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by

Patrick W. Schmitz

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Bonn Graduate School of Economics
Department of Economics
University of Bonn
Adenauerallee 24 - 42
D-53113 Bonn

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Workplace surveillance, privacy protection, and efficiency wages

Patrick W. Schmitz*

University of Bonn and CEPR

Abstract. Consider an employer who wants her employee to work hard. As is well known from the efficiency wage literature, the employer must pay the (wealth-constrained) employee a positive rent to provide incentives for exerting unobservable effort. Alternatively, the employer could make effort observable by costly workplace surveillance. It is argued that a privacy protection law preventing surveillance may increase the total surplus. While such a law reduces the employer's profit, this loss can be overcompensated by the employee's gain, because the employer invests in surveillance not only to implement higher effort, but also to reduce the employee's rent.

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* Address: University of Bonn, Wirtschaftspolitische Abteilung, Adenauerallee 24–42, D-53113 Bonn, Germany. E-mail address: <patrick.schmitz@uni-bonn.de>. Homepage: <http://center.wipol.uni-bonn.de/~schmitz/>. I have benefitted from discussions with Bert Füssenich, Albrecht Morgenstern, Stephanie Rosenkranz, Urs Schweizer, and Dirk Sliwka. Moreover, I would like to thank two anonymous referees and Andrea Ichino (the Editor) for very valuable comments and suggestions.

1 Introduction

Workplace surveillance technology is infiltrating the employee's daily environment. It has been estimated that in the United States more then twenty million workers were subject to electronic monitoring in 1993, that companies spent more than $1 billion on monitoring software in 1996, and that by now 80 percent of US corporations keep their employees under regular surveillance.[1]

Employers use video cameras, telephone tapping devices, and computer monitoring systems. Today it is possible to archive and search all e-mail and voice communication in call centers, to count keystrokes, or to track the amount of time employees spend away from their computers. In hospitals, nurses have started to wear ID badges that electronically transmit their location to a computerized map, increasing the pressure to move from bed to bed. Longhaul trucking firms use the Global Positioning System to track the truck driver's speed, fuel use, and route location. Each UPS driver always carries a computerized clipboard that automatically transmits the number and duration of stops, the speed of each task, and the driver's location to a database, where the information is archived in one of the world's largest computers.[2]

In the United States, the law provides private sector employees with little protection from the assault on workplace privacy. The protection offered by the Constitution applies only to invasions by the state, not by private employers.[3] While the Electronic Communications Privacy Act of 1986, which is an amendment to the Omnibus Crime Control and Safe Streets Act of 1968, makes it illegal for anyone to intentionally intercept wire, oral, or electronic communication, it specifically excludes employer-operated systems from its coverage. In contrast, there are more extensive regulations offering workplace privacy protection in the European Union, which include restrictions on data processing and on the collection of sensitive types of data. As a result, US-based multinationals will be forced to comply with

[1] See Alder (1998), Froomkin (2000), and Parenti (2001).

[2] For more on these and further examples, see e.g. Linowes and Spencer (1996), Mishra and Crampton (1998), Oz et al. (1999), Parenti (2001), and Townsend and Bennett (2003).

[3] As a consequence, public sector employees enjoy more workplace privacy protection, because their employer is the state. See Pincus and Trotter (1995).

EU regulations if they want to exchange employee information with EU-based operations.[4]

The purpose of the present paper is to offer a new principal-agent perspective on the economic rationale for privacy protection laws that restrict workplace surveillance. As has been pointed out by Alder (1998), advocates of electronic monitoring employ teleological arguments. They claim that productivity is enhanced when raises and promotions can be based on workplace surveillance, and that such technologies will only be implemented when this increases the total surplus generated by employer and employee. Hence, the emphasis is on nonmoral results of electronic monitoring for the organization as a whole. In contrast, proponents of privacy protection laws typically use deontological arguments; i.e., they are concerned with the process that leads to the results. They argue that workplace surveillance is unethical, because humans must be treated as persons worthy of dignity. Electronic monitoring acts as an electronic whip in a new digital Taylorism, it violates the employee's basic right to be treated with respect and is dehumanizing.[5]

In the present paper, it will be argued that privacy protection laws can increase the total surplus of an employer and her employee, even if only nonmoral, economic values are taken into account. To be sure, many people would certainly agree that "informational privacy is a good in itself, and a value worth protecting" (Froomkin, 2000, p. 1467). However, it is demonstrated here that laws restricting workplace surveillance can be desirable, even if the mere fact of being monitored did not cause harm to the employee. In this sense, by deliberately stacking the deck in favor of monitoring, the critics of privacy protection laws can hence be beaten on their own ground.

In the formal model, a simple principal-agent problem with moral hazard as known from the "efficiency wage" literature will be analyzed.[6] An

[4] For more on workplace privacy protection in different countries, see Plá Rodríguez (1995) and Pincus and Johns (1997).

[5] See also Manning (1997) and Martin and Freeman (2003). The fact that "non-economic" arguments are invoked by opponents of workplace surveillance might help to explain why mainstream economics so far has been surprisingly silent on this important issue.

[6] The term "efficiency wage" is used here in the contract-theoretic sense of Tirole (1999,

employer wants to induce an employee to exert effort. The employee is wealth-constrained, so that the employer must leave a rent to the employee if effort is a hidden action. As is well known, the employer will then distort the induced effort level below the socially optimal first-best level, in order to reduce the rent that she must leave to the employee. Assume now that effort can be made verifiable if the employer installs a costly workplace surveillance technology, so that first-best effort can be implemented without leaving a rent to the employee. Note that the employer is only interested in maximizing her profit, which equals the total surplus minus the employee's rent. Hence, if the reduction of the employee's rent due to monitoring is sufficiently large, the employer will incur monitoring costs even if they are larger than the additional surplus generated by higher effort. In other words, the employer wastes resources in order to redistribute wealth, so that a law forbidding workplace surveillance can indeed increase the two parties' total surplus.

The remainder of the paper is organized as follows. In the next section, the basic model is introduced.[7] In section 3, the employer's problem is analyzed under the assumption that workplace surveillance is allowed. In section 4, the effects of a privacy protection law are studied. In section 5, various extensions and modifications are briefly discussed. Finally, some concluding remarks follow in section 6.

2 The basic model

Consider two risk-neutral parties, an employer (principal) and an employee (agent). At some initial date 0, when the parties are still symmetrically informed, the employer offers a labor contract to the employee, who has no resources of his own. The reservation utilities of all parties are given by zero.

p. 745) and Laffont and Martimort (2002, p. 174). There is also an older literature on efficiency wages (see Shapiro and Stiglitz, 1984), which is more problematic from a game-theoretic point of view (cf. MacLeod and Malcomson, 1988).

[7] Remarkably, while the simple moral hazard model with risk-neutral parties and wealth constraints is by now a well established part of the contract-theoretic toolbox (see e.g. Innes, 1990; Pitchford, 1998; Demougin and Fluet, 1998; Tirole, 2001; Che and Yoo, 2001; Laffont and Martimort, 2002; Kräkel, 2003; Schmitz, 2004a), to my knowledge it has not yet been applied to explore laws restricting workplace surveillance.

It should be emphasized that no ad hoc restrictions on the class of feasible contracts will be made (i.e., there is complete contracting in the sense of Tirole, 1999).

At date 1, the employee can exert effort $e \in [0,1]$. If there is no workplace surveillance, effort is unobservable. The employee's disutility of effort is given by $c(e)$, where $c(0) = 0$, $c'(e) > 0$, and $c''(e) > 0$ for all $e > 0$. In order to simplify the exposition, as usual it is assumed that there exist interior solutions.[8] The verifiable return V of the principal is realized at date 2. The return is V_H with probability e and V_L with probability $1 - e$, where $V_H > V_L \geq 0$. The employee can be rewarded for a good performance, but he cannot be punished for a bad outcome, since he has no wealth. Formally, the compensation scheme when effort is unobservable is given by $w = (w_L, w_H) \geq 0$, where the employee earns w_i if $V = V_i$ is realized, $i \in \{L, H\}$.

At date 0, by incurring costs $k > 0$, the employer can install a workplace surveillance technology (say, a video camera) which makes the employee's effort verifiable. Let $x \in \{0,1\}$ denote the verifiable decision whether the technology is installed ($x = 1$) or not. If $x = 1$, the employer can condition the employee's wage on the actual effort level. The employer can then implement any effort level $\bar{e} \in [0,1]$ with a simple forcing contract that pays the employee $c(\bar{e})$ if $e = \bar{e}$ and 0 otherwise.[9]

The first-best benchmark. In a first-best world, the effort decision e and the surveillance decision x would maximize the two parties' expected total surplus $eV_H + (1-e)V_L - c(e) - xk$. Hence, the first-best decisions are given by $x^{FB} = 0$ and $\Delta V = c'(e^{FB})$, where $\Delta V = V_H - V_L$.

Note that it has been implicitly assumed that the employee does not directly suffer from the loss of his privacy. If we simply assumed that the worker would incur a disutility when the surveillance technology is installed, this could only make surveillance less attractive, as has been discussed in the introduction.

[8] It is sufficient to assume that $c'''(e) > 0$ and the Inada conditions $c'(0) = 0$ and $\lim_{e \to 1} c'(e) = \infty$ are satisfied.

[9] Choosing $e = \bar{e}$ can be made strictly dominant for the employee by paying him $c(\bar{e}) + \varepsilon$ if $e = \bar{e}$, where $\varepsilon > 0$. As usual, it is for simplicity assumed that when the employee is indifferent ($\varepsilon = 0$), he chooses the effort level preferred by the employer.

3 Scenario I: No privacy protection

In this section it is assumed that the employer is free to install the surveillance technology. In order to derive the decision x that maximizes the employer's expected profit, let us first analyze what contract the employer would offer if she chose $x = 0$. Given the compensation scheme (w_L, w_H), the employee chooses the effort level $e = \hat{e}$, such that

$$\hat{e} = \arg\max_{e \in [0,1]} ew_H + (1-e)w_L - c(e).$$

Given $w_H \geq w_L$, the following first-order condition uniquely characterizes the employee's effort choice:[10]

$$w_H - w_L = c'(\hat{e})$$

Hence, the employer will propose a compensation scheme in order to maximize her expected profit

$$\hat{e}\,[V_H - w_H] + (1-\hat{e})\,[V_L - w_L]$$

subject to the employee's participation constraint

$$\hat{e}w_H + (1-\hat{e})w_L - c(\hat{e}) \geq 0$$

and the wealth constraint $w \geq 0$. Note that the participation constraint can be ignored, since $\hat{e}w_H + (1-\hat{e})w_L - c(\hat{e}) \geq w_L$ due to the definition of $\hat{e}$. It is straightforward to see that at the optimum $w_L = 0$ must hold,[11] so that $w_H = c'(\hat{e})$. This means that when the employer induces an effort level $e > 0$, then the employee will enjoy an expected rent $R(e) = ec'(e) - c(e)$, which is strictly positive.[12]

The effort level that the employer will implement in the case $x = 0$ can now be characterized as follows:

$$e_0 = \arg\max_{e \in [0,1]} e\,[V_H - c'(e)] + (1-e)V_L$$

[10] Note that the employer will never set $w_L > w_H$, since this would induce zero effort, which can be implemented by paying nothing.

[11] If $w_L > 0$, then w_L and w_H could be reduced by the same amount, so that the employee would still choose $\hat{e}$.

[12] In order to see this, observe that $R(0) = 0$ and $R'(e) = ec''(e) > 0$.

The first-order condition is given by $\Delta V = c'(e_0) + e_0 c''(e_0)$. Note that $e_0 < e^{FB}$ due to the convexity of $c(e)$. When the employer cannot observe the employee's effort, she will induce less than the first-best effort level, because in this way the employer reduces the rent she must leave to the employee in order to give him effort incentives.

As we have already seen, if the employer chooses $x = 1$, she can induce any effort level without leaving a rent to the agent. Since this means that her profit is equal to the total surplus, she will then implement e^{FB}. We can thus state the following result.

Proposition 1 *Assume that the employer is free to install a surveillance technology. Define a critical cost level* $\bar{k} = (e^{FB} - e_0)\Delta V - c(e^{FB}) + e_0 c'(e_0)$. *If* $k < \bar{k}$, *the employer will set* $x = 1$ *(surveillance) and implement effort level* e^{FB}. *If* $k \geq \bar{k}$, *she will set* $x = 0$ *(no surveillance) and implement effort level* e_0.

Proof. The employer will install the surveillance technology whenever her expected profit in this case, $e^{FB}V_H + (1 - e^{FB})V_L - c(e^{FB}) - k$, is larger than her expected profit if she does not install the technology, which is given by $e_0 [V_H - c'(e_0)] + (1 - e_0)V_L$. The proposition immediately follows. ■

Note that the first-best solution is not achieved, because either the costly surveillance technology is installed or the effort level is inefficiently low.

4 Scenario II: Privacy protection

Suppose now that there is a law that forbids the employer to install the surveillance technology. In this case, the employer will always induce effort level e_0. Therefore, we obtain the following result.

Proposition 2 *Define a critical cost level* $\tilde{k} = (e^{FB} - e_0)\Delta V - c(e^{FB}) + c(e_0)$. *A privacy protection law that prevents the employer from installing the surveillance technology has no influence on the expected total surplus if* $k \geq \bar{k}$ *or if* $k = \tilde{k}$. *The law reduces the total surplus if* $k < \tilde{k}$. *However, if* $\tilde{k} < k < \bar{k}$, *then the law* increases *the total surplus.*

Proof. When there is a law that prevents workplace surveillance, the expected total surplus is given by $e_0 V_H + (1 - e_0)V_L - c(e_0)$. In contrast, if the

employer is allowed to install the technology, the expected total surplus is $e^{FB}V_H + (1 - e^{FB})V_L - c(e^{FB}) - k$ if $k < \bar{k}$, and $e_0V_H + (1 - e_0)V_L - c(e_0)$ if $k \geq \bar{k}$. The proposition follows immediately. Note that $\tilde{k} < \bar{k}$ must hold since $e_0c'(e_0) - c(e_0) = R(e_0) > 0$. ■

Intuitively, if the costs of the surveillance technology are sufficiently large ($k \geq \bar{k}$), then the employer will not monitor the employee anyway, so that a privacy protection law that forbids workplace surveillance has no impact. If the monitoring costs are very small ($k < \tilde{k}$), then the employer will leave no rent to the employee and induce first-best effort in the absence of a privacy protection law. The law would decrease the total surplus, because the fact that no monitoring costs are incurred would be overcompensated by the fact that without surveillance, the employer induces an inefficiently low effort level. However, if the monitoring costs are at an intermediate level ($\tilde{k} < k < \bar{k}$), the employer would install the surveillance technology in the absence of a privacy protection law, even though the additional surplus that is generated by the increased effort level is smaller than the monitoring costs. The reason is that surveillance not only allows the employer to induce more effort, it also means that she must no longer leave a rent to the agent. The employer's rent-seeking motive hence implies that she installs a socially wasteful technology, so that a privacy protection law can in fact increase the two parties' total surplus.

5 Discussion

In this section, the robustness of the model with regard to various modifications and extensions will be briefly discussed. While the analysis could be made in a more general setting, for clarity it is useful to focus on a specific example. Thus, consider the standard case of quadratic effort costs, $c(e) = e^2$, and let us simplify the exposition by assuming that $V_H = 1$ and $V_L = 0$. In the basic model, the first-best effort level is then given by $e^{FB} = 1/2$, while $e_0 = 1/4$. A privacy protection law decreases the surplus if $k \leq \tilde{k} = 1/16$, it has no effect if $k \geq \bar{k} = 1/8$, and it strictly increases the surplus otherwise. How robust are these findings with regard to various modelling assumptions?

5.1 Bargaining power

Following the standard principal-agent approach, it has been assumed that the principal can make a take-it-or-leave-it wage offer to the agent. If instead the agent had all bargaining power, the first-best solution would always be achieved (since the agent would extract and hence maximize the total surplus); i.e., a privacy protection law had no impact at all. What about the more realistic intermediate cases where the agent may have some, but not all bargaining power?

Consider first the case without surveillance. Note that we can still set $w_L = 0$.[13] Hence, the agent chooses $\hat{e} = w_H/2$. Let us model the wage negotiations by the Nash bargaining solution, where $\alpha \in (0,1)$ denotes the principal's bargaining power.[14] The parties thus agree on the wage w_H that maximizes the Nash product

$$\left[\frac{w_H}{2}(1-w_H)\right]^{\alpha}\left[\frac{w_H}{2}w_H - c(\frac{w_H}{2})\right]^{1-\alpha}.$$

Therefore, $w_H = 1-\alpha/2$ and the effort level is $1/2-\alpha/4$. Note that the effort level and hence the total surplus is decreasing in the principal's bargaining power. If the principal has installed the surveillance technology, she will now receive a fraction α of the first-best surplus $1/4$. Anticipating these bargaining outcomes, she will choose surveillance if $k < \alpha^2/8$, which reduces the total surplus if $k > \alpha^2/16$.[15] Not surprisingly, the smaller is the principal's bargaining power α, the smaller are the cost intervals where a privacy protection law matters. Yet, the qualitative insights of the basic model remain valid as long as α is larger than zero.

The observation that privacy protection is less important when the agent's bargaining power is increased has notable consequences. Prohibiting workplace surveillance might be particularly desirable when institutions

[13] Let a contract $w_H, w_L > 0$ be given. Consider a new contract $\tilde{w}_H > w_H, \tilde{w}_L = 0$, such that the agent's payoff is unchanged if he chooses the same effort level. The principal's payoff would then also be unchanged. Yet, under the new contract, the agent will choose a larger effort level, which makes the principal and the agent (who could still choose the old effort level) better off.

[14] See Muthoo (1999) for a state-of-the-art exposition of bargaining theory.

[15] In order to see this, note that the principal installs the surveillance technology if $\alpha/4 - k > (1/2-\alpha/4)\alpha/2$. Moreover, the total surplus now is $1/2-\alpha/4-c(1/2-\alpha/4)$ when there is no surveillance, while it is still $1/4-k$ otherwise.

(such as unions) that can increase the bargaining power of employees are weak. In contrast, when there are strong unions, workplace privacy laws may be less advantageous.[16]

In the remainder of the paper, it will again be assumed that the principal has all bargaining power.

5.2 Imperfect surveillance

In the basic model, the agent's effort level was perfectly revealed when the surveillance technology was installed. In practice, surveillance might not be perfect, and its costs may be increasing in the informativeness of the signal generated by the technology. Hence, consider the following surveillance technology. If the agent chooses $e < e^{FB}$, then with probability π there will be a verifiable signal which indicates that the agent is shirking (independent of V). The surveillance costs are now given by $k(\pi)$, where $\pi \in (0,1)$. The principal offers a contract (w_L, w_H, w_L^s, w_H^s) to the agent, where the superscript s refers to the states of the world in which the signal indicates shirking. It is easy to see that it is optimal for the principal to set $w_L = w_L^s = w_H^s = 0$. The agent thus chooses the effort level $\hat{e}$ that maximizes his payoff

$$\begin{cases} ew_H - c(e) & \text{if } e \geq e^{FB}, \\ e(1-\pi)w_H - c(e) & \text{if } e < e^{FB}. \end{cases}$$

The principal's ex post payoff is given by

$$\begin{cases} \hat{e}\,(1-w_H) & \text{if } \hat{e} \geq e^{FB}, \\ \hat{e}\,[1-(1-\pi)w_H] & \text{if } \hat{e} < e^{FB}. \end{cases}$$

It is straightforward to show that there is a threshold level $\hat{\pi} \approx 0.057$, such that the principal will implement e^{FB} if $\pi \geq \hat{\pi}$.[17] Ex ante, the principal chooses π in order to maximize her expected ex post profit minus the surveillance costs $k(\pi)$. Whether or not the expected total surplus can be

[16] However, note that strong unions (as well as workplace privacy laws) may increase unemployment (see below).

[17] In order to see this, note that the principal will never pay more than 1. Hence, $\hat{e} = (1-\pi)w_H/2$ if $(1-\pi)^2 w_H^2/4 > w_H/2 - 1/4$, and $\hat{e} = e^{FB}$ otherwise. Thus, the principal sets $w_H = \left[1 - \sqrt{(2\pi - \pi^2)}\right]/(1-\pi)^2$ if $\pi \geq \hat{\pi}$, while she implements $e = 1/4$ by setting $w_H = 1/(2-2\pi)$ otherwise.

increased by completely prohibiting surveillance depends again on the surveillance costs $k(\pi)$. Yet, even when prescribing $\pi = 0$ is harmful, it can still be beneficial to prohibit large values of π. This is illustrated in Figure 1, which depicts the principal's ex ante payoff and the total surplus in the case $k(\pi) = 0.1\pi$. If there is no privacy protection, the principal chooses $\pi \approx 0.44$. The total surplus could be increased by a law that prohibits $\pi > \tilde{\pi} \approx 0.066$. Hence, this version of the model can support privacy protection laws that allow moderate surveillance but forbid excessive surveillance.

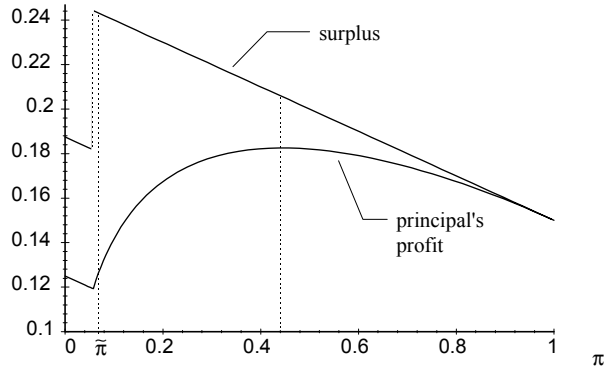

Figure 1. Imperfect surveillance.

5.3 Unemployment

In the basic model it has been assumed that the principal always hires the agent. Yet, a privacy protection law that implies a rent for an employed agent might lead to a higher level of unemployment in a more general setting. In order to see this within our simple partial equilibrium analysis, assume now that the principal must invest an amount I in order to start her business. Let $k \in (\tilde{k}, \bar{k})$, so that a privacy protection law would strictly increase the two parties' total surplus in the basic model. Now in scenario I the principal's expected profit is $1/4 - k - I$, in scenario II it is $1/8 - I$. Hence, if $I \leq 1/8$, the results do not change. Yet, if $I \in (1/8, 1/4 - k)$, then the principal-agent relationship would be established in scenario I, but not in scenario II. Hence, if I is a random variable and the lawmaker's decision whether or not to prohibit surveillance cannot depend on the realization of I,

then a privacy protection law increases the probability that the agent will not be employed. Therefore, allowing surveillance becomes more attractive.[18]

5.4 External effects

So far, a principal-agent framework has been considered, where the world consists of only two parties. It is of course well known that laws which restrict the actions on which two parties may agree can be beneficial if there are externalities on third parties.[19] Hence, it is interesting to see that a privacy protection law can be beneficial, even if there are no externalities. Although the class of contracts that the two parties could write in scenario I had not been restricted (i.e., there was no incomplete contracting in the sense of Tirole, 1999), it turned out that the two parties' total surplus could be larger in scenario II. In other words, even though the parties had the possibility to do so, the surplus generated in the presence of a privacy protection law was not attained in its absence.[20]

In reality, third parties may well be affected, which can make privacy protection more or less attractive. For example, workplace surveillance can increase workers' stress and jeopardize their health.[21] Hence, when the principal uses a surveillance technology, this might have a negative effect on the public health system, which in turn would make a privacy protection law more attractive from a social welfare perspective. On the other hand, there may be more unemployment when surveillance is disallowed, as has

[18] For example, if I is uniformly distributed on $[0, 1/4]$ and $k < 1/8$, then the probability of unemployment rises from $4k$ to $1/2$, so that the interval of cost levels k for which a privacy protection law strictly increases the expected total surplus shrinks from $(1/16, 1/8)$ to $(1/4 - \sqrt{2}/8, 1/8)$.

[19] For example, consider a cartel contract between two firms. If third parties are disregarded, a law that restricts the two firms might only reduce the firms' total surplus. But the law may nevertheless be welfare improving, because it makes the consumers (who are not contractual parties) better off.

[20] Related arguments can also be made with regard to other labor market regulations. For example, Pissarides (2001) asked why the government is needed to legislate employment protection, even though private parties might agree on secure jobs themselves. It is shown in Schmitz (2004b) that agency problems due to adverse selection can be the reason.

[21] The fact that surveillance can literally make employees sick (causing e.g. headaches, eyestrain, musculoskeletal problems, anxiety, and depression) has been stressed in several studies, see e.g. Aiello (1993), Alder (1998), and Martin and Freeman (2003).

been pointed out above. Unemployment can be socially costly, which can make privacy protection laws less beneficial from a social welfare perspective. Indeed, there is a myriad of welfare implications that the different wealth distributions in the two scenarios may have in reality. While a prediction of all social effects is obviously out of reach, an agency model such as the one presented here is still valuable because it can help to clearly structure the discussion of direct implications that a privacy protection law has within the agency relationship.

5.5 Wasteful rent-seeking

Throughout, it has been assumed that the surveillance costs k are a waste of resources. For example, in our two-parties framework this is clearly justified if k is simply the principal's disutility from her effort to install a surveillance system. Of course, one could argue that if k were the wage payed to a third party (a supervisor) who monitors the agent, then it would not be wasted, because it makes the supervisor better off. However, this argument disregards the fact that the supervisor must exert effort to monitor the agent. If the supervisor's effort costs were zero, the principal would not make a positive payment to the supervisor and we would be in the case $k = 0$. If the supervisor's effort costs are $k > 0$ and his effort is verifiable, then the principal will pay him k, so that the supervisor's net utility is zero. Hence, the costs k are a waste, even if we measure welfare by the three parties' total surplus. What is important is the fact that ultimately some resources (such as the supervisor's effort) are merely used to redistribute wealth, not to create value.[22]

6 Concluding remarks

In a simple principal-agent framework, it has been demonstrated that a privacy protection law that forbids workplace surveillance can increase the two parties' total surplus, even if the employee's direct disutility due to the loss of his privacy is not taken into account. It should be emphasized that the model can only justify privacy protection legislation that imposes

[22] For related discussions in the rent-seeking literature that started with Tullock (1967), see e.g. Buchanan, Tollison, and Tullock (1980).

restrictions on employers who want to monitor in order to reduce their employees' rents. It provides no justification for laws that restrict, say, the police or intelligence agencies in the context of crime prevention.[23] Further research that addresses the pros and cons of informational privacy beyond the principal-agent framework considered here clearly seems to be desirable. With regard to workplace privacy laws as well as other labor market regulations, it could be particularly interesting to explore the relative magnitudes of the gains and losses of insiders (employer and employee) and outsiders (such as unemployed workers and the taxpayers who finance them) in future research.

[23] In 1993, Senator Paul Simon (Illinois) convincingly argued that "it is indeed a sad irony that while the Federal Bureau of Investigation is required by law to obtain a court order to wiretap a conversation, even in cases of national security, employers are permitted to spy at will on their employees" (see Alder, 1998, p. 733). More workplace privacy protection may indeed be beneficial, but reducing restrictions on law enforcement (see the USA Patriot Act of October 2001) may also be desirable.

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