

A Note on Efficiency Wages and Inequity : Discrimination against Women

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A Note on Efficiency Wages and Inequity

— Discrimination against Women —

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Abstract: A purpose of this note is to analyze the relationship between the efficiency wages and inequity such as the discrimination against the women. From the analysis of this note the following results have been derived. In the case of women who are not liked by the unfair employer, the elasticity of the efficiency with respect to the wage rate of the women becomes less than 1. On the other hand, in the case of men who are liked by the unfair employer, the elasticity of the efficiency with respect to the wage rate of the men becomes larger than 1. Hence, in both cases, the ordinal Sollow condition i.e., the elasticity of the efficiency of the worker with respect to the wage rate is equal to 1, will not hold.

Key Words: Efficiency Wages, Inequity, Discriminative Employer, Discrimination, Sollow Condition.

1 Introduction

A purpose of this note is to analyze the relationship between the efficiency wages¹ and inequity such as the unfair discrimination² against the women. From the analysis of this note the following results have been derived. In the case of women who are not liked by the unfair employer, the elasticity of the efficiency with respect to the wage rate of the women becomes less than 1. On the other hand, in the case of men who are liked by the unfair employer, the elasticity of the efficiency with respect to the wage rate of the men becomes larger than 1. Hence, in both cases, the ordinal Sollow condition i.e., the elasticity of the efficiency of the worker with respect to the wage rate is equal to 1, will not hold.

In the next section, a simple model of inequity will be shown. In the last section concluding remarks will be given.

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2 A Simple Model of Inequity

The utility of the discriminative employer is assumed to be shown in the following manner;

$$u = \alpha\pi + \beta\ell_1 + \gamma\ell_2, \quad (1)$$

where π is the profit, ℓ_1 is the number of the employed women, ℓ_2 is the number of the employed men, and due to the unfair employer the following inequity is assumed such that $\beta < 0$, $\gamma > 0$, and $\alpha > 0$.

On the other hand the profit is shown by the following (2).

$$\pi = PQ(e_1(w_1)\ell_1 + e_2(w_2)\ell_2) - w_1\ell_1 - w_2\ell_2, \quad (2)$$

where P is the price level, Q if the production level, $e_1(w_1)$, $de_1/dw_1 > 0$, is the efficiency of the employed women, w_1 is the wage rate of the women, $e_2(w_2)$, de_2/dw_2 , is the efficiency of the employed men, and w_2 is the wage rate of the men.

From (1) and (2) the following (3) is obtained.

$$u = \alpha\{PQ(e_1(w_1)\ell_1 + e_2(w_2)\ell_2) - w_1\ell_1 - w_2\ell_2\} + \beta\ell_1 + \gamma\ell_2. \quad (3)$$

Maximizing the utility with respect to w_1 , ℓ_1 , w_2 , and ℓ_2 yields the following first order conditions (4), (5), (6) and (7).

Second order conditions are assumed to be satisfied.

$$\frac{\partial u}{\partial w_1} = \alpha\left\{PQ' \cdot \ell_1 \frac{de_1}{dw_1} - \ell_1\right\} = 0, \quad (4)$$

$$\frac{\partial u}{\partial \ell_1} = \alpha\{PQ' \cdot e_1(w) - w_1\} + \beta = 0, \quad (5)$$

$$\frac{\partial u}{\partial w_2} = \alpha\left\{PQ' \cdot \ell_2 \frac{de_2}{dw_2} - \ell_2\right\} = 0, \quad (6)$$

$$\frac{\partial u}{\partial \ell_2} = \alpha\{PQ' \cdot e_2(w_2) - w_2\} + \gamma = 0. \quad (7)$$

From the above first order conditions (4), (5), (6) and (7) the following relations (8) and (9) can be obtained straightforwardly.

$$\eta_{w_1}^{e_1} < 1, \quad (8)$$

where $\eta_{w_1}^{e_1}$ is the elasticity of the efficiency of the employed women with respect to the wage rate for the women.

$$\eta_{w_2}^{e_2} > 1, \quad (9)$$

where $\eta_{w_2}^{e_2}$ is the elasticity of the efficiency of the employed men with respect to the wage rate for the men.

Hence from (8) and (9), the following results are obtained.

In the case of women who are discriminated by the unfair employer, the elasticity of the efficiency of the employed women with respect to the wage rate of the women becomes less than 1.

On the other hand, in the case of men who are liked by the unfair employer, the elasticity of the efficiency of the employed men with respect to the wage rate of the men becomes larger than 1. Therefore, in both cases, the ordinal Sollow condition i.e., the elasticity of the efficiency of the worker with respect to the wage rate is equal to 1, will not hold.

3 Concluding Remarks

A purpose of this note is to analyze the relationship between the efficiency wages and inequity such as the unfair discrimination against the women.

From the analysis of this note the following results have been derived.

- (i) In the case of women who are discriminated by the unfair employer, the elasticity of the efficiency of the employed women with respect to the wage rate of the women becomes less than 1.
- (ii) In the case of men who are liked by the unfair employer, the elasticity of the efficiency of the employed men with respect to the wage rate of the men becomes larger than 1.
- (iii) In both cases, the ordinal Sollow condition i.e., the elasticity of the efficiency of the worker with respect to the wage rate is equal to 1, will not hold.

However, the relationship between the wage rate and the elasticity of the efficiency with respect to the wage rate can not be determined straightforwardly, when both the women and the men are considered simultaneously.

Therefore, the general implications concerning the wage rates of the women and the men will not be obtained straightforwardly.

Notes

- 1 See Solow (1979), Watanabe (1996a), Chang and Ching (1996), Watanabe (1996 b) and Laszlo (2004) for the efficiency wages.
- 2 See Arrow (1973) , Becker (1971) Fujino and Tamura (1977) for the economic theory of discrimination.

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