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ANALYSIS OF RELATIONSHIP BETWEEN AGE AND WAGE RATES OF PERMANENT FARM SERVANTS IN AGRICULTURAL LABOUR MARKET IN HARYANA

Gaurav Saini

Research Scholar, Institute For Development And Communication

(An Approved Research Centre Of Panjab University, Chandigarh)

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ABSTRACT

There are two types of hired labour used in Haryana Agriculture i.e. permanent farm servants and casual agricultural labourers. The permanent farm servant is key component of agricultural hired labour in Haryana. However, there is almost no official data or information about wage rates and number of permanent farm servants unlike wage rates of casual agricultural labourers as we have structured information regarding wage rates of casual agricultural labourers. The main objective of our study is to analyze the relationship between age and wage rates of permanent farm servants. Inclosed village labour market, permanent farm servants are employed by generally big farmers for one year from May to April. An employer or farmer keeps various personal characteristics of a permanent farm servant in mind while fixing his wage rate. Similarly, a permanent farm servant is familiar with nature of work to be performed on farms and knows the behaviour of employers. Therefore, personal and farm characteristics are important in the determination of wage rates of permanent farm servants. There may be huge variation in the wage rates among permanent farm servants and even in the same village due to differences in their personal as well as farm traits. Age and work experience are main determinants of wage rates of permanent farm servants. The analysis of wage rates of permanent farm servants is based on the primary data of 220 randomly selected permanent farm servants from 22 villages of Haryana. One village is randomly selected from each district. The study found that the variables of Age and Age^2explain 29 percent variation in the wage rates of permanent farm servants. The relationship between age and wage rates of permanent farm servants is found to be form of inverted-U shaped.

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Keywords: Permanent farm servants, Casual agricultural labourers, Age, Experience, Wage rates.

Introduction

The permanent farm servants have prominent place in agriculture of Haryana. Nonetheless, there is hardly any study on the wage rates of permanent farm servants in Haryana. There are plenty of studies in literature on the wage rates of casual agricultural labourers. The casual agricultural labourers are those labourers who are hired on daily basis by farmers. There is different procedure of determination of the wage rates of permanent farm servants and casual agricultural labourers. There is difference in nature of duties performed by permanent farm servants and casual agricultural labourers. Moreover, there is also a significant difference in responsibilities of them. Permanent farm servants have to perform more responsible duties on farms in comparison to causal agricultural labourers. Furthermore, there is no variation in the wage rate of casual agricultural labourers in a village, as generally a uniform wage rate prevails in the village. However, it is not true in case of permanent farm servants. The wage rates of permanent farm servants vary from person to person. The study found a wide variation in the wage rates of permanent farm servants even in the same village. The main determinants affecting the wage rates of permanent farm servants are: driving skill, managerial and supervision skill, age, electric motor operating skill and marital status. Here, the main objective of the present paper is to analyze the impact of age on the wage rates of permanent farm servants and study the relationship between age and wage rates of permanent farm servants by using various regression models.

The Data

The information on the number of permanent farm servants in Haryana is not available as such. So, the study mainly rely on primary data which were collected through field survey. The primary data were collected at two stages. Firstly, the complete census of agricultural labour households in each selected village was conducted to capture the extent of permanent farm servants in a sample village. Secondly, the in-depth information was collected from the selected permanent farm servants. Here, uniformly one village was selected at random from each district. Further, from each village ten permanent farm servants were selected from the census listing of their households working on different farms. Thus, 220 permanent farm servants will be selected randomly for this primary survey in all over Haryana. This primary survey was carried out during 2021-22.

Wage Rate Structure of Sample Permanent Farm Servants

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The wage rate for casual agricultural labourers is typically the same regardless of his personal characteristics while working on daily basis. Moreover, the casual labourers also work in groups on piece wage rates. However, in the case of cash wage permanent farm servants employed on annual basis, the wage rates vary significantly from worker to worker depending on a wide range of factors. The wage rates of sampled permanent farm servants are briefly elaborated in this part to give the background information needed for the analysis. The information regarding structure of wage rates of permanent farm servants is exhibited in table-1. It shows the distribution of wage rate of permanent farm servants. We divide the wage rates into six different size categories with a Rs.20000 interval each to describe the structure of the wage rates. Table-1 shows that more than 60 percent i.e. 62.27% of the permanent farm servants are paid annual wage rates between Rs.110000 and Rs.150000. It is clear that maximum number of permanent farm servants i.e. 36.82 percent lie in the interval of Rs (110000-130000). The mean of the annual wage rates of the permanent farm servants is

Table-1: Distribution of Permanent Farm Servants by Wage Rate (Rs.)

Wage rate (Rs. Per Year in Thousand)	**Frequency**	**Percentage**	**Mean Wage Rate (Rs. Per annum)**
50000-70000	10	4.55	58359
70000-90000	19	8.64	84038
90000-110000	43	19.54	102773
110000-130000	81	36.82	121591
130000-150000	56	25.45	139785
150000 & above	11	5	171250
Total	220	100	118909
Median Wage	121680		
Maximum Wage	187000		
Minimum Wage	50000		
Range	137000		
Ratio of maximum to minimum	3.74		
Standard Deviation	24736.02		
Coefficient of variation (CV)	20.8%		

Source-Primary Survey (2021-22)

Rs.118909 which is close to the median wage rate i.e. Rs. 121680. On the one hand, 4.55 percent permanent farm servants receive wages below Rs.70,000 but on the other hand 5 percent permanent farm servants get wage rates above Rs.150000. Thus, there is considerable variation in the wage rates of permanent farm servants. There is huge difference between maximum wage rate (Rs. 187000) and minimum wage rate (Rs. 50000). The ratio of maximum wage rate to

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minimum wage rate is 3.74. The coefficient of variation is also high i.e. 20.79 percent. Thus, there is a wide range in the wage rates paid to permanent farm servants in Haryana. The wide variation in the wage rate structure of permanent farm servants indicates that a number of factors including age, human capital, various technical and managerial skills, tractor driving skill and other personal characteristics determining productivity, are responsible for this wide variation in wage rates earned by different permanent farm servants in the same village and even sometimes, these variations are found on the same farm also.

Impact of Age on The Wage Rates of Permanent Farm Servants: Univariate Regression Model

At first, the impact of age and marital status will be analysed by using univariate regression analysis under uncontrolled conditions. We shall use dependent variable (Annual Wage Rates of Permanent Farm Servants) in both forms, i.e. natural form and log form, to get more clarity about the impact of the age on the wage rates of permanent farm servants. Further, both variables related to age, i.e. Age and Age^2, will be taken together in a model to examine the relationship between age and wage rates of permanent farm servants in subsequent section.

In the literature related to urban labour market, the variable age is an important variable in determination of wage rate of labourers where physical stamina counts. In few studies like of Sahn and Alderman (1988) have found negative effect of age, after a particular age, on the wage rates of permanent farm servants. Here, the variable of age has negative impact on the wage rates of permanent farm servants and it is significant at 5% level of significance. It has been further explored that after which particular age the wage rate starts decline. So it is clear that age-wage relationship is very complex. This relationship will be explained in the

Table-2: Influence of Age and marital statuson Wage Rates (Univariate Analysis) (N=220)

Explanatory Variables	**Dependent Variable (Y)=Annual Wage rate (Rs.)**			
	Intercept (α)	**Slope (β)**	**t_{values}**	**R^2**
Age (Years)	129400.75	-245.82	2.20**	0.03
Age^2	127197.32	-4.42	3.34***	0.05
Experience (Years)	112973.67	369.78	3.34***	0.05
Marital Status(D_1): Married-1, Unmarried-0	106689.00	14732.84	4.54***	0.08

Note: $t_{values}$are significant at: *10%, **5% and ***1%

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subsequent section. Experience has positive impact on the wage rates because a permanent farm servant who continuously working without any break attains high skills in performing farm operations. Moreover, his reputation in village labour market strengthens. The variable of experience is statistically significant at 1% level of significance in both equations. The value of R^2 of the variable is 0.05 which indicates that this variable can explain 5 percent variation in the wage rates of permanent farm servants. Further after a certain age, permanent farm servants become old and weak as a result he is unable to do many hard farm tasks. The impact of age is also negative in log form also as it can be seen in table-3.

Another important explanatory variable is marital status that is used in dummy form to see any difference between earning of married and unmarried permanent farm servants. This variable is directly related to age. It is clear from table-2 and table-3 that a married permanent farm servant is paid significantly (Rs.14732) more than unmarried (table-2) and it is significant at 1%. The value of R^2 (0.08) indicates that marital status variable describes 8 percent variability in the wage rates of permanent farm servants. Many reasonable interpretations can be given for this strong positive effect of marital status of permanent farm servants such as firstly, a married man is more responsible, hard worker and has responsibility to fulfil the consumption need of

Table-3: Influence of Age and marital status on Wage Rates (Univariate Analysis) (N=220)

Explanatory Variables	Dependent Variable (Y)= Log of Annual Wage Rates (Rs.)			
	Intercept (α)	Slope (β)	t_{value}	R^2
Age (Years)	5.12	-0.001	2.81***	0.05
Age^2	5.11	-0.001	4.41***	0.07
Experience (Years)	5.05	0.001	2.67***	0.05
Marital Status(D_1): Married-1, Unmarried-0	5.026	0.054	4.441***	0.08

Note: $t_{values}$are significant at: *10%, **5% and ***1%

his family, whereas an unmarried is generally less reliable, less hard worker, not ready to do work in unfavourable working conditions. Secondly, there is by default positive relationship of marital status with age and years of experience as permanent farm servants.

Age-Wage Rates Relationship

In the preceding tables-2 and table-3, it has been estimated that the impact of age of permanent farm servants on the wage rates is negative and significant whereas the influence of experience is positive and significant even at 1%. Thus, these results indicate that as age increases wage rate

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decreases but year of experience increases the wage rates of permanent farm servants. The experience increases the efficiency and productivity of the permanent farm servants. After a particular age, the efficiency and productivity of the permanent farm servants start declining as age weakens the physical stamina of the body which is required for manual work and a permanent farm servant has to do many rough and tough tasks on the farm. There are many studies in the literature on the impact of age on the wage rates. The scholars like Sahn and Alderman (1988) and Datt (1989) observe non-linear relationship between age and wage rates specially in the case of agricultural labourers. Sahn and Alderman (1988) found that when a worker gets his maximum wage rate up to age of 44 years in rural labour market whereas a worker in urban area earns maximum wage rate up to 55 years. After this benchmark age, the wage rates start declining. Similarly, Datt (1989) finds negative relationship between age and wage rates in the case of casual agricultural labourers in farm operations. Thus, the past studies suggest the age-wage relationship takes form of inverted U-shape.

To analyse the nonlinearity of age-wage rate relationship in the case of permanent farm servants in the study, we employ a regression model with annual wage rates of permanent farm servants as dependent variable in normal and log form. In this regression model, two explanatory variables i.e. Age and Age^2 are taken to confirm the nonlinear relationship between the wage rate and age of the permanent farm servants. It is clear from the results depicted in table-4 that there is clear non-linear relationship between age and wage rate of permanent farm servants. The coefficient of age has strong positive and significant impact on the wage rates of permanent farm servants as the t_{value} of the coefficient is significant even at 1% level of significance. However, the coefficient of age variable was showing negative impact on wage

Table-4: Impact of Age on the wage rate of Permanent Farm Servants: Identifying the Non-linear Relationship

Explanatory variables	**Equation-1 Dependent Variable=Annual Wage rate (Rs.)**	**Equation-2 Dependent Variable=Log of Annual Wage rate (Rs.)**
Age	4283.38 (7.48***)	0.02 (8.10***)
Age^2	-53.93 (8.03***)	-2.15 (8.79***)
Intercept	40162.31	4.76
F-Values	35.39***	43.96***
R^2	0.25	0.29

Note: (i). Figures inside parentheses are t_{values}.

(ii). t_{values} and F_{values} are significant at: *10%, **5% and ***1%

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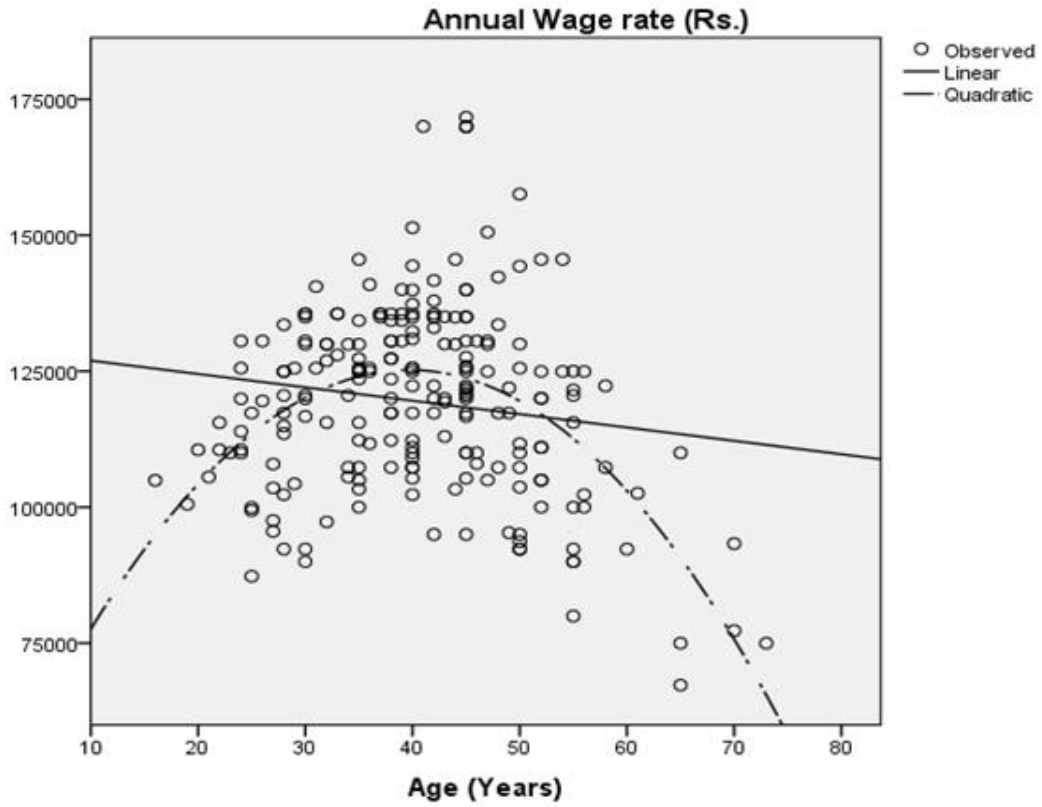
rates of permanent farm servants in univariate regression model (table-2). Now, the picture about the impact of age on wage rates of permanent farm servants is somewhat clear. The negative sign of Age^2 variable confirms the non-linear relationship between age and wage rates of permanent farm servants and it follows inverted-U shaped relationship between age and wage rates as the t_{value} of the variable of Age^2 is also significant at 1% level. The value of F-test indicates that the model is highly significant at 1% level. The age variable used in this regression model explains 25 percent variation in the dependent variable (Annual wage rates of permanent farm in natural form) as the value of R^2 indicates in Equation-1 (table-4). The estimates of Equation-1 are used to detect interrelationship between age and wage rates of permanent farm servants. It should be mentioned here that when dependent variable (Annual wage rate) is used in log form, the result shows that this model is more appropriate than previous one as the value of R^2 in this model (Equation-2) suggests that it describes 29 percent variation in the wage rates of permanent farm servants which is 4 percent more than the previous model when dependent variable is taken in natural form. The graph-1 shows the relationship between age and wage rates of permanent farm servants is inverted-U shaped in

Graph-1: Age-Wage Rate Relationship



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which the estimates of Equation-1 are used. The micro visual observation of the curve shows that the permanent farm servants earn highest wage rates at age of 40 thereafter their earnings start to decline. Our findings are similar to the findings of Rajaraman (1986). He revealed that male labourers in rural area get highest wage rates at the age of 40 years. After the age of 40 years, his physical stamina starts to decline and advantage of experience reaches its maximum, as a result the wage rates start to decline. Another reason may be that by this age, his responsibilities towards family increase more likely to arrange the marriage of his daughters and sons. So, now he cannot give as much time as prior and his efficiency and productivity begin to decline as a result, he is paid less than other permanent farm servants.

Conclusion

The permanent farm servants are hired for performing more responsible farm operations like driving tractors, supervising casual agricultural labourers, power tube well operations, etc. which cannot be done by casual agricultural labourers. Permanent farm servants are generally hired by big farmers. The study found that there is a wide variation in the wage rates of permanent farm servants even in the same village unlike that of casual agricultural labourers as only single wage rate prevails in the village in case of casual agricultural labourers at a time. The study also observed that the relationship between age and wage rates of permanent farm servants is inverted-U shaped. Permanent farm servant earn highest wage rate when they are 40 years old. Moreover, married permanent farm servants also get more wage rates than unmarried permanent farm servants

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