partial p$ is a local measure of the wage-risk trade-off for marginal changes in risk. It is basically a Willingness to Accept (WTA) measure of risk. For a small change in risk, this WTA measure equals the Willingness to Pay (WTP) for risk.

Since Thaler and Rosen's (1976) pioneering work, numerous studies have emerged to measure the compensating wage differentials for job risks. See Viscusi (1993) and Viscusi and Aldy (2003) for excellent surveys. Basically, the past empirical studies on the topic specify some sort of the following wage equation:

$$\text{Ln wage}_i = \alpha + \beta\, p_i + \textstyle\sum_k \gamma_k X_{ki} + \varepsilon_i \qquad ....(2)$$

where X is a vector of worker's personal characteristics variables (such as age and education) as well as job characteristics variables (such as type of occupation, working condition) for worker 'i', p_i represent the job (injury and or fatal) risk faced by worker 'i', and ε_i is the regular random error term reflecting unmeasured factors influencing worker i's wage rate. α (a constant term), β and γ_ks are parameters to be estimated using regression analysis. Since the dependant variable is in log form the wage-risk premium is computed by: $\partial W/ \partial p= \beta$ x average wage. Since the theory is silent on the functional form of the dependable variable i.e., whether it takes log form or linear form, some studies use wage as the dependant variable in (2) also. In such a case, the β is directly the wage-risk premium.

Regarding job risk, the existing studies use two alternative measures: (i) Objective measure of risk (such as probability of fatal or non-fatal risk for the worker) and (ii) Subjective measure of risk (this measure utilises a danger perception dummy indicator that takes the value 1 if the worker believes that his job exposes him to dangerous or unhealthy conditions and 0 otherwise). Gerking *et al.,* (1988), Viscusi (1979), and Fairris (1989) find that self-reported riskiness of one's job is significantly and positively related to an individual's wage. Our study uses both subjective and objective measures of risk. The computations of both objective and subjective measures of risk for farm labourers are explained below.

III

DATA, MODEL AND VARIABLES

This study uses the data collected through a primary survey conducted in 2009-10 from 282 farm workers in Kuttanad in Kerala using multi stage random sampling technique. Kuttanad is the rice bowl of Kerala, and is stretched in three districts: Alappuzha, Kottayam and Pathanamthitta. The main rice season of the area is known as the *punja* (summer crop) and grown in 27,000 ha. In the next stage, we selected two Community Development Blocks randomly from each of the three districts. Then two panchayats from each block were identified and from each panchayat selected, three padasekharams were chosen at random. We selected all (182) pesticide applicators and 100 other agricultural labourers (randomly) from the selected padasekharams. Thus, 282 sample farm workers were selected for the study. Mostly the pesticide applicators were local workers with this skill. During the off-season when spraying operations were limited, they engaged in other types of agricultural and non-agricultural works. The agricultural labourers engaged in farm operations such as ploughing and land preparation and in general did not undertake pesticide spraying.

Data collection was done through a structured pre-tested questionnaire, by the personal interview method, and through farm diary maintained by the respondents. The data included both qualitative and quantitative attributes. Direct observations were also made wherever possible. The data set for the study consisted of three components: (i) Each applicator was contacted several times during the spraying season, which lasted for five weeks and data on the spraying details, health status after spray operations (within a period of 24 hours) etc. were gathered. That is, we gathered risk-dose responses of workers based on how many times they were engaged in pesticide applications. Although the number of dose-response details for individual workers varied, on an average for each respondent, 6.41 dose-response observations were available and the total data set included 1166 observations. (ii) During off-season each of 182 applicators undertook wage labour on farm or other sectors. They were contacted during the off-season to gather the data from them. This forms an additional 182 observations. (iii) Data from 100 agricultural labourers were collected once.

Thus, there are 1448 sample observations in the data set: (i) 1166 from pesticide applicators during the spraying seasons, (ii) 182 from pesticide applicators during off season, and (iii) 100 from agricultural workers not handling pesticide. Since pesticide application is a skilled job, only male workers did the job. Majority of the agricultural workers surveyed were also males. 53 per cent of sample workers were in the age group of 50-60 and 38.6 per cent were in the 40-50 age group. While a few respondents in the applicator group were graduates, most others completed only high school education and below.

Pesticide application is of shorter duration than any other wage labour in the agricultural and non-agricultural sectors (Table 1). The average work hour is 4.19 hours a day. In other cases it varies between 5.71 hours to 10 hours, averaging at 6-7 hours. Pesticide applicators are paid nearly twice the wages of agricultural labourers than those who are not pesticide applications in the agricultural sector on an hourly basis. While the payment for the former is Rs 64.27 per hour, the latter is paid only around Rs.39.15 per hour. Although the payments are slightly higher in non-agricultural sector, it is not as high as in pesticide application work. However, for the coconut climbing work, which is a risky job, the average wage is Rs. 54.71. The wages for weeding and transplanting activities which are generally undertaken by the women workers was on an average at a low of Rs.125/day but the working hours and drudgery are more.

TABLE 1. WAGE RATE OF FARM WORKERS IN KUTTANAD AREA

Sl.No. (1)	Type of work (2)	Average wage rate Rs./day (3)	Rs./hr (4)	hours/day (5)
I. Agricultural				
1.	Pesticide application (M)	269.32	64.27	4.19
2.	Other works in rice fields (M)	241.29	39.15	6.16
3.	Transplanting (W)	125	19.23	6.50
4.	Weeding (W)	125	19.33	6.47
5.	Coconut climbing (M)	312.5	54.71	5.71
6.	Fishing (M/W)	230	34.52	6.66
7.	Rubber tapping (M)	287.5	40.42	7.11
II. Non-agricultural				
1.	Coolie (M)	251.09	39.6	6.34
2.	Electrical works (M)	300	43.68	6.87
3.	Plumbing (M)	250	41.67	6.00
4.	Construction (M)	250	41.67	6.00
5.	House maid (M)	100	12.50	8.00
6.	Other service sector jobs (M)	250	40.32	6.01

(M: Men and W: Women).

In this study, the extent of compensating differential for agricultural workers is investigated using an earnings equation of the following form:

$$W = \beta_0 + \beta_1 \text{ RISK (or CHEMICAL)} + \beta_2 \text{ AGE} + \beta_2 \text{ AGE}^2 + \beta_3 \text{ EDU1} + \beta_4 \text{ EDU2} + \beta_5 \text{ MITIGATION} + \beta_6 \text{ SMOKE} + \beta_7 \text{ TOBACCO} + \beta_8 \text{ HI} + \beta_9 \text{ TEMPR} + \beta_{10} \text{ WORK} + \varepsilon_i \quad \text{....(3)}$$

where, W - hourly wage rate (Rs.). RISK is a subjective measure of risk; it is a dummy indicator that takes value 1 if the worker believes that his job exposes him to dangerous or unhealthy conditions (such as sickness after pesticide spray operation) and 0 otherwise. CHEMICAL is an alternative (objective) risk measure; it is the amount of chemical dose handled; it is measured as: CHEMICAL= (Quantity of formulation applied X concentration of the formulation)/volume of water.

AGE represents the age of the worker in completed years. EDU 1 and EDU 2 are dummy indicators for education levels of workers (i.e., up to 4 years and 5-7 years of education respectively). MITIGATION is a dummy indicator, taking value 1 if worker has adopted any of the personal protective gadgets and 0 otherwise. SMOKE and TOBACCO are dummy indicators for whether worker has smoking habits and chews tobacco. TEMPR is the atmospheric temperature (^{0}c) during the spraying period. HI is the Body Mass Index (=Wt/Ht^2 x 100) and WORK is a dummy indicator to show whether the worker applies pesticides or not. The model parameters βj's are estimated using the Ordinary Least Squares Method. The descriptive statistics of the study variables are shown in Table 2.

TABEL 2. DESCRIPTIVE STATISTICS OF THE STUDY VARIABLES

Variables (1)	Definition (2)	Mean (3)	Std. Dev (4)
WAGE	Computed hourly wage rate (Rs.)	64.2706	69.220
RISK	Health Risk Dummy Variable: 1 if worker answered yes to sick after spraying pesticides; 0 otherwise	0.70373	0.457
CHEMICAL	Chemical dose handled*	335.016	494.462
AGE	Age of the respondent in years	45.5318	9.175
EDU1	Education dummy variable: 1 if up to 4 years of schooling; 0 otherwise	0.14434	0.352
EDU2	Education dummy variable: 1 if 5-7 years of schooling; 0 otherwise	0.51588	0.500
MITIGATION	Mitigation dummy variable: 1 if worker has adopted any of the personal protective gadgets; 0 otherwise	0.55471	0.497
SMOKE	Smoking habits dummy variable: 1 if worker is a smoker; 0 other wise	0.54075	0.499
TOBACCO	tobacco chewing habit dummy variable: 1 if worker chews tobacco; 0 otherwise	0.04765	0.213
ALCOHOL	Alcohol consumption dummy variable: 1 if worker drinks alcohol; 0 otherwise	0.23964	0.427
HI	Body mass index (=Wt x Ht^2 * 100)	21.8282	2.170
WORK	Occupational dummy variable; 1 if pesticide application work; 0 otherwise	0.78384	0.412
TEMPR	Temperature	33.3647	0.756
N	Number of Observations	1448	

It is defined as the ratio between (quantity of formulation applied x concentration of the formulation) and volume of water.

IV

EMPIRICAL RESULTS

We have used WAGE in its absolute form and its log form in alternative specifications as in past studies. The empirical results without WORK variable (specification 1) and with WORK variable (Specification 2) of equation (3) are presented in Tables 3 and 4 respectively. Column (1) of Table 3 shows the OLS estimation results of semi-log wage equation (i.e., in this column the dependent variable is the natural log of hourly wage rate). One of the human capital variables, age and its square are not statistically significant at 5 per cent level. But the two education dummies are positive and statistically significant at 5 per cent as predicted by the human capital theory.[1] The returns for workers with education 5-7 is higher than the returns for workers with education below 5 years as per the expectation of the human capital theory. As expected, the mitigation dummy is associated with a negative and significant coefficient, indicating that workers with adequate care (i.e., using personal protective gadgets) receive less wage compensation than workers without care. The implicit meaning is that usage of private gadgets ensures safe work environment and so less wage compensation.

TABLE 3. REGRESSION ESTIMATES OF HEDONIC WAGE EQUATIONS *(SPECIFICATION 1)*

	Log wage		Wage		Log wage		Wage	
Variables (1)	Coeff. (2)	t-ratio (3)	Coeff. (4)	t-ratio (5)	Coeff. (6)	t-ratio (7)	Coeff. (8)	t-ratio (9)
Constant	1.3130***	1.711	-95.2282	-1.126	0.8818	1.121	-126.4640	-1.471
RISK	0.2803*	8.001	21.2272*	5.498	-	-	-	-
CHEMICAL	-	-	-	-	0.0001*	3.407	0.0082*	2.229
AGE	-0.0012	-0.091	-1.2672	-0.868	0.0086	0.638	-0.5309	-0.361
AGE SQUARE	0.0000	-0.113	0.0089	0.548	-0.0001	-0.875	0.0003	0.018
EDU1	0.1201**	2.345	16.3788*	2.902	0.1141**	2.177	15.8297*	2.766
EDU2	0.2010*	5.256	18.2449*	4.327	0.2146*	5.473	19.2033*	4.484
MITIGATION	-0.0015*	-4.939	-0.3449*	-10.468	-0.0014*	-4.448	-0.3353*	-10.107
SMOKE	-0.0122	-0.372	-5.7528	-1.596	0.0321	0.978	-2.4051	-0.670
TOBACCO	-0.3641*	-4.789	-21.6802*	-2.587	-0.3983*	-5.154	-24.2668*	-2.875
HI	0.0072	0.903	-1.1180	-1.276	0.0114	1.386	-0.8197	-0.915
TEMPR	0.0678*	3.268	5.9695*	2.609	0.0759*	3.588	6.5626*	2.840
R Square	0.1087		0.1140		0.0765		0.0985	
F	17.5300		18.4900		11.9000		15.7000	
N	1448		1448		1448		1448	

** and * Significant at 5 and 1 per cent level respectively.

TABLE 4. REGRESSION ESTIMATION OF WAGE EQUATIONS (*SPECIFICATION 2)*

	Log wage		Wage		Log wage		Wage	
Variables (1)	Coeff. (2)	t-ratio (3)	Coeff. (4)	t-ratio (5)	Coeff. (6)	t-ratio (7)	Coeff. (8)	t-ratio (9)
Constant	1.5098**	2.074	-86.1390	-1.027	1.6726**	2.266	-87.0519	-1.023
RISK	0.1328*	3.774	14.4169*	3.555	-	-	-	-
CHEMICAL	-	-	-	-	-0.0001***	-1.769	-0.0005	-0.127
AGE	0.0047	0.376	-0.9931	-0.685	0.0083	0.663	-0.5428	-0.374
AGE SQUARE	-0.0001	-0.554	0.0061	0.378	-0.0001	-0.899	0.0005	0.034
EDU1	0.2257*	4.581	21.2602*	3.745	0.2189*	4.416	21.0519*	3.685
EDU2	0.1818*	5.006	17.3552*	4.148	0.1698*	4.612	16.9699*	3.999
MITIGATION	-0.0013*	-4.751	-0.3390*	-10.370	-0.0013*	-4.431	-0.3308*	-10.096
SMOKE	-0.0242	-0.781	-6.3095***	-1.765	-0.0103	-0.334	-4.5207	-1.271
TOBACCO	-0.2396**	-3.292	-15.9292***	-1.900	-0.2326*	-3.177	-16.0056***	-1.897
HI	0.0163**	2.157	-0.6946	-0.796	0.0151**	1.970	-0.6328	-0.715
TEMPR	0.0427**	2.159	4.8096**	2.110	0.0384***	1.923	4.6930**	2.040
WORK	0.5112*	12.695	23.6161*	5.090	0.5874*	14.362	29.2756*	6.209
R Square	0.1987		0.1297		0.1925		0.1221	
F	32.36		19.46		31.11		18.15	
N	1448		1448		1448		1448	

** and * Significant at 5 and 1 per cent level respectively.

The workers' personal habits variables-SMOKE and TOBACCO are having negative parameters. But only the coefficient of TOBACCO is statistically significant. This means that the wages for workers with the habit of chewing tobacco (or smoking) are less than workers without the habit. This result is interesting as it reveals that workers with these habits are risk lovers or less risk averters so that they demand less or no compensation for occupational hazards. The health index variable is associated with a positive coefficient, indicating that healthy workers are more productive and receive higher wages. But this result is not supported by t ratio. The temperature variable is also associated with a positive coefficient and it is statistically significant at 1 per cent level. This implies that workers pose higher health risk while under hot sun demand higher wages as per the expectation of the compensating differential theory.

The variable of interest is RISK (it is a subjective measure). It influences the wage rate positively and significantly, indicating that workers on jobs which they perceive as being dangerous (lead to sickness) earn an earnings premium of Rs. 18.02 per hour.[2] Columns (4) and (5) of Table 3 shows the OLS estimation results of wage equation (i.e., in this Column the dependent variable is the absolute amount of hourly wage of workers). The results of non- risk variables are more or less the same as indicated in Cols (2) and (3). The RISK variable is having a positive and significant effect on wages at 1 per cent level of significance. The estimated coefficient implies that the workers who perceive job hazards are getting an additional compensation of Rs. 21.23 per hour.

Columns (6) to (9) of Table 3 show the results of log wage and wage equations with an alternative risk measure, CHEMICAL. In these Columns, the results of non-risk variables are more or less similar to what were shown in Column-2. In both Columns, the risk variable CHEMICAL has a positive and significant coefficient at 5 per cent level. The results indicate that workers receive approximately 64 paise per hour for 100 per cent increase in the Chemical dose in Column (6) and (7) and 82 paise per hour in Columns (8) and (9).

Table 4 shows the OLS results of wage equations which additionally include WORK variable (specification 2), which is dummy indicator for whether worker handles pesticides or not. In Columns (2) to (5), RISK variable is used. The results of other non-risk variables are more or less the same as in respective Columns in Table 3 except that the health index (HI) variable turns to be significant. The risk variable is positive and statistically significant at 1 per cent level in these Columns. The results indicate that workers receive an additional compensation of Rs. 8.54 per hour (Columns 2 and 3) and Rs. 14.42 per hour (Columns 4 and 5) for facing occupational hazard. In Columns (6) to (9), the CHEMICAL variable turns out to be insignificant. This may be due to high correlation with WORK variable. The WORK variable is positive and highly significant in all the Columns indicating that workers handling pesticides receive significantly higher wages than their counterparts who do not handle it.

Finally we can compare our results with the study by Madheswaran (2004) which estimates that workers in manufacturing firms receive a positive compensating wage differentials of Rs. 2.33 per hour for job related health risks (subjective measure) in Chennai district and Rs. 3.91 per hour in Mumbai district in India in 2001 prices. In our study, the farm workers receive Rs. 8.54 per hour as compensation in 2009 prices.

V

CONCLUSION AND POLICY IMPLICATIONS

The health risks associated with farm labour involve both morbidity and mortality, in the short and long run. The short term morbidity risks associated with pesticide application works is estimated to be significant and the higher wages enjoyed by these workers are justified. Earlier studies have reported higher risk level associated with more toxic chemicals and there is no differential wage rate for spraying chemicals of varying toxicity level. This is the contribution of the study which has estimated that farm workers receive approximately Rs. 20 per hour for incurring their occupational risks and they receive approximately 75 paise per hour for a 100 per cent increase in the chemical dosage they handle.

Better awareness may lead to a market signal of higher wages for more toxic chemicals, and this can act as an economic instrument to restrict the use of such chemicals. We find that the use of protective gadgets reduces the risk of health damage and less compensation for risk, which emphasises the necessity for ensuring the use of protective measures in farm fields against the risk exposed due to pesticide application. Better health conditions and safe personal habits also minimise the chances of morbidity. Higher temperature levels increases the chances of health damage and so workers demand higher wage for this risk.

These results highlight the need for creating better understanding on the importance of adopting scientific practices in handling the pesticides and a mechanism to ensure the adoption and monitoring. The labour welfare programmes should include the health insurance scheme specifically designed for these groups of workers and health monitoring system to ensure their safety.

In developing countries, the safety arrangements are so poor that many accidents occur during work because of handling of machines, dangerous chemicals, animals or unhygienic work environment and poor sanitary arrangements. More importantly, the major victims of the indiscriminate use are the vulnerable sections of the population who ignore health hazards either due to lack of awareness or financial factors. Considering the importance of promoting the welfare of village dwellers, in the wider interest of whole human kind the 16th International Congress on Rural Health approved the "Lodi Declaration on Healthy Villages" in 2006. Their approval launched the Global Movement on Healthy Villages, an official campaign of World Health Organisation (WHO). Similarly, International Labour Organization has launched a training programme for improving the safety and health of farmers. Work Improvement in Neighbourhood Development (WIND) is becoming popular in many countries. It basically involves participatory training support to farmers through farm visits, checklist exercises and group discussions. The aim is to improve the understanding on the importance of healthy environment and provide knowledge on farming activities that ensure the same. There should be an initiative from the part of concerned departments to extend the WIND programme to all villages so that the larger goal of healthy villages can be attained.

Received October 2011. Revision accepted June 2012.

NOTES

1. However, it is noted that the left out (reference or base) group is workers with above 7 years of schooling. The results reveal that compared to agriculture workers with more than 7 years of schooling, the workers with less than 7 years of schooling receive more returns for their education. This result implies that workers with less education are more productive in the agriculture job than workers with more education, because the job options are rather low.

2. It is noted that since the dependent variable is in log form, the wage-risk premium is computed by: $\partial Y / \partial RISK = \beta_1 \times$ Mean Wage.

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