Making the Most of Efficiency Wages and Public Service Motivation for Effort Optimization

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The issue of how much to raise government employees’ wages over time in order to ensure optimum government efficiency is a difficult one. While most would agree that workers should be paid according to their worth in terms of what they contribute to their employing organization, few could agree on the appropriate mechanism to raise wages. This issue is particularly problematic in the public sector. By virtue of their organizational mission, government agencies are expected by members of the public to serve the public interest. Various researchers have also recognized the importance of incorporating both extrinsic organizational incentives and intrinsic individual characteristics when examining the behavior and effort of workers (Deci and Ryan 2005; Knoke and Wright-Isak 1982; Perry 2000). In their 2011 article in the *Review of Public Personnel Administration*, Taylor and Taylor developed a framework to examine the effects of efficiency wages and public service motivation (PSM) in influencing the effort levels of the government workforce in 15 countries, ranging from the US and Canada to Europe and Asia Pacific. Their model measured the individual contribution of efficiency wages to effort, and the individual contribution of PSM to effort. It is important for the next step of research in this field to develop a framework that is capable of capturing the employees’ effort in response to a combination of both efficiency wages and PSM.

It is the aim of this paper to propose such a model. Assuming that both external cues (e.g., efficiency wages) interact with internal factors (e.g., PSM) to shape government employees’ behavior (March and Olsen 1989; Weber *et al.* 2004), this model measures employees’ effort in response to a combination of efficiency wages and PSM. This model also incorporates an indicator that is capable of measuring improvements in employees’ effort.
in response to wages and employees’ PSM over time. This efficiency indicator takes into account the existing mix of employees’ PSM level and wage level relative to the market rate and determines whether employees’ effort can be further increased or has peaked under the current condition. This model therefore has the potential to guide agencies to set wages at a level that takes into account their employees’ PSM levels while motivating them to exert high levels of effort.

This paper is divided into two parts. The first section covers a brief literature background on the effects of efficiency wages and PSM on government employees’ effort. The second section presents this study’s model and a few propositions.

**Literature review of wages, PSM and effort**

The efficiency wage literature maintains that agencies can raise their employees’ effort by paying their employees a wage rate that is above the market clearing rate (Solow 1979). If employment contracts are incomplete, and employees have an incentive to shirk on their job, and their work is difficult to observe and evaluate, then paying a wage premium can raise the costs of shirking because employees stand to lose this wage premium if they are caught shirking (Shapiro and Stiglitz 1984; Yellen 1984). Paying a wage premium improves not only employee responsibility and loyalty (Akerlof 1982), but also the recruitment and retention of high calibre employees (Stiglitz 1985; Weiss 1980).

Similarly, the equity theory suggests that employees seek to maintain equity between the ratios of the inputs that they bring to a job (e.g., effort) and the outcomes that they receive from it (e.g., pay) against the corresponding ratios of relevant referents (e.g., workers in similar occupations from the private sector). Equal ratios contribute to perceptions of fairness, which lead to favorable work outcomes (e.g., high performance) (Adams 1965; Choi and Chen 2007). Public sector studies on efficiency wages are however few. Although
Llorens and Stazyk (2011) found that wage discrepancy between the public sector and private sector did not influence voluntary separation rates among state government employees, others have reported that efficiency wages have a significant positive impact on service quality and employees’ effort (Davis and Gabris 2008; Leavitt and Morris 2008; Taylor and Taylor 2011).

The PSM literature has generally established a positive link between PSM and effort (Bright 2008; Perry et al. 2010; Taylor 2008). Employees who hold a public service identity are proposed to have high levels of PSM, resulting in autonomous self-regulation (Ryan and Deci 2005), and in turn high performance (Vandenabeele 2007). In addition, in their drive to help others, employees with high PSM levels are expected to feel guilty if they believe that they have failed in their attempts to help others, and satisfied if they perceive that they have succeeded in their efforts. By fostering anticipatory feelings of guilt and gratitude, PSM can encourage people to invest greater effort in their tasks (Grant and Wrzesniewski 2010).

Studies on the relationship between wages and PSM suggest that high wages have not contributed to or diminished an individual’s desire to perform public service (Brewer and Selden 1998; Rainey 1982; Taylor 2008). This does not imply that wages are irrelevant to all government workers. Several researchers such as Rainey (1982), Crewson (1997), and Taylor and Taylor (2011) have reported that wages are an important motivator for many government workers. Based on their findings of significant relationships between monetary rewards and two of the four conceptions of PSM that they studied, Brewer et al. (2000) stated that monetary rewards are relevant to some individuals with high levels of PSM but not to others, based primarily on their conceptions of public service and the public interest.

Further, in their motivation crowding theory, Frey and associates (Frey 1997; Frey and Jegen 2001) argued that wages could positively or negatively affect employees’ PSM depending upon whether they perceived the wages as controlling or supportive. Wages could
‘crowd out’ employees’ intrinsic motivation and reduce their effort if they see wages as a device to control their behavior, or if the wage scheme conflicts with their views (e.g., professional norms). Here, efficiency wages at the expense of an employee’s PSM could cause him/her to experience alienation. Wages could also ‘crowd in’ employees’ intrinsic motivation when they view the wages as supportive, i.e., an acknowledgement of their work effort and their high intrinsic work motivation. Employees who receive a small monetary reward for an accomplishment may not be very motivated by the token reward (instrumental value), but they may be highly motivated after receiving recognition for the accomplishment of a job (symbolic value). Here, efficiency wages merely serve as the conduit through which PSM travels.

The importance of considering both the PSM and wages of employees in driving their effort output was also raised by Knoke and Wright-Isak (1982). In the predisposition-opportunity theory, Knoke and Wright-Isak (1982) argued that the self-regulation of employees’ job outcome depends on the incentives offered by the organization. They proposed that a match between the incentive systems and individual motives contributes to the employee’s commitment to the organization and in turn affects his/her job outcome. Without a match between organizational incentives and individual motives, no self-regulated public service motivated behavior will occur (Perry and Vandenabeele 2008).

**Framework**

Our model starts with the assumption that the employees’ effort is determined by both external organizational incentives (in the form of efficiency wages) and intrinsic individual characteristics (in the form of PSM) (Knoke and Wright-Isak 1982; Perry 2000; Taylor and Taylor 2011). This is summarized in the equation below.
\[ e_t = A_t \ Ew_t^\alpha \ PSM_t^\beta \]  (1)

where \( e \) is the aggregate effort of employees in an organization, \( Ew \) is the efficiency wage that the employees receive in the organization, and \( PSM \) is the PSM level of all employees in the organization. \( e \) can be estimated from the aggregate outputs produced by the organization or an index derived from a mix of key performance indicators that capture the performance of the organization. \( A \) is the efficiency indicator that measures the change in employees’ effort levels, and \( t \) is time. At time \( t \), the employees’ effort, efficiency wage and PSM are \( e_t, Ew_t \) and \( PSM_t \) respectively. \( \alpha \) is the efficiency wage’s share of effort, and \( \beta \) is the PSM’s share of effort. Following the properties of a standard Cobb-Douglas production, \( \alpha \) and \( \beta \) are positive fractions such that \( \alpha + \beta = 1 \) based on a constant return to scale production function (Chiang 1984). So the \( \beta \) value can be derived from \( 1-\alpha \).

The efficiency wage, \( Ew \) is based on Solow’s (1979) definition of the construct, which is

\[ Ew = \frac{W_i}{W_e} \]  (2)

where \( W_i \) is the internal wage of the organization, and \( W_e \) is the external wage, or the wage that the employees would expect to receive if they work elsewhere.
Given that PSM has been conceptualized and measured in different ways (e.g., Kim and Vandenabeele 2010; Rainey and Steinbauer 1999), we do not insist that there should be a universal approach to defining and operationalizing PSM. However, in recognition of the work by Perry and Wise (1990) and the large number of studies that had utilized Perry’s (1996, 1997) scale, PSM is here conceptualized as ‘an individual’s predisposition to respond to motives grounded uniquely in public institutions and organizations’ (Perry and Wise 1990, p.328). An employees’ PSM is represented in the equation below as

\[ PSM = R A N S \]  

(3)

where \( R \) are the employee’s rational motives, \( A \) are affective motives, \( N \) are normative motives, and \( S \) is self-sacrifice. These four motives are measured by Perry’s (1997) scale.

Based on equation (1), we can now determine the efficiency indicator by estimating the change in the other factors in the equation over time: rate of change in the effort levels \((\Delta e_t)\), rate of change in efficiency wages \((\Delta e_w)\), and rate of change in PSM levels \((\Delta psm_t)\). This is shown in the equation below as

\[ \Delta e_t = a_t + \alpha \Delta e_w + (1-\alpha)\Delta psm_t \]  

(4)

When an estimate of \( \alpha \) is provided, in the form of \( \hat{\alpha}, \hat{\alpha} \) can then be calculated as:

\[ \hat{\alpha}_t = \Delta e_t - \hat{\alpha} \Delta e_w - (1-\hat{\alpha})\Delta psm_t \]  

(5)
The $\hat{\alpha}$ value provides more than just an indication of the contribution or effectiveness of both efficiency wage and the PSM levels to the effort levels of employees in an organization. It also conveys the sustainability of the effort levels of employees in the organization based on the existing mix of efficiency wage and PSM levels in the organization. Based on equation (5), three propositions are presented.

Proposition 1: If $\hat{\alpha}_t$ is greater than zero, employees’ effort in the organization can be further increased under the current mix of efficiency wage and PSM levels in the organization.

A positive $\hat{\alpha}$ value suggests that employees’ effort can be further increased under the current mix of efficiency wage and PSM levels in the organization. According to Frey and Jegen (2001), this is likely to occur during the ‘crowding in’ effect of wages, i.e. when employees regard the wages received to be an acknowledgement or appreciation by their organization of their work effort and their high intrinsic work motivation. The larger the $\hat{\alpha}$ value, the more intense effort can be. This however cannot last indefinitely. Effort intensity will begin to decline as the $\hat{\alpha}$ value moves closer to zero.

Proposition 2: If $\hat{\alpha}_t$ is equal to zero, employees’ effort in the organization has peaked under the current mix of efficiency wage and PSM levels.
When the $\hat{\alpha} = 0$, it indicates that employees’ effort in the organization has reached its maximum under the current mix of efficiency wage and PSM levels. It also suggests that the existing $Ew$ and $PSM$ are no longer sustainable for driving employees to raise their effort.

**Proposition 3:** If $\hat{\alpha}_t$ is less than zero, employees’ effort in the organization cannot be sustained under the current mix of efficiency wage and PSM levels.

If the $\hat{\alpha}$ value is negative, it indicates that the current combination of $Ew$ and $PSM$ are diminishing in their capacity to motivate employees to put forth effort. It suggests that employees’ effort can no longer be driven by the current mix of $Ew$ and $PSM$. This is because $Ew$ can decline over time, such as when external wages have increased over time while the internal wages have remained constant over time. $PSM$ can also decline in response to organizational factors and conditions over time; employees may come to realize over time the ineffectiveness of their organization and their effort to make a positive difference (Moynihan and Pandey 2007).

**Conclusion**

The issue of how much to raise government employees’ wages over time in order to ensure optimum efficiency in the public sector is a difficult one. Although many members of the public could accept that a private firm and its members are in the business of making money, they generally find it harder to do the same for government agencies and public servants. A common complaint in Australian media reports about the wage rise of senior bureaucrats is the lack of transparency and knowledge about the process. To be told that a senior public servant deserves a large pay rise, or that the pay rise has been decided by the appropriate
committee, without any further information, is not always good enough. People may however be more willing to accept a wage rise if it is determined by a system that has strong theoretical underpinnings, credibility, and transparency. Taking into account the combined value of efficiency wages and PSM to the contribution of employees’ effort, this paper presents one approach on how to achieve optimum effort in the public service.
REFERENCES


