The Optimality of a Minimum Wage: A Central Planner's Perspective

Chia-Hui Lu*

Abstract

If the government sets different minimum wages for different types of workers, then the minimum wage is not only binding for unskilled labor, but also for skilled labor, when workers' bargaining power is smaller than its elasticity in the matching function. Moreover, if we consider a tax, the government should tax the labor income of skilled labor and should set a minimum wage for unskilled labor when the workers' bargaining power is relatively low. In this situation, a binding minimum wage is optimal.

Keywords: Minimum Wage, Search and Matching, Unemployment, Welfare
JEL Classification: E24, J31, J38, J64

---

* Corresponding author: Chia-Hui Lu, Professor in the Department of Economics, National Taipei University, No.151, University Rd., San-Shia Dist., New Taipei City 23741, Taiwan, R.O.C., Tel: 886-2-86741111 ext. 67166, E-mail: chlu@mail.ntpu.edu.tw.

Received March 2, 2018; revised June 15, 2018; accepted November 16, 2018.

經濟研究 (Taipei Economic Inquiry), 56:1 (2020), 1-28。
臺北大學經濟學系出版

1. Introduction

Minimum wage policies are used by many governments around the world to address what they consider to be unfairly low wages resulting from differences in the bargaining power of employees and employers.[1] Workers generally benefit from increases in the minimum wage, whereas firms typically want the opposite to occur. The reason why employers resist minimum wages is obvious. A minimum wage increases payments to workers and reduces the added value from recruiting an extra worker. However, does a minimum wage policy really benefit employees? Is it appropriate to set a minimum wage for labor? In this paper, we attempt to derive the optimal minimum wage from the perspective of a central planner.

Regarding minimum wage legislation, Stigler (1946) considered whether such legislation reduces poverty. Most of the subsequent literature, including DiNardo et al. (1996) and Brown (1988), attempts to analyze the effects of a legal minimum wage on unemployment, inequality, and income. For example, DiNardo et al. (1996) use data from the US Current Population Survey to examine the relationship between the minimum wage and wage inequality. They find that a decline in the minimum wage explains a substantial proportion of the associated increase in wage inequality.[2] Furthermore, Neumark and Wascher (2002) find that minimum wages increase the probability that poor families escape poverty, but also increase the probability that families who were not previously poor become poor. Thus, there is no compelling evidence supporting the view that minimum wages help in the fight against poverty.

1 The first minimum wage was introduced in New Zealand in 1894. In the United States (US), a minimum wage was enacted in accordance with the Fair Labor Standards Act of 1938. Britain adopted a minimum wage in 1999. The minimum wage legislation in the Euro area is described in Eurostat (http://ec.europa.eu/eurostat).

2 With regard to studies of inequality, examples include Lee (1999), Teulings (2003), Slonimczyk and Skott (2012), and Autor et al. (2016).

In addition, Brown (1988) shows that an increase in the minimum wage reduces employment. Kaufma (1989) estimates the employment effects of setting minimum wages above their equilibrium levels in Great Britain and finds that the minimum wages reduce employment. With regard to theoretical analysis, Cahuc and Michel (1996) investigate the impacts of a minimum wage in an overlapping generations model with endogenous growth, and discover that such legislation may have positive effects on growth by inducing more human capital accumulation.[3]

Furthermore, optimal minimum wage policy in a competitive labor market has been studied by Lee and Saez (2012), who find that such legislation is desirable in some situations. However, evidence indicates that in the real world, the labor market is frictional. According to Diamond (1982), Mortensen (1982), and Pissarides (1984), there are informational and institutional barriers to job search, recruiting, and vacancy creation in the labor market. As the minimum wage influences unemployment and the operation of the labor market, it is appropriate to analyze the impact of such legislation in a frictional labor market.

In this paper, we build a standard search model with heterogeneous labor abilities and attempt to determine the optimal minimum wage in a centrally planned economy. We find that if the government only sets the minimum wage for unskilled labor, the optimal policies under a centrally planned economy can be achieved only when skilled workers' bargaining power equals its elasticity in the matching function. In that situation, a binding minimum wage for unskilled labor is optimal if their bargaining power is relatively low. Moreover, if the government sets the different minimum wages for different types of workers, both unskilled and skilled workers should be restricted to a minimum wage when skilled (unskilled) workers' bargaining power is smaller than its elasticity in the matching function. In the above two situations, the

3 A general review of minimum wages can be found in Card and Krueger (1995), Sobel (1999), and Neumark and Wascher (2006).

government should not provide unemployment compensation for all workers.

In addition, we consider another situation in which the government levies a tax on the workers' income. We find that when the workers' bargaining power is relatively low, the government should tax labor income along with positive unemployment compensation for skilled labor, and should set a minimum wage for unskilled labor. In this situation, a binding minimum wage is optimal. Besides, regardless of the values of the unskilled workers' bargaining power and its elasticity in the matching function, unemployment compensation should not be provided for unskilled labor.

Related papers include Flinn (2006), who analyzes the effect of changes in minimum wages in a frictional labor market in which workers have different bargaining abilities, and defines conditions under which minimum wages improve welfare. Flinn (2006) set a model with labor market friction as in Pissarides (2000) and used the US data to estimate the workers' bargaining power parameter which is significantly less than 0.5. In addition, Flinn (2006) found that when extending the model to include on-the-job search, increasing minimum wages levels could lead to general welfare improvements.[4]

Moreover, Hungerbühler and Lehmann (2009) and Rocheteau and Tasci (2007) indicate that a minimum wage is optimal if the bargaining power of workers is relatively low. Rocheteau and Tasci (2007) reviewed the employment effects of the minimum wage under two extreme assumptions: In the first case, there are a lot of employers competing to attract workers; in the second, there is a single employer. Rocheteau and Tasci (2007) obtained that a binding minimum wage

[4] Note that Lang and Kahn (1998) also examine the effects of a minimum wage in a search model with heterogeneous workers. They find that even though minimum wage laws increase employment, the increased competition from higher-productivity workers as a result of the minimum wage makes lower-productivity workers worse off without making higher-productivity workers better off.

reduces employment and creates involuntary unemployment in a competitive labor market, whereas a minimum wage can make workers better off in a frictional labor market. However, Rocheteau and Tasci (2007) did not really solve out the optimal minimum wage, while our paper does.

Furthermore, Hungerbühler and Lehmann (2009) showed that the introduction of a binding minimum wage is welfare-improving when the bargaining power is lower than the elasticity of the matching function. Our model also obtained the same result. However, we can further get the optimal policy for workers with different skills, whereas Hungerbühler and Lehmann (2009) only discuss the minimum wage.[5] Our results can support the finding in Hungerbühler and Lehmann (2009) and Rocheteau and Tasci (2007). In addition, we further demonstrate that the government should set the minimum wages for both skilled and unskilled labor. If workers' bargaining power is relatively low, binding minimum wages is optimal for all workers.

The structure of this paper is as follows. In Section 2, we develop a benchmark model with heterogeneous labor abilities and derive the optimal allocations in a centrally planned economy and the equilibrium conditions in a decentralized economy. Section 3 studies the optimality of the minimum wage in a centrally planned economy. Finally, concluding remarks are provided in Section 4.

2. Environment

As a minimum wage usually only applies to unskilled labor, we assume that there are two kinds of people with distinct abilities,

---

[5] Hungerbühler and Lehmann (2009) further obtained if the government can also control the workers' bargaining power, it should increase it, at least up to a point where their argument in favor of minimum wage does no longer apply. However, as they discussed, whether and how the government can affect the bargaining power is still an open question.

belonging to different households in the economy. Thus, there are two kinds of households, those with members who are skilled workers and those with members who are unskilled workers. The workers with different skills are matched with appropriate jobs in different labor markets.

The labor markets exhibit search frictions. The creation of new jobs requires that firms post vacancies v_t^i and that the unemployed search for job opportunities s_t^i. Hereafter, the superscript $i=1,2$ denotes the related variables for skilled and unskilled members, respectively. According to Diamond (1982), new jobs are generated according to the following constant returns matching technology: $M_t^i = m^i\left(s_t^i\right)^{\gamma^i}\left(v_t^i\right)^{1\text{-}\gamma^i}$, where $m^i>0$ measures the degree of matching efficiency and $\gamma^i \in (0,1)$ is the contribution of a jobseeker in the formation of a match. That is, the level of employment of the skilled (unskilled) members is given by the following process:

$$e_{t+1}^i = \left(1-\psi^i\right)e_t^i + m^i\left(s_t^i\right)^{\gamma^i}\left(v_t^i\right)^{1\text{-}\gamma^i}, \tag{1}$$

where ψ^i is the (exogenous) job separation rate. Thus, the change in employment $e_{t+1}^i - e_t^i$ is equal to the inflow of workers into the employment pool M_t^i, net of the outflow as a result of job separation $\psi^i e_t^i$. Furthermore, we define the rates at which aggregate job search and aggregate vacancy posting lead to a new job match as $\mu_t^i = M_t^i / s_t^i$, and $\eta_t^i = M_t^i / v_t^i$, respectively. That is, μ_t^i denotes the job-finding rate for the unemployed and η_t^i is the recruitment rate for a firm.

Each representative large household has unified preferences and pools all the resources and utility of its members. Members differ with respect to their productivity. To simplify the model, we assume that the population growth rate is zero, and thus normalize the total population in each household to 1. In period *t*, a fraction $e_t^1 e_t^2$ of the skilled (unskilled) members is employed, another fraction $s_t^1 s_t^2$ is searching for jobs, and the remaining fraction $1-e_t^1-s_t^1\left(1-e_t^2-s_t^2\right)$ is outside the labor force, for which we use the alternative term of leisure, following Arseneau and Chugh (2012).

Each household's discounted lifetime utility is:

$$U^i = \sum_{t=0}^{\infty} \left(\frac{1}{1+\rho}\right)^t u^i\left(c_t^i, 1-e_t^i-s_t^i\right), \tag{2}$$

where $\rho > 0$ is the time preference rate, c_t^i is consumption, and $u^i(.)$ is each representative large household's utility function. According to Merz (1995) and Andolfatto (1996), we assume that there is no heterogeneity in consumption between the employed and the unemployed members. In addition, the utility function satisfies the conditions that the marginal utility of consumption (leisure) is zero when consumption (leisure) goes to infinity and the marginal utility of consumption (leisure) goes to infinity when consumption (leisure) is zero.

The representative firm produces output and creates and maintains multiple job vacancies. The firm produces a single final good y_t by renting capital and employing skilled and unskilled labor. Moreover, the firm creates and maintains multiple job vacancies in order to recruit workers. Following the setting in Merz (1995), Domeij (2005), and Arseneau and Chugh (2006), among others, we assume that the firm's hiring cost is linear in terms of vacancies as follows: $\kappa^i v_t^i$, where $\kappa^i > 0$ is referred to as a unit hiring cost.

2.1 The Centrally Planned Economy

The central planner attempts to maximize the combined welfare of all members in the economy. Assume that the total number of households is L, and a fraction a of those are skilled households, and the remaining fraction $1-a$ are unskilled. To simplified the analysis, we normalize $L=1$. That is, the central planner's objective is to maximize the following welfare function:

$$U = aU^1 + (1-a)U^2$$
$$= \sum_{t=0}^{\infty}\left(\frac{1}{1+\rho}\right)^t \left[au^1\left(c_t^1, 1-e_t^1-s_t^1\right)+(1-a)u^2\left(c_t^2, 1-e_t^2-s_t^2\right)\right], \tag{3}$$

subject to the two employment equilibrium conditions for skilled and unskilled labor, (1), and the following resource constraint:

$$k_{t+1} = y_t - (1-\delta)k_t - ac_t^1 - (1-a)c_t^2 - \kappa^1 v_t^1 - \kappa^2 v_t^2, \tag{4}$$

where we use k_t to denote capital, with δ as its depreciation rate. To simplify the model, we set $y = f\left(k_t, ae_t^1, (1-a)e_t^2\right)$. Note that $\partial y_t / \partial\left(ae_t^1\right) > \partial y_t / \partial\left[(1-a)e_t^2\right]$ because the productivity of the skilled labor is larger than that of the unskilled one.

The equilibrium conditions can be simplified into the following equations.[6]

$$u_{c,t}^1 = u_{c,t}^2, \tag{5a}$$

$$u_{c,t} = \frac{1}{1+\rho}u_{c,t+1}\left(f_{1,t+1}+1-\delta\right), \tag{5b}$$

$$a\frac{u_{l,t}^1}{u_{c,t}} = \frac{\gamma^1}{1-\gamma^1}\kappa^1\frac{v_t^1}{s_t^1}, \tag{5c}$$

$$(1-a)\frac{u_{l,t}^2}{u_{c,t}} = \frac{\gamma^2}{1-\gamma^2}\kappa^2\frac{v_t^2}{s_t^2}, \tag{5d}$$

$$\frac{u_{l,t}^1}{m^1\gamma^1(s_t^1)^{\gamma^1-1}(v_t^1)^{1-\gamma^1}} = \frac{1}{1+\rho}\left[-u_{l,t+1}^1 + u_{c,t+1}f_{2,t+1} + \frac{(1+\psi^1)u_{l,t+1}^1}{m^1\gamma^1(s_{t+1}^1)^{\gamma^1-1}(v_{t+1}^1)^{1-\gamma^1}}\right], \tag{5e}$$

[6] Note that $f_{1,t} = \partial y_t / \partial k_t$, $f_{2,t} = \partial y_t / \partial\left(ae_t^1\right)$, $f_{3,t} = \partial y_t / \partial\left[(1-a)e_t^2\right]$, $u_{c,t}^i = \partial u^i / \partial c_t^i$, and $u_{l,t}^i = \partial u^i / \partial(1-e_t^i-s_t^i)$.

$$\frac{u_{l,t}^2}{m^2\gamma^2(s_t^2)^{\gamma^2-1}(v_t^2)^{1-\gamma^2}}=\frac{1}{1+\rho}\left[-u_{l,t+1}^2+u_{c,t+1}f_{3,t+1}+\frac{(1+\psi^2)u_{l,t+1}^2}{m^2\gamma^2(s_{t+1}^2)^{\gamma^2-1}(v_{t+1}^2)^{1-\gamma^2}}\right]. \tag{5f}$$

As $u_{c,t}^1=u_{c,t}^2$ according to (5a), we define $u_{c,t}^1=u_{c,t}^2\equiv u_{c,t}$.

(5a) equates the marginal utility of consumption for skilled and unskilled labor. (5b) is the standard consumption Euler equation. (5c) and (5d) are the optimal choice between job searching and vacancy posting for different skilled labor markets. Note that the marginal cost of vacancy posting in terms of utility is $\kappa^i u_{c,t}^i$ and the marginal cost of job searching is the loss of the marginal utility of leisure which is $au_{l,t}^1$ (or $(1-a)u_{l,t}^2$) for skilled (or unskilled) labor. (5c) and (5d) equate those two marginal costs, along with their contributions to the formation of a match. (5e) and (5f) imply that, for different skilled labor, today's marginal utility of leisure is equal to the discounted sum of tomorrow's surplus from a successful match plus a continuation value if the old jobs are not redundant.

The optimal allocations for c_t^1, c_t^2, s_t^1, s_t^2, v_t^1, v_t^2, e_{t+1}^1, e_{t+1}^2, and k_{t+1} are derived from the two equations of (1), (4), and (5a)-(5f).

2.2 The Decentralized Economy

Regarding the setting of each representative large household, the level of employment of the skilled (unskilled) members from the household's perspective is given by the following process:

$$e_{t+1}^i=\left(1-\psi^i\right)e_t^i+\mu_t^i s_t^i. \tag{6}$$

Thus, the change in employment $e_{t+1}^i-e_t^i$ is equal to the inflow of workers into the employment pool $\mu_t^i s_t^i$, net of the outflow as a result of job separation $\psi^i e_t^i$. Note that the representative household cannot influence the behavior of firms and other households, and thus cannot control how many unemployed people are searching for jobs and how many vacancies exist in the labor market, i.e., the representative household does not know the probability that the unemployed can find a job. Therefore, the household takes the job-finding rate μ_t^i as given.

We use r_t^i and w_t^i to denote the rental rate and the wage rates, respectively. The representative large household's budget constraint is:

$$k_{t+1}^i = w_t^i e_t^i + R_t k_t^i - c_t^i + b^i s_t^i + \pi_t^i - T_t^i, \tag{7}$$

where $R_t = 1 + r_t - \delta$ is the gross return on capital,[7] π_t^i is the firm's profits because households own the shares of firms, b^i is unemployment compensation, and T_t^i is lump-sum taxes.

The household's dynamic programming problem is to choose $\left\{c_t^i, s_t^i, e_{t+1}^i, k_{t+1}^i\right\}_{t=0}^{\infty}$ in order to maximize the lifetime utility in (2), subject to the constraints (6) and (7). The household's necessary conditions can be simplified into the following two equations.

The first is the following consumption Euler equation:

$$u_{c,t}^i = \frac{1}{1+\rho} u_{c,t+1}^i R_{t+1}. \tag{8a}$$

Next, we have the employment–search trade-off conditions:

$$\frac{u_{l,t}^i - u_{c,t}^i b^i}{u_t^i} = \frac{1}{1+\rho}\left\{-u_{l,t+1}^i + u_{c,t+1}^i\left[w_{t+1}^i - \frac{(1-\psi^i)b^i}{u_{t+1}^i}\right] + \frac{(1-\psi^i)u_{l,t+1}^i}{u_{t+1}^i}\right\}, \tag{8b}$$

which state that, in the optimum, today's marginal utility of leisure is equal to the discounted sum of tomorrow's labor's surplus from a

---

7 In the following setting of the firms, we can see that the shares of capital accumulated from the skilled and unskilled labor are the same in the production function, so the rental rates for k_t^1 and k_t^2 are the same. Thus, we define $r_t^1 = r_t^2 \equiv r_t$ and $R_t^1 = R_t^2 \equiv R_t$ as well.

successful search plus a continuation value if the match is not separated.

As for the setting of the representative firm, the level of employment from the firm's perspective in the next period is:

$$e_{t+1}^{i}=\left(1-\psi^{i}\right)e_{t}^{i}+\eta_{t}^{i}v_{t}^{i}. \tag{9}$$

Thus, the change in employment is equal to the inflow of employees $\eta_t^i v_t^i$, net of the outflow $\psi^i e_t^i$. Similarly, the representative firm cannot influence the behavior of households and other firms, and thus cannot control how many unemployed people are searching for jobs and how many vacancies exist in the labor market, i.e., the representative firm does not know the probability that vacancies can match workers. Therefore, the representative firm takes the recruitment rate η_t^i as given. The firm's flow profit is:

$$\pi_t=f\left(k_t,ae_t^1,(1-a)e_t^2\right)-w_t^1ae_t^1-w_t^2\left(1-a\right)e_t^2-r_tk_t-\kappa^1v_t^1-\kappa^2v_t^2. \tag{10}$$

Note that $ak_t^1+\left(1-a\right)k_t^2=k_t$. To simplify the analysis, we assume that the firm fully understands the workers' productivity. Therefore, unskilled workers have no incentives to pretend that they are skilled workers.

The firm's necessary conditions can be simplified into the following three equations. The first equation equates the marginal product of capital with the rental rate as follows:[8]

$$f_{1,t}=r_t. \tag{11a}$$

The other two equations are the following vacancy creation conditions for skilled and unskilled labor, respectively:

---

[8] If the firm's profit is $\pi_t=f\left(k_t,ae_t^1,\left(1-a\right)e_t^2\right)-w_t^1ae_t^1-w_t^2\left(1-a\right)e_t^2-r_t^1ak_t^1-r_t^2\left(1-a\right)k_t^2-\kappa^1v_t^1-\kappa^2v_t^2$, we can derive that $r_t^1=f_{1,t}=r_t^2$. That is, the shares of capital accumulated from the skilled and unskilled labor are the same in the production function.

$$\frac{\kappa^1}{\eta_t^1} = R_{t+1}^{-1}\left[af_{2,t+1} - aw_{t+1}^1 + \left(1-\psi^1\right)\frac{\kappa^1}{\eta_{t+1}^1}\right], \tag{11b}$$

$$\frac{\kappa^2}{\eta_t^2} = R_{t+1}^{-1}\left[\left(1-a\right)f_{3,t+1} - \left(1-a\right)w_{t+1}^2 + \left(1-\psi^2\right)\frac{\kappa^2}{\eta_{t+1}^2}\right]. \tag{11c}$$

The above conditions state that, in the optimum, today's marginal cost of vacancy creation and maintenance equals the discounted marginal benefit of recruitment tomorrow, which is the sum of the firm's surplus from a successful match and the savings in terms of the marginal cost of vacancy creation and maintenance if the match is maintained.

Wage rate determination is different between skilled and unskilled labor. For skilled labor, the effective wage rate is determined by Nash bargaining, which maximizes the weighted product of the firm's and the workers' surplus from a match, where the weights are given by the relative bargaining power. The skilled workers' surplus acquired from a successful match is evaluated in terms of the augmenting value of supplying an additional worker: $w_t^1 u_{c,t}^1 - \left(b^1 u_{c,t}^1 + u_{l,t}^1\right)$. With normalization, we obtain $w_t^1 - \left(b^1 + u_{l,t}^1 / u_{c,t}^1\right)$, where the terms in parentheses can be interpreted as the skilled workers' reservation wage. The firm's surplus gained from a successful match is gauged by its added value from recruiting an extra skilled worker: $f_{2,t} - w_t^1$.

Thus, the wage of skilled labor at time t is solved by the following cooperative bargaining game: $\max_{w_t^1}[w_t^1 - (b^1 + u_{l,t}^1 / u_{c,t}^1)]^{\beta^1}(f_{2,t} - w_t^1)^{1-\beta^1}$, where $\beta^1 \in \left(0,1\right)$ is the skilled workers' bargaining share. This implies that the wage is:

$$w_t^1 = \beta^1 f_{2,t} + \left(1-\beta^1\right)\left(b^1 + \frac{u_{l,t}^1}{u_{c,t}^1}\right), \tag{12}$$

which is a weighted average of the marginal product of skilled labor and the reservation wage.

The wage rate of unskilled labor is set by the government at the minimum wage level of $\overline{w}$. If the unskilled workers' bargaining wage is smaller than the minimum wage, they obtain $\overline{w}$ when working. That is, the wage rate of unskilled labor is as follows: $w_t^2 = \max\left\{\overline{w}, w_t^{2N}\right\}$, where $w_t^{2N} = \beta^2 f_{3,t} + \left(1-\beta^2\right)\left(b^2 + u_{l,t}^2 / u_{c,t}^2\right)$ is the bargaining wage for unskilled labor, and $\beta^2 \in (0,1)$ is the unskilled workers' bargaining share. Thus, the unskilled employed actually earn wages, $w_t^{2N} + \omega$, where $\omega = \overline{w} - w_t^{2N} > 0$ when $w_t^{2N} < \overline{w}$, whereas $\omega = 0$ when $w_t^{2N} \geq \overline{w}$.

Regarding the setting of the government, the government levies lump-sum taxes to finance unemployment compensation. The government's flow budget constraint is as follows:

$$b^1 a s_t^1 + b^2 (1-a) s_t^2 = a T_t^1 + (1-a) T_t^2. \tag{13}$$

To simplify the model, we assume that the government has no other public expenditure.

Now we can derive the equilibrium conditions in the decentralized economy. Unlike the labor market, the goods market is frictionless. Using the household's budget constraint, (7), the firm's profit function, (10), and the government's balanced budget constraint, (13), we obtain an aggregate goods market constraint as (4). Furthermore, the matching number is equal to the job search inflow into the employment pool and is also equal to newly occupied vacancies; i.e., $m^i \left(s_t^i\right)^{\gamma^i} \left(v_t^i\right)^{1-\gamma^i} = \mu_t^i s_t^i = \eta_t^i v_t^i$ in equilibrium. Thus, the employment equilibrium condition for skilled (unskilled) labor is (1).

The time paths for c_t^1, c_t^2, s_t^1, s_t^2, v_t^1, v_t^2, e_{t+1}^1, e_{t+1}^2, and k_{t+1} in the decentralized economy are derived from the two equations of (1), (4), the two equations of (8a), the two equations of (8b), (11b), and (11c), along with (11a), (12), and the wage determination of the unskilled workers.

3. Optimal Minimum Wage

In this section, we first derive the optimal minimum wage and unemployment compensation that can make the variables in the decentralized economy achieve the optimal allocation in the centrally planned economy. Next, we attempt to incorporate a proper tax setting in our benchmark model with a minimum wage for unskilled labor.

3.1 The Conditions of a Binding Minimum Wage

The combination of (8a) and (11a) in the decentralized economy is the same as (5b), along with (5a), in the centrally planned economy. Besides, (1) and (4) in the two economies are the same in equilibrium. We can obtain the optimal minimum wage and unemployment compensation by comparing the remaining equations, (5c)-(5f), in the centrally planned economy with those in the decentralized economy, the two equations of (8b), (11b), and (11c). That is, if the government policies (the values of b^1, b^2, and ω) can make the variables in the decentralized economy achieve the optimal allocation in the centrally planned economy, then those are the optimal policies.

We first discuss the optimal unemployment compensation for skilled labor. In the long run, if we combine (5e) and (8b) for skilled labor, along with (5a), (12) and $\mu_t^1 = M_t^1 / s_t^1$, we can derive the following relationship for b^1:

$$\left(1-\frac{\beta^1}{\gamma^1}\right)\frac{u_l^1(\rho+\psi^1)}{u_c\mu^1}=\left(1-\beta^1+\frac{\rho+\psi^1}{\mu^1}\right)b^1. \tag{14a}$$

(14a) implies that $b^1 \gtrless 0$ if $\gamma^1 \gtrless \beta^1$.

Intuitively, when $\gamma^1 > \beta^1$, the skilled workers' bargaining power is smaller than its elasticity in the matching function and thus too few people search for a job. To encourage people to search for a job or to participate in the labor market, the government can increase the wages they earn when employed, or provide unemployment compensation even when job-seekers do not obtain a job opportunity. As an increase in b^1 can increase the bargaining wage according to (12), the government can use b^1 to influence the wage rate, even though it does not set a minimum wage for skilled labor. That is, unemployment compensation is needed to encourage people to participate in the labor market when $\gamma^1 > \beta^1$.

Next, combining (5e) and (11b), along with (5a), (5c), (12) and $\eta_t^1 = M_t^1 / v_t^1$, yields another condition of b^1 as follows:

$$\frac{\kappa^1(\rho+\psi^1)}{a\eta^1}\frac{\gamma^1-\beta^1}{(1-\beta^1)(1-\gamma^1)} = b^1. \tag{14b}$$

(14b) also implies that $b^1 \geq\leq 0$ if $\gamma^1 \geq\leq \beta^1$.

Although both (14a) and (14b) obtain a consistent result, we need to make sure that the two conditions do not contradict each other. Combining (14a) and (14b) yields $\left(\rho+\psi^1\right)/\mu^1 = 0,$ which is unreasonable because ρ, ψ^1, and μ^1 are positive. That is, both (14a) and (14b) imply that only when $\gamma^1 = \beta^1$, i.e., $b^1 = 0$, can the optimal policies under a centrally planned economy be achieved.

We now turn to discuss the optimal minimum wage and unemployment compensation for unskilled labor. Similarly, if we combine (5f) and (8b) for unskilled labor, along with (5a), the determination of w_t^2, and $\mu_t^2 = M_t^2 / s_t^2$, we can derive the following relationship between b^2 and ω:

$$\left(1-\frac{\beta^2}{\gamma^2}\right)\frac{u_l^2(\rho+\psi^2)}{u_c\mu^2} = \left(1-\beta^2+\frac{\rho+\psi^2}{\mu^2}\right)b^2+\omega. \tag{14c}$$

(14c) implies that $\left[1-\beta^2+\left(\rho+\psi^2\right)/\mu^2\right]b^2+\omega \geq\leq 0$ if $\gamma^2 \geq\leq \beta^2$.

Next, combining (5f) and (11c), along with (5a), (5d), the determination of w_t^2, and $\eta_t^2 = M_t^2 / v_t^2$, yields another condition between b^2 and ω as follows:

$$\frac{\kappa^2(\rho+\psi^2)}{(1-a)\eta^2}\frac{\gamma^2-\beta^2}{(1-\beta^2)(1-\gamma^2)}=b^2+\frac{\omega}{1-\beta^2}. \tag{14d}$$

By combining (14c) and (14d), we can derive the following optimal policies:

$$b^2=0,\ \omega=\frac{\kappa^2(\rho+\psi^2)}{(1-a)\eta^2}\frac{\gamma^2-\beta^2}{(1-\gamma^2)}. \tag{14e}$$

That is, the government should not provide unemployment compensation for unskilled labor, and $\omega \geq\leq 0$ if $\gamma^2 \geq\leq \beta^2$. Note that ω is the gap between the bargaining wage for unskilled labor and the minimum wage. A positive ω means the minimum wage is binding.

Intuitively, the unskilled workers' bargaining power is smaller than its elasticity in the matching function when $\gamma^2 > \beta^2$. To prevent too few people searching for a job, the government should attempt to increase the wage rate to encourage people to find a job. Although a higher b^2 can increase the bargaining wage w_t^{2N}, it has an adverse effect, tending to encourage the unemployed to remain unemployed, rather than seeking employment. Our result shows that the latter effect dominates the former one. That is, unemployment compensation should not be provided. In addition, as the government can intervene in the unskilled labor market, it can directly set the minimum wage.

Note that the optimal allocation in the centrally planned economy requires that (14a)-(14d) are met at the same time. That is, only when the skilled workers' bargaining power equals its elasticity in the matching function $\gamma^1=\beta^1$, can the optimal policies under a centrally planned economy be achieved. In that situation, $b^1=b^2=0$ and $\omega=\kappa^2(\rho+\psi^2)(\gamma^2-\beta^2)\big/\left[(1-a)\eta^2(1-\gamma^2)\right]$.

However, Hungerbühler and Lehmann (2009) indicate that bargaining power of less than the elasticity of the matching function is the most plausible case in empirical studies. This implies that the above-optimal allocation cannot be achieved if the government can only set the minimum wage for unskilled labor and provide unemployment compensation in two labor markets. To fix this problem, we relax the policies that the government can implement. We first assume that the government can also set the minimum wage for skilled labor.[9] In the next section, we will consider the situation in which the government levies a tax on the workers' income.

If the government also sets the minimum wage for skilled labor, $\overline{w}^1$, the wage rate for the skilled workers becomes $w_t^1 = \max\left\{\overline{w}^1, w_t^{1N}\right\}$, where $w_t^{1N} = \beta^1 f_{2,t} + \left(1-\beta^1\right)\left(b^1 + u_{l,t}^1 / u_{c,t}^1\right)$ is the same as that in (12). Similarly, we define that $w_t^1 = w_t^{1N} + \omega^1$, where $\omega^1 = \overline{w}^1 - w_t^{1N} > 0$ when $w_t^{1N} < \overline{w}^1$, whereas $\omega^1 = 0$ when $w_t^{1N} \geq \overline{w}^1$. The other setting is the same as those in Section 2.

By using the same steps, we can derive the optimal minimum wage and unemployment compensation for skilled labor as follows:

$$b^1 = 0, \quad \omega^1 = \frac{\kappa^1(\rho+\psi^1)}{a\eta^1}\frac{\gamma^1-\beta^1}{(1-\gamma^1)} \gtreqless 0 \quad \text{if} \quad \gamma^1 \gtreqless \beta^1. \tag{14f}$$

Those for unskilled labor are the same as (14e).

Note that although (14e) and (14f) look similar, the values in both equations are different, i.e., $\omega^1 \neq \omega$. This is because the value of ω depends on η^2 where $\eta^2 = m^2\left(s^2\right)^{\gamma^2}\left(v^2\right)^{-\gamma^2}$, and the value of ω^1

9 If the economy has labor search and matching friction, there may be matching externalities. For example, when a firm posts a vacancy, it reduces the chances for other firms to fill their vacancies (a negative externality) but it also increases the probability of workers finding a match (a positive externality). That is, the optimal allocation under a centrally planned economy may not be achieved under the decentralized economy. In addition, (11b) and (11c) show that $f_2 - w^1 = (\psi^1+\rho)\kappa^1/(a\eta^1) > 0$ and $f_3 - w^2 = (\psi^2+\rho)\kappa^2/\left[\left(1-a\right)\eta^2\right] > 0$, respectively. Not only unskilled labor but also skilled labor receive wages below their marginal product. Therefore, setting the minimum wage for skilled labor may have an efficient improvement.

depends on η^1 where $\eta^1 = m^1\left(s^1\right)^{\gamma^1}\left(v^1\right)^{-\gamma^1}$. In addition, according to the two equations of (1), (4), and (5a)-(5f), $s^1 \neq s^2$ and $v^1 \neq v^2$, in which those values depend on f_2 and f_3. Even if the minimum wages for both skilled and unskilled labor are binding, i.e., skilled labor earns $w^1 = w^{1N} + \omega^1$ and unskilled labor earns $w^2 = w^{2N} + \omega$, in which $w^{1N} = \beta^1 f_2 + \left(1-\beta^1\right)\left(b^1 + u_l^1/u_c^1\right)$ and $w^{2N} = \beta^2 f_3 + \left(1-\beta^2\right)\left(b^2 + u_l^2/u_c^2\right)$, because $w^{1N} \neq w^{2N}$ and $\omega^1 \neq \omega$, the minimum wages for skilled and unskilled labor are different, i.e., $\overline{w}^1 = w^1 = w^{1N} + \omega^1$ is different from $\overline{w} = w^2 = w^{2N} + \omega$.

(14e) and (14f) show that no matter what the values of γ^i and β^i are, the government cannot provide unemployment compensation ($b^1 = b^2 = 0$), whereas the minimum wage is binding for both skilled and unskilled labor when the workers' bargaining power is smaller than its elasticity in the matching function in the two labor markets. This result is consistent with those in Rocheteau and Tasci (2007) and Hungerbühler and Lehmann (2009) in which they indicate that if the bargaining power of workers is relatively low, a minimum wage is optimal for some workers whose skill levels are below a certain threshold. Furthermore, we prove that the government should also set minimum wages for both skilled and unskilled labor. That is, we obtain the following Proposition.[10]

Proposition 1.

(a) If the government only sets the minimum wage for unskilled labor, the optimal policies under a centrally planned economy can be achieved only when the skilled workers' bargaining power equals its

---

10 Note that, in reality, the government will not force workers to get salaries lower than the bargaining wages. Therefore, if the minimum wage is lower than the bargaining wage, the workers get the bargaining wages. This means, in reality, when $\gamma^1 < \beta^1$, i.e., the situation that ω^1 should be negative, or when $\gamma^2 < \beta^2$, i.e., the situation that ω should be negative, the optimal allocation under a centrally planned economy cannot be achieved.

elasticity in the matching function. In that situation, a binding minimum wage for unskilled labor is optimal if their bargaining power is relatively low. (b) If the government sets the minimum wages for all workers, both skilled and unskilled labor should be restricted to their minimum wages when the workers' bargaining power is relatively low.

Regarding the value of the workers' bargaining share, Berentsen et al. (2011) used the setting in Shimer (2005), and assumed that the value equals 0.72. In addition, the value of the workers' bargaining share is also in the commonly used range between 0.3 and 0.6 as in Andolfatto (1996), Shi and Wen (1999), and Domeij (2005). Moveover, Flinn (2006) used the US date from Current Population Survey to estimate the bargaining power parameter and obtained the value is between 0.3 and 0.5. If we use the estimated value in Flinn (2006), in which the workers' bargaining power is relatively low, i.e., $\gamma^i > \beta^i$, then the government should implement the policy suggested in Proposition 1 (b).

3.2 A Binding Minimum Wage with Optimal Taxation

We now consider the situation in which the government levies a tax on the workers' income. To obtain the precise values of the minimum wage and related policies, we still retain the government's policy on unskilled labor, minimum wage legislation, and unemployment compensation, whereas we consider a tax rate on labor income for skilled labor along with unemployment compensation.[11]

In this situation, the optimal allocations in the centrally planned economy are the same as those in Section 2.1. As for the equilibrium conditions in the decentralized economy, the representative large skilled household's budget constraint now becomes: $k_{t+1}^1 = (1-\tau_{lt})w_t^1 e_t^1 +$

[11] If we further consider a labor income tax for unskilled labor, we only can obtain the relationship between the minimum wage, unemployment compensation, and the tax rate for labor income, and cannot derive the precise values of such policies. That is, we only consider two kinds of fiscal policies in each labor market. In addition, as the consumption Euler equation in the two economies are the same, we do not consider a capital income tax.

$R_t k_t^1 - c_t^1 + b^1 s_t^1 + \pi_t^1 - T_t^1$, where τ_{lt} is the tax rate on labor income for skilled labor.

That is, the employment-search trade-off condition for skilled labor becomes:

$$\frac{u_{l,t}^1 - u_{c,t}^1 b^1}{\mu_t^1} = \frac{1}{1+\rho}\left\{-u_{l,t+1}^1 + u_{c,t+1}^1\left[\left(1-\tau_{lt+1}\right)w_{t+1}^1 - \frac{\left(1-\psi^1\right)b^1}{\mu_{t+1}^1}\right] + \frac{(1-\psi^1)u_{l,t+1}^1}{\mu_{t+1}^1}\right\}. \tag{8c}$$

The skilled workers' bargaining wage and the government's flow budget constraint become: $w_t^1 = \beta^1 f_{2,t} + (1-\beta^1)\left[b^1/(1-\tau_{lt}) + u_{l,t}^1/(1-\tau_{lt})u_{c,t}^1\right]$, and $b^1 a s_t^1 + b^2(1-a)s_t^2 = a\tau_{lt} w_t^1 e_t^1 + aT_t^1 + (1-a)T_t^2$, respectively. The other equilibrium conditions are the same as those in Section 2.2.

Similarly, in the long run, if we combine (5e) and (8c), along with (5a), $\mu_t^1 = M_t^1/s_t^1$, and the above skilled workers' bargaining wage, we can derive the following relationship between τ_l and b^1:

$$\left(1-\frac{\beta^1}{\gamma^1}\right)\frac{u_l^1(\rho+\psi^1)}{u_c\mu^1} + \beta^1\tau_l f_2 = \left(1-\beta^1 + \frac{\rho+\psi^1}{\mu^1}\right)b^1. \tag{15a}$$

In addition, combining (5e) and (11b), along with (5a) and (5c), $\eta_t^1 = M_t^1/v_t^1$, and the above skilled workers' bargaining wage, yields another condition between τ_l and b^1 as follows:

$$\frac{\kappa^1\left(\rho+\psi^1\right)}{a\eta^1}\frac{\gamma^1-\beta^1}{\left(1-\beta^1\right)\left(1-\gamma^1\right)} = \frac{b^1}{1-\tau_l} + \frac{\tau_l u_l^1}{\left(1-\tau_l\right)u_c^1}. \tag{15b}$$

By combining (15a) and (15b), we can derive that b^1 is increasing in τ_l as the following function:

$$b^1 = \frac{\beta^1 \tau_l f_2 + \dfrac{\tau_l u_l^1 (1-\beta^1)}{(1-\tau_l) u_c^1}}{\dfrac{\rho + \psi^1}{\mu^1} - \dfrac{(1-\beta^1)\tau_l}{1-\tau_l}} \gtreqless 0 \ \text{ if } \ \tau_l \gtreqless 0. \tag{15c}$$

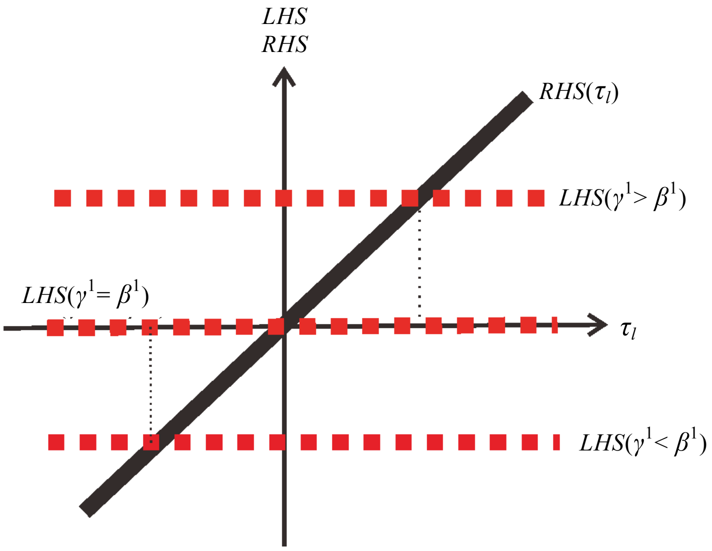
Substituting (15c) into (15b) yields the following function of τ_l:

$$LHS \equiv \frac{\kappa^1(\rho+\psi^1)}{a\eta^1} \frac{\gamma^1 - \beta^1}{(1-\beta^1)(1-\gamma^1)} = \frac{\beta^1 \tau_l f_2 + \dfrac{\tau_l u_l^1 (1-\beta^1)}{(1-\tau_l) u_c^1}}{\dfrac{(\rho+\psi^1)(1-\tau_l)}{\mu^1} - (1-\beta^1)\tau_l} + \frac{\tau_l u_l^1}{(1-\tau_l) u_c^1} \equiv RHS(\overset{+}{\tau_l}). \tag{15d}$$

The value of *RHS* is increasing in τ_l and is equal to 0 when $\tau_l = 0$. The value of *LHS* depends on the value of $\gamma^1 - \beta^1$, where $LHS \gtreqless 0$ if $\gamma^1 \gtreqless \beta^1$. That is, we can obtain that $\tau_l \gtreqless 0$ if $\gamma^1 \gtreqless \beta^1$ (please see Figure 1). Moreover, according to (15c), $b^1 \gtreqless 0$ if $\gamma^1 \gtreqless \beta^1$.

The intuition for b^1 is the same as that in (14a). The intuition for τ_l is as follows. Note that an increase in τ_l has two effects on skilled labor. One is beneficial for those workers as it increases the bargaining wage, and the other is harmful to them as it reduces the after-tax wage rate. Our result shows that the former effect dominates the latter one. That is, if the skilled workers' bargaining power is smaller than its elasticity in the matching function, i.e., $\gamma^1 > \beta^1$, the government can tax their labor income to increase their bargaining wage and can then encourage skilled people to search for a job. Furthermore, the optimal minimum wage and unemployment compensation for unskilled labor are the same as those in (14e). Thus, we obtain the following Proposition.[12]

[12] Note that, in reality, the government will not set a negative unemployment compensation. Therefore, when $\gamma^1 < \beta^1$, i.e., the situation that b^1 should be negative, the optimal allocation under a centrally planned economy cannot be achieved in reality. Similarly, when $\gamma^2 < \beta^2$, i.e., the situation that ω should be



Note: The value at the intersection of *LHS* and *RHS* is positive when $\gamma^1 > \beta^1$, is zero when $\gamma^1 = \beta^1$, and is negative when $\gamma^1 < \beta^1$.

Figure 1 The Optimal Tax Rate of Labor Income for the Skilled Workers

Proposition 2.

When the workers' bargaining power is relatively low, the government should tax the labor income along with positive unemployment compensation for skilled labor, and should set the minimum wage for unskilled labor. In this situation, a binding minimum wage for unskilled labor is optimal.

Note that here we only discuss unemployment compensation, the minimum wage and a labor income tax.[13] If we further consider other

negative, the optimal allocation under a centrally planned economy cannot be achieved since the government will not force workers to get salaries lower than the bargaining wages in reality.

13 If the government sets unemployment compensation and labor income taxes for both skilled and unskilled labor, the optimal policies for unskilled labor are as follows:

instruments, like a hiring subsidy or other taxes, we can only derive the relationship between those instruments, as we only have two conditions similar to (15a) and (15b) for each type of workers, and we cannot obtain the precise values of such policies. Because we focus on the optimality of a minimum wage and the behavior of workers, we only investigate those related instruments. Note that policies that affect bargaining wages include unemployment compensation and labor income taxes, and the minimum wage will directly affect the salary that the worker receives. Therefore, this paper mainly discusses the optimal values of the minimum wage, unemployment compensation and a labor income tax.

4. Concluding Remarks

This paper attempts to determine the optimal minimum wage in a standard search model with heterogeneous labor productivity. We find that if the government only sets the minimum wage for unskilled labor, the optimal policies under a centrally planned economy can be achieved only when the skilled workers' bargaining power equals its elasticity in the matching function. In that situation, a binding minimum wage for unskilled labor is optimal if the workers' bargaining power is relatively low. In addition, if the government sets the different minimum wages for different types of workers, both unskilled and skilled workers should be restricted to their minimum wages when the workers' bargaining power is smaller than its elasticity in the matching function. In the above two situations, the government should not provide unemployment compensation for all workers.

$b^2 = \{\beta^2 \tau_l^2 f_3 + \tau_l^2 u_l^2 (1-\beta^2)/[(1-\tau_l^2)u_c^2]\}/[(\rho+\psi^2)/\mu^2 - (1-\beta^2)\tau_l^2/(1-\tau_l^2)]$, and $[\kappa^2(\rho+\psi^2)/(1-a)\eta^2][(\gamma^2-\beta^2)/(1-\beta^2)(1-\gamma^2)] = \{\beta^2\tau_l^2 f_3 + \tau_l^2 u_l^2(1-\beta^2)/[(1-\tau_l^2)u_c^2]\}/[(\rho+\psi^2)(1-\tau_l^2)/\mu^2 - (1-\beta^2)\tau_l^2] + \tau_l^2 u_l^2/[(1-\tau_l^2)u_c^2]$, where τ_l^2 is the labor income tax for unskilled labor. We can derive that $\tau_l^2 \geq\leq 0$ if $\gamma^2 \geq\leq \beta^2$ and $b^2 \geq\leq 0$ if $\gamma^2 \geq\leq \beta^2$. The intuition is the same as that for skilled labor.

Moreover, if we consider a tax, the government should tax the labor income along with positive unemployment compensation for skilled labor, and should set the minimum wage for unskilled labor when the workers' bargaining power is relatively low. In this situation, a binding minimum wage for unskilled labor is optimal. In addition, unemployment compensation should not be provided for unskilled labor regardless of the values of the unskilled workers' bargaining power and its elasticity in the matching function.

In this paper, we focused on the optimality of the minimum wage and the situation in which the government can implement the minimum wage. However, there are still some other policies worth investigating, and efficient alternatives may exist. Furthermore, we do not discuss the possibility of endogenous training decisions or human capital accumulation. We leave such an analysis to future research.

References

Andolfatto, D. (1996), "Business Cycles and Labor-Market Search," *The American Economic Review*, 86:1, 112-132.

Arseneau, D. M. and S. K. Chugh (2006), "Ramsey Meets Hosios: The Optimal Capital Tax and Labor Market Efficiency," Board of Governors of the Federal Reserve System International Finance Discussion Papers No. 870.

Arseneau, D. M. and S. K. Chugh (2012), "Tax Smoothing in Frictional Labor Markets," *Journal of Political Economy*, 120:5, 926-985.

Autor, D. H., A. Manning and C. L. Smith (2016), "The Contribution of the Minimum Wage to US Wage Inequality over Three Decades: A Reassessment," *American Economic Journal: Applied Economics*, 8:1, 58-99.

Berentsen, A., G. Menzio and R. Wright (2011), "Inflation and Unemployment in the Long Run," *The American Economic Review*, 101:1, 371-398.

Brown, C. (1988), "Minimum Wage Laws: Are They Overrated?" *Journal of Economic Perspective*, 2:3, 133-145.

Cahuc, P. and P. Michel (1996), "Minimum Wage Unemployment and Growth," *European Economic Review*, 40:7, 1463-1482.

Card, D. and A. B. Krueger (1995), *Myth and Measurement: The New Economics of the Minimum Wage*, New Jersey: Princeton University Press.

Diamond, P. A. (1982), "Wage Determination and Efficiency in Search Equilibrium," *The Review of Economic Studies*, 49:2, 217-227.

DiNardo, J., N. M. Fortin and T. Lemieux (1996), "Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric

Approach," *Econometrica*, 64:5, 1001-1044.

Domeij, D. (2005), "Optimal Capital Taxation and Labor Market Search," *Review of Economic Dynamics*, 8:3, 623-650.

Flinn, C. J. (2006), "Minimum Wage Effects on Labor Market Outcomes under Search, Matching, and Endogenous Contact Rates," *Econometrica*, 74:4, 1013-1062.

Hungerbühler, M. and E. Lehmann (2009), "On the Optimality of a Minimum Wage: New Insights from Optimal Tax Theory," *Journal of Public Economics*, 93:3-4, 464-481.

Kaufma, R. T. (1989), "The Effects of Statutory Minimum Rates of Pay on Employment in Great Britain," *The Economic Journal*, 99, 1040-1053.

Lang, K. and S. Kahn (1998), "The Effect of Minimum-wage Laws on the Distribution of Employment: Theory and Evidence," *Journal of Public Economics*, 69:1, 67-82.

Lee, D. and E. Saez (2012), "Optimal Minimum Wage Policy in Competitive Labor Markets," *Journal of Public Economics*, 96:9-10, 739-749.

Lee, D. S. (1999), "Wages Inequality in the United States during the 1980s: Rising Dispersion or Falling Minimum Wage?" *The Quarterly Journal Economics*, 114:3, 977-1023.

Merz, M. (1995), "Search in the Labor Market and the Real Business Cycle," *Journal of Monetary Economics*, 36:2, 269-300.

Mortensen, D. T. (1982), "Property Rights and Efficiency in Mating, Racing and Related Games," *The American Economic Review*, 72:5, 968-979.

Neumark, D. and W. Wascher (2002), "Do Minimum Wages Fight Poverty?" *Economic Inquiry*, 40:3, 315-333.

Neumark, D. and W. Wascher (2006), "Minimum Wages and Employment: A Review of Evidence from the New Minimum Wage Research," NBER Working Paper No.12663.

Pissarides, C. A. (1984), "Efficient Job Rejection," *The Economic Journal*, 94, 97-108.

Pissarides, C. A. (2000), *Equilibrium Unemployment Theory*, Cambridge: MIT Press.

Rocheteau, G. and M. Tasci (2007, May 1), “The Minimum Wage and the Labor Market,” *Economic Commentary*.

Shi, S. and Q. Wen (1999), “Labor Market Search and the Dynamic Effects of Taxes and Subsidies,” *Journal of Monetary Economics*, 43:2, 457-495.

Shimer, R. (2005), “The Cyclical Behavior of Equilibrium Unemployment and Vacancies,” *The American Economic Review*, 95:1, 25-49.

Slonimczyk, F. and P. Skott (2012), “Employment and Distribution Effects of the Minimum Wage,” *Journal of Economic Behavior & Organization*, 84:1, 245-264.

Sobel, R. S. (1999), “Theory and Evidence on the Political Economy of the Minimum Wage,” *Journal of Political Economy*, 107:4, 761-785.

Stigler, G. J. (1946), “The Economics of Minimum Wage Legislation,” *The American Economic Review*, 36:3, 358-365.

Teulings, C. N. (2003), “The Contribution of Minimum Wages to Increasing Wage Inequality,” *The Economic Journal*, 113, 801-833.

最適的最低工資：以社會規劃者的觀點來看

盧佳慧*

摘　要

如果政府對不同能力的勞工皆設有最低工資，當工人的議價能力較小的時候，不僅低技術的勞工適用最低工資，連高技術勞工也適用其最低工資。除此之外，若政府同時考慮課徵薪資所得稅與最低工資，當工人的議價能力較小的時候，政府應該對高技術勞工課徵薪資所得稅，並應為低技術的勞工設定最低工資。在這種情況下，我們可以得到低技術勞工最適的最低工資值。

關鍵詞：最低工資、勞動搜尋、失業、福利
JEL 分類代號：E24, J31, J38, J64

* 聯繫作者：盧佳慧，國立臺北大學經濟學系教授，23741 新北市三峽區大學路 151 號，電話：02-86741111 轉 67166，E-mail: chlu@mail.ntpu.edu.tw。

投稿日期：民國 107 年 3 月 2 日；修訂日期：民國 107 年 6 月 15 日；
接受日期：民國 107 年 11 月 16 日。