

A Note on Matching Gift and Efficiency Wages

著者	Watanabe Shigeru
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A Note on Matching Gift and Efficiency Wages

Shigeru Watanabe*

Abstract

In this note it is assumed that the efficiency of the workers will depend not only on the wage rate but also on the attitude of the firm with respect to social contribution.

It will be plausible to assume that the higher the wage rate or the higher the social contribution of the firm where they work, the higher the effort or the efficiency of the workers.

As a result of the analysis it has been derived that the Solow-condition concerning efficiency wages; the elasticity of effort or efficiency with respect to wage rate is one, does not always hold when the effect of the matching gift on the efficiency of workers is taken into consideration.

If the social contribution by the firm is sufficiently effective to the efficiency of the worker and the amount of donation made by a worker depends only slightly on the rate of matching gift and the wage rate, then the elasticity of effort or efficiency function with respect to wage rate is less than one. On the other hand, if either the wage rate or the rate of matching gift is sufficiently effective to the amount of the donation and the efficiency of the worker depends only slightly on the social contribution by the firm, then the elasticity of effort or efficiency with respect to wage rate is larger than one.

In a special case where (1) an amount of donation made by a worker does not depend on wage rate at all, (2) the amount made by the worker does not depend at all on the attitude of the firm with respect to social contribution which is shown by the rate of matching gift, (3) further, the effort or the efficiency of the worker does not depend at all on the attitude of the firm concerning social contribution, then the Solow-condition with respect to efficiency wages will hold. [*Journal of Economics, Business and Law Vol. 12, Winter (Dec.) 2009*]

* Professor, College of Economics, Osaka Prefecture University.

1 Introduction

A purpose of this note is to examine the relationship between matching gift¹ and efficiency wages².

In this note it will be shown that the Solow-condition concerning efficiency wages; the elasticity of effort or efficiency with respect to wage rate is one, does not always hold when the effect of the matching gift on the efficiency of workers is taken into consideration.

In the next section a simple model will be analyzed. In the last section concluding remarks will be given.

2 A Simple Model

In the following it is assumed that the efficiency of the workers will depend not only on the wage rate but also on the attitude of the firm concerning social contribution.

The profit π of the firm is denoted by

$$\pi = px(e(w, m)y) - wy - mg(w, m)y, \quad (1)$$

where p is the price level, x is the output level, $e(w, m)$ is the efficiency of workers, w is wage rate, m is the rate of matching gift by the firm, y is the amount of labor employment, $g(w, m)$ is the donation made by a worker.

Maximizing (1) with respect to w , m , and y yields the following first order conditions. Second order conditions are assumed to be satisfied.

$$\frac{\partial \pi}{\partial w} = px'y \frac{\partial e}{\partial w} - y - m \frac{\partial g}{\partial w} y = 0, \quad (2)$$

$$\frac{\partial \pi}{\partial m} = px'y \frac{\partial e}{\partial m} - g(w, m)y - m \frac{\partial g}{\partial m} y = 0, \quad (3)$$

$$\frac{\partial \pi}{\partial y} = px'e - w - mg(w, m) = 0. \quad (4)$$

From the equations (2) (3) and (4) it is straightforwardly derived that

$$\eta_w^e = \frac{(1 - \eta_m^e)(1 + \lambda \eta_w^g)}{1 - \lambda \eta_m^g}, \quad (5)$$

where η_w^e is the elasticity of the efficiency with respect to wage rate, η_m^e is the elasticity of the efficiency with respect to the rate of matching gift, η_w^g is the elasticity of the donation with respect to the wage rate, η_m^g is the elasticity of donation with respect to the rate of matching gift, and λ is the ratio ($= mg/w$) between matching gift and wage rate,

Hence, from (5),

$$\begin{aligned} \text{if } \eta_m^e = \eta_w^g = \eta_m^g = 0, \\ \text{then } \eta_m^e = 1. \end{aligned}$$

Therefore, in this special case, the elasticity of the efficiency with respect to wage rate is one, hence the Solow-condition concerning efficiency wages will hold.

If the social contribution by the firm is sufficiently effective to the efficiency of the worker and the amount of donation made by a worker depends only slightly on the rate of matching gift and the wage rate, then the elasticity of effort or efficiency with respect to wage rate is less than one. On the other hand, if either the wage rate or the rate of matching gift is sufficiently effective to the amount of the donation and the efficiency of the worker depends only slightly on the social contribution by the firm, then the elasticity of effort or efficiency with respect to wage rate is larger than one.

3 Concluding Remarks

In this note the relationship between the matching gift and the efficiency wages has been analyzed. It is assumed that the efficiency of the workers will depend not only on the wage rate but also on the attitude of the firm, where they work, with respect to social contribution.

As a result of the analysis it has been derived that the Solow-condition concerning efficiency wages; the elasticity of effort or efficiency function with respect to wage rate is one, does not always hold when the effect of the matching gift on the efficiency of workers is taken into consideration.

In a special case where (1) an amount of donation made by a worker does not depend on wage rate at all, (2) the amount made by the worker does not depend at all on the attitude of the firm with respect to social contribution

which is shown by the rate of matching gift, (3) further, the effort or the efficiency of the worker does not depend at all on the attitude of the firm concerning social contribution, then the Solow-condition with respect to efficiency wages will hold.

If the social contribution by the firm is sufficiently effective to the efficiency of the worker and the amount of donation made by a worker depends only slightly on the rate of matching gift and the wage rate, then the elasticity of effort or efficiency function with respect to wage rate is less than one. On the other hand, if either the wage rate or the rate of matching gift is sufficiently effective to the amount of the donation and the efficiency of the worker depends only slightly on the social contribution by the firm, then the elasticity of effort or efficiency with respect to wage rate is larger than one.

NOTES

- 1 See Yamauchi (1997) for matching gift.
- 2 See Solow (1979) and Blanchard and Fischer (1989), Watanabe (1996a, 1996b) Chang, Wen-Ya und Ching-Chong Lai (1996), Laszlo (2004) for the efficiency wage hypothesis but for in-efficiency wage hypothesis instead of efficiency wage hypothesis see Watanabe (2004).

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