

5510

LABOR CONTRACTS

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Abstract

This chapter contains an overview of the literature on labor contracts. Four important aspects of the employment relationship will be discussed: matching of employer and employee, acquisition and retention of firm-specific human capital, earnings stability as insurance and the effort intensity of employees. These four important areas of the employment relationship are encountered by imperfections, mainly information problems and opportunistic behavior. Some labor market institutions, such as the design of a certain wage policy, can be explained as devices to overcome these imperfections.

The employment contract can be viewed as a combination of explicit and implicit agreements. An explicit contract is legally enforceable. An implicit contract is an informal understanding which is too vague to be legally enforceable. In order to be of any value, the implicit contract must be self-enforcing.

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1. Introduction

Job matching constitutes the process whereby heterogeneous workers are matched to heterogeneous jobs. This matching process consists of two steps: discovering appropriate individuals and providing the workers with specific skills (see Elliott, 1991, p. 292). The first step is to discover appropriate individuals and will be discussed in Section 2. The employer wants to find the 'right' kind of employee and the employee wants to find the 'right' kind of job. Information asymmetry and opportunistic behavior of one or both parties at the precontractual stage might result in a suboptimal match and in adverse selection. Some devices help parties to overcome those inefficiencies.

In Section 3, the second step of the matching process or the investments in specific human capital by both employer and employee are considered.

These investments are specific to the unique match between a firm and the worker and will be lost if the match is broken (see Becker, 1975; Parsons, 1986, p. 819). Therefore, compensation schemes might be adopted to prevent the employee from quitting soon after investments are made. Parties might also behave opportunistically as regards the division of the surplus resulting from investments in firm-specific training. Parties who anticipate the opportunistic behavior might refrain from investing in specific capital; this is the hold up problem. One role of the employment contract is to overcome the hold up problem by introducing wage rigidity.

Another role of the employment contract, as will be shown in Section 4, is to enable firms to share the risks for uncertain income streams. This is at the heart of the implicit contract theory which also provides arguments for wage rigidity. In Section 5 an overview is given of the employment arrangements, mainly compensation plans, used to induce an employee to provide the optimal level of effort.

Finally, some characteristics of the form of the employment contract will be explained; the employment contract is in general a long-term, incomplete and self-enforcing implicit contract.

2. Matching of Employer and Employee

For markets to successfully promote mutually beneficial transactions, both buyers and sellers must have access to accurate information about the quality and price of the goods (Ehrenberg and Smith, 1997, p. 378). Translated to the labor market the employer wants to have information about the productivity level of the potential employee and his attachment to the job; the employee wants to have information about the pecuniary and non pecuniary job characteristics. Schäfer and Ott (1993) and De Geest (1994, pp. 167-189) summarize the law and economics literature on information production in the precontractual stage in general. De Geest, et al. (1999) apply the insights of the general analysis of information production to labor contract negotiations.

In many cases the information is 'asymmetric' - that is, when one party knows more than the other about its intentions or performance under the contract. When information is asymmetric, opportunities for malpractice are enhanced. Applicants have incentives to overstate their productive capacities and employers have incentives to represent jobs as less demanding than they may actually be. As a result, mutually beneficial transactions may be 'blocked' and disallocation of the resource labour may be the result.

It is interesting to look at some labor market institutions that remove the information asymmetry or reduce the inefficient consequences of it, on the employer's side as well as on the employee's side.

Employer's Side

It is profitable for an employer to distinguish between high-productivity workers and low-productivity workers. How can the employer find out about a potential employee's productivity? A mechanism by which employers and employees deal with the problem of asymmetric information is 'signaling'. The concept of job market signaling was first developed by Spence (1973). He uses the term signals for those observable characteristics attached to the individual that are subject to manipulation by him. The costs of making the adjustments by manipulation are signaling costs. A signal is strong when the signaling costs are negatively correlated with the individual's unknown productivity so that high-productivity persons are more likely to give the signal than low-productivity persons. Education might be a strong signal in labor markets.

Prior to hiring, the employer not only wants to know the potential productivity but also whether the employee is likely to stay for a long term with the employer, especially when firm-specific investments will be made. Salop and Salop (1976) offer a sorting model of quit behavior. The rationale is that offered pay plans may induce signaling. Employees who choose to work under compensation plans with deterred payments, signal that they intend to stay for a longer time with the employer. 'The essence of signaling ... is the voluntary revelation of truth about oneself in one's *behavior*, not just one's statements' (Ehrenberg and Smith, 1997, p. 379). In many cases complete information revelation about the potential employee's productivity is not possible at a reasonable cost; the information will remain partly asymmetric which may have inefficient consequences.

An important consequence of the asymmetry of information at the precontractual stage is known as adverse selection. The adverse selection problem was discussed by Akerlof (1970) in the used car market. In the employment relationship the adverse selection problem arises when employers cannot devise a way to distinguish between groups of employee candidates with different levels of productivity at a reasonable cost. In that case, firms would be forced to assume that all applicants are 'average' and would pay them an average wage. Low-quality workers would profit as they are paid a wage above the value of their marginal productivity, where good-quality workers are underpaid. According to Weiss (1980) this will result in good-quality workers refraining from applying for the job; employees (as opposed to employers) know their productivity and will only accept wages that correspond with their productive endowments. Only the low-quality

workers find it profitable to apply for the job. However, the employer can attract more high-quality employees by offering a higher wage. 'Because reservation wages are positively correlated with labor endowments, if a firm were to cut the wage it offered, the workers that would be discouraged from applying to work for the firm would be the workers that the firm finds most desirable' (Weiss, 1991, p. 15). This model is an efficiency-wage model, and the reason for paying above market wages is to avoid adverse selection; this will be done by enlarging the pool of applicants with good-quality workers.

Discrimination might be another consequence of asymmetric information when screening and signaling are not perfect. Statistical discrimination might occur when the employer assigns group characteristics to people who may not be typical of the group. Employers who rely on false stereotypes will face adverse selection because they are not hiring the most productive workers. Chapter 5530 gives an overview of Employment Discrimination.

Employee's Side

We now turn to the information shortage on the side of employees with respect to the job characteristics. The employer normally possesses more information about the job characteristics, but he will have the incentive to present the job as less demanding than it actually is. Economic theory, however, predicts that compensating wage differentials will be associated with various job characteristics. Positive differentials (higher wages) will accompany 'bad' characteristics, while negative differentials (lower wages) will be associated with 'good' ones (Ehrenberg and Smith, 1997, p. 251). A company offering a job with 'bad' characteristics with no compensating wage differentials would have trouble recruiting or retaining workers; the company would eventually be forced to raise its wages, even above the wage level offered by the company offering good characteristics. The prediction that there are compensating wage differentials was already proposed by Adam Smith in his *The Wealth of Nations* (1776). The prediction is only true under the assumption that workers want to maximize their utility, are informed of the job characteristics and perfect worker mobility (see, for example, Ehrenberg and Smith, 1997, chapter 8). When the assumptions are not fulfilled, regulation might discipline the employer. For an overview of Occupational Safety and Health Regulation see Chapter 5540.

3. Firm Specific Investments

Many workers increase their productivity by learning new skills and perfecting old ones while on-the-job. Gary Becker (1975) was the first to formalize the distinction between two types of on the job training: *general*

training that increases an individual's productivity to many employers equally, and *specific training* that increases an individual's productivity only at the firm in which he or she is currently employed.

Future productivity can be improved only at a cost. These investment costs will only be incurred when there is a possibility to recoup the returns of investments. This necessitates that the employment relationship should endure for a sufficiently long period of time. Some arrangements of the employment relationship can be seen as incentives for the continuance of the relationship. The original theoretical literature in the area of human capital theory (Becker, 1975; Mincer, 1962; Oi, 1962; Parsons, 1972; Pencavel, 1972; and Salop, 1973) focused on the effect of firm specific human capital on firm compensation policies and the consequences for firm lay-off and quit experiences.

General Training

Because general training increases workers' productivity in the firm providing it, as well as in many other firms, the prediction holds true that firms will not offer general training, or only if the employees bear the full cost of their training. However, general training is widely provided and paid for by employers in the actual labour market. A possible explanation is that the mobility of workers to work for another firm is sufficiently limited by the mobility costs, that is by the various costs employees must naturally bear in finding other offers and switching employer. In that way employers can obtain the returns of the training if they have paid for it.

Specific Training

Becker (1975) defines 'completely specific' training as training that has no effect on the productivity of trainees that would be useful in other firms. If training were completely specific, the wage that an employee could get elsewhere would be independent of the amount of training he had received. When a firm offers specific training, it has to decide how to structure wages during and after training so that it can recoup its investment. This will be explained with the two period example (this is essentially the model developed in Becker, 1975). Suppose the firm's workers come to it with a marginal product of MP^* , and they can obtain a wage of W^* ($=MP^*$) elsewhere. If they receive specific training in the first period of employment, their marginal product with the firm is reduced to MP_0 ($< MP^*$) during the training period but rises to MP_1 ($> MP^*$) in the post-training period. The difference between MP_1 and MP^* in the post-training period is called the post-training surplus. What is the optimal pay policy to be adopted by the firm? First, a firm is hurt by the departure of a trained employee because an equally profitable new employee could not be obtained and the firm's

training investments would be lost. Therefore the firm must offer a post-training wage that is high enough to discourage its trained workers from quitting immediately after training ($W_1 > W^*$). But the firm incurred costs in the training period, which it wants to recoup. Therefore the post-training wage must be below MP_1 ($W_1 < MP_1$) so that the firm is allowed to recoup investment costs. Where exactly within this range W_1 will depend on the mobility costs (job search costs, change of residence) of the trained employee. If these costs are high, then W_1 need not be much above W^* to induce those workers to stay with the firm in the post-training period. When employees are offered some of the return from training, the higher wage would make the supply of trainees greater than the demand, and rationing would be required. The final step is then to shift some training costs as well as returns to employees. This will be done by offering a wage below W^* in the training period. Some of the training costs will be borne by the employer. Therefore the wage will be higher than MP_0 . If employees bore all the costs of specific training, then employers would have no investment to protect and would not be inhibited from firing employees after training. The optimal pay policy is one in which firms do not pay all training costs nor do they collect all the return, but they rather share both with the employees.

In the efficiency-wage theory it is shown that high wages have a quit-detering effect (Salop, 1973, 1979; Stiglitz, 1974). So employers pay an above market wage in order to prevent their specifically trained employees from quitting. But an element that also plays an important role in efficiency wage theories is unemployment. The basic idea is that employees are less likely to quit when their current wage is higher than what they can earn elsewhere and when the level of unemployment is higher.

Hold-Up Problem

Becker focused on the possibility of the employee to threaten in an opportunistic way to quit after the firm makes the specific investment unless the wage rate is adjusted upwards. Becker's solution is a sharing of the costs and benefits of the specific investment via an initial lump-sum payment by the employee and a later higher-than-market wage. But as Klein, Crawford and Alchian (1978) show, this solution does not eliminate the bilateral opportunistic bargaining problem; the employer may later decrease the wage back to the competitive level or the employee may demand a higher wage to appropriate the partial specific investment by the employer. Williamson (1985) has termed this problem 'hold-up'. By threatening to quit, an employee might bargain for a large share of the surplus in a way that the employer can only partly reap the returns of his specific investment. The employer will have to concede because if the employee quits, the employer cannot reap any returns at all. The same is true for the employee who has

invested in specific training when the employer acts strategically by threatening to dismiss the employee. Parties might anticipate this opportunistic behavior and refrain from firm-specific investments. The investments in specific training will then be less than what is socially optimal. A solution put forward in the literature is a formal fixed-wage contract specifying a wage at the start of employment (Klein, Crawford and Alchian, 1978; Macleod and Malcomson, 1993; and Malcomson, 1997). When renegotiations are avoided through wage rigidity, the scope for opportunistic behavior will be smaller: 'a contract that ensures a wage independent of the amount the firm invests insures those investments are efficient' (Malcomson, 1997, p. 1933). However, a wage contract will not completely avoid the hold-up problem, especially when alternative market opportunities for one or both parties are considered. Due to macro shocks in product demand and firm-specific shocks, the alternative opportunities for one or both parties might be better than the existing wage contract. In order to avoid an inefficient separation, the wage must be adjusted. Those adjustments are normally not foreseen in the employment contract because the employment relationship is too complex and uncertain. Renegotiation is necessary and again the hold-up problem occurs.

Renegotiation to prevent an inefficient separation when an outside option constraint binds may allow one party to capture part of the returns to specific investments made by the other. Anticipation of that means that the original investments may not be efficient. (Malcomson, 1997, p. 1943)

According to Teulings (1996) the solution is to delegate the power to renegotiate to centralized labour unions and employer organisations. Negotiations are then independent of the problems of the workplace and specific investments do not influence the decisions.

In general the fear of opportunistic behavior leads to wage rigidity in long term explicit contracts where specific human capital is present. This argument is distinct from the argument for the existence of rigid long-term implicit labor contracts as a means of bearing risk. The use of the employment contract as an insurance contract will be discussed in the next section.

4. Insurance Contract

Azariadis (1975) considers the risk-neutral firms to act both as employers and as insurers of homogenous, risk-averse laborers. The use of the employment contract as an insurance contract has been discussed in the implicit contract theory. The origins of implicit-contract theory lie in the belief that observed movements in wages and employment cannot be

adequately explained by a competitive spot labor market in which wages are always equal to the marginal product of labor and the labor market is always in equilibrium. Instead, the observation in the labor market is that over the cycle wages are 'rigid' while employment varies. Basic ideas about implicit-contract models were originally proposed by Baily (1974), Gordon (1974) and Azariadis (1975). But the ideas spawned an enormous amount of literature. For surveys see Azariadis and Stiglitz (1983), Hart and Holmstrom (1986) and Rosen (1994).

The earliest literature on implicit contracts exploits the insight by Knight (1921), who argued that inherently confident and venturesome entrepreneurs will offer to relieve their employees of some market risks in return for the right to make allocative decisions. The basic idea of implicit-contract theory is that in their dealings employers are less risk-averse than workers. One reason is that owners of capital who represent the employers can divide their capital among many different firms through the stock market, and by this diversification they obtain insurance against the risks faced by individual firms. On the other hand, for workers it is generally difficult to diversify assets which take the form of human capital because workers generally work for only one employer at the time.

Risk-averse workers do not like fluctuations in their wages. But in a competitive labor market, fluctuations in the marginal product of labor would lead to fluctuations in the wage. However, the risk-averse employee is willing to pay for income certainty because it increases his utility. Due to the imperfect nature of insurance markets, workers who desire such an insurance coverage cannot get it on the insurance market. The employing firm, having more information than a separate insurer, is much better placed to undertake the insurance function, if compensated for it. The crucial feature of implicit-contract models is how risk is shared between workers and firms. Both parties to the employment relationship can be made better off by replacing a fluctuating wage with a fixed wage contract which has a slightly lower average value. So it appears that the implicit contract theory can explain wage stickiness, one of the stylized facts of the labor market. In the optimal contract, the wage is rigid and does not vary with the marginal revenue product of labor. The marginal revenue product is supposed to be high in good times and low in bad times. In that way the employment contract will include an insurance element, insuring workers against bad times by collecting premiums from them in good times.

According to Azariadis (1987) an implicit contract is a complete description, made before the state of nature (good or bad) becomes known, of the labour services to be rendered unto the firm in each state of nature, and of the corresponding payments to be delivered to the worker. These types of risk sharing agreements are termed 'implicit-contracts' in the implicit contract theory. By 'implicit' we normally mean that something is

understood to be the case. In the case of a contract, an implicit contract has connotations of an informal arrangement which is not written down. The converse of an implicit contract would then be an explicit contract in which everything that matters is clearly specified and written down. The use of the term 'implicit contracts' to denote risk-sharing contracts is rather confusing according to Bosworth, Dawkins and Stromback (1996, p. 280). It is not the implicit nature of the insurance contract that is the crucial feature of implicit contract theory, but it is the question how risk is shared between employer and employee. For that reason, 'risk-sharing agreements' would be a better term. It is, however, true that the risk-sharing agreement considered by the implicit contract literature is implicit. Indeed, we do not observe such risk-sharing contracts in the real world, so if they exist they must be implicit (see Manning, 1990, p. 65).

The problem with contracts that are implicit (understood) compared to explicit (written) contracts, is that they are not enforceable by a third party, such as a court. One of the parties might breach the implicit risk sharing agreement; the employer can increase his profits by dismissing the worker whose marginal revenue product is below the fixed wage in the bad state of nature and replace him by a cheaper worker, and the employee has an incentive to quit when his marginal revenue product is higher than the fixed wage in the good state of nature. These implications can be avoided when the implicit contract is self enforcing through labor market institutions such as mobility costs (for example Baily, 1974) and reputation (for example Holmstrom, 1981; and Bull, 1987). The mechanism of self-enforcing implicit contracts will be further discussed in this contribution.

5. Employee's Effort Level and Compensation Scheme

The employment relationship can be thought of as a contract between a principal (the employer) and an agent (the employee). The employee is hired to help advance the employer's objectives in return for receiving wages and other benefits. But workers are considered to be utility maximizers. They are primarily motivated by self interest and they seek to avoid unpleasant or otherwise costly activities. Which policies can employers devise in order to ensure the alignment of the agent's interests with those of the principal and more specifically to induce a high level of effort from their employees?

One way to motivate high levels of effort is to closely supervise employees. According to Alchian and Demsetz (1972), the essence of the firm is 'the centralized contractual agent in a team productive process'. And one method of reducing shirking is for someone to specialize as a monitor to check the input performance of team members.

While virtually all employees work under some form of supervision, close and detailed supervision or monitoring is costly. With imperfect monitoring and full employment, workers will choose to shirk, that is to provide a low level of effort. If supervision or monitoring is too costly, the employer can use various compensation plans to motivate the employee to work hard.

A possible incentive-based pay scheme to motivate the employees is linking one's pay to one's output. Possible systems under which workers are paid for their output are piece-rate pay, payment by commission, gain-sharing, profit-sharing, and bonus plans. Although such pay systems reduce the monitoring costs for the employer, in reality in most employment relationships employees are paid (at least partly) for their time. Output-based pay encounters difficulties of measurement of output. Such incentive contracts that are legally enforceable are limited by the practical difficulty of finding measures of employee performance that can be verified in court. Without such verifiability, contracts that make the wage conditional on output will not be legally enforceable (Macleod and Malcomson, 1987, 1989). Another problem is that a system of pay for performance places employees at a risk of having earnings that are variable over time. Such a system does not satisfy the desire of a risk averse employee (see Section 4 above contract) and the employee is only willing to accept the risk if this is offset by a higher expected income. At the heart of the principal-agent problem lies the inevitable trade-off between the provision of incentives to work hard and the sharing of risks. The challenge is to design an employment contract so that there are incentives to perform well, but without burdening the workers with too much risk (see for example Douma and Schreuder, 1998, 7.6).

Given the difficulties with output-based pay plans, another method to increase the chances that the workers will not shirk their duties is to pay them a wage above the market wage. This method has been the object of the efficiency-wage theories. The reasons why higher wages are thought to generate greater productivity from given workers all relate to the commitment to the firm they build.

Wages affect the productivity of individual workers by affecting whether workers are supportive or antagonistic to their employer. The main contributor to this line of investigation has been Akerlof (1984) in the context of 'gift-exchange' relationships. He argues that when firms pay 'high' wages they are in effect making a gift to the workers, which is reciprocated by the workers. They act in ways that benefit the firm even if they are not rewarded for those actions.

However, the aspect of behavior that has been widely discussed as being affected by wages is the quality and intensity of work (effort level or productivity level). Employees realize that even though supervision may not be detailed enough to detect shirking with certainty, if they are caught

cheating on their promises to work hard and are fired as a result, the loss of a job paying above market wages is costly. If an employee's work is not diligent and he is fired, he faces the risk of earning a lower wage. The cost of earning less provides the incentive to work hard. Raising compensation above the level that workers can earn elsewhere has both benefits (less monitoring costs) and costs (higher wages) to the employer. While initial increases in pay may well serve to increase productivity and therefore the profits of the firm, after a point the costs to the employer of further increases will exceed the benefits. The above-market level at which the marginal revenues to the employer from a further pay increase equal the marginal costs is the level that will maximize profits. This has become known as *the efficiency wage* (Ehrenberg and Smith, 1997, p. 396). The wage premium that efficiency-wage employers must pay to discourage shirking depends upon the alternatives open to their employees. The prediction holds that there should be a negative association between average wage rates and unemployment rates across areas (see Ehrenberg and Smith, 1997, p. 582).

Shapiro and Stiglitz (1984) state in their shirking model that if all employers were to follow the strategy of raising wages, then the incentive not to shirk again disappears; the worst that can happen to a worker who shirks on the job is that he is fired, since he can be rehired (assuming there is no unemployment) at the same high wage. But as all firms raise their wages, supply of labor would exceed demand and unemployment would result. With unemployment, even if all firms pay the same wages, a worker has an incentive not to shirk. For, if he is fired, an individual will not immediately obtain another job.

Lazear (1979) shows that it is beneficial to both employer and employee to arrange workers' pay over time so that employees are 'underpaid' (less than their marginal productivity) early in their careers and 'overpaid' later on. Holding out payments until late in the individual's lifetime alters the worker's incentives to reduce his effort on the job. Workers are less likely to shirk their responsibilities because the penalties for being caught and fired are forfeiture of a late future award.

Another form of worker motivation is the promotion tournament. Workers with high effort levels will be awarded with promotion. Promotion tournament models are given by Malcomson (1984, 1986) and Bhattacharya (1986).

A contract to induce the employee to provide a certain effort level is often an understanding that cannot be enforced by third parties, such as courts. Such contracts are labelled 'implicit contracts'. It is, for example, usually understood, but seldom explicitly expressed, that workers who provide a high effort level will be rewarded with a bonus. Implicit contracts are distinguished from explicit contracts which can be enforced by third parties. There is no use for parties explicitly to write down the required

effort level of the employee in the employment contract because courts generally cannot verify information about the effort level of the employee. The worker's effort and thus his output are modeled as nonverifiable (Carmichael, 1989).

6. Long-Term, Incomplete and Self-Enforcing Implicit Contract

When the motivation for an employment contract is to regulate and divide the surplus of relation-specific investments, to ensure a certain income stream, and to provide incentives to the workers to work hard through deferred forms of pay, *long-term* employment relationships are in many instances conducive to economic efficiency (see Büchtemann and Walwei, 1996). Normally, long-term employment contracts are *incomplete*. A contract is incomplete when it does not specify each party's obligations in every conceivable eventuality (Hart, 1987). The employment contract might be incomplete if parties are not able to foresee all future contingencies. If they envisage contingencies, it may just be too costly to write all those details into the contract. And even if they want to specify all those details in a contract, they may be unable to do so in such a way that a court can enforce their intentions because the necessary information cannot be verified by third parties, such as courts (see Malcomson, 1997, p. 1917). Even when legal enforcement is possible, it may be too costly. If parties do not write all their agreements explicitly down for the reasons just mentioned, they can still rely on an implicit type of long-term contract. For a review of long-term and incomplete contracts see Chapters 4100, Contractual Choice and 4200, Long-Term Contracts and Relational Contracts.

It is fruitful to look at the employment contract as a combination of explicit and implicit agreements. An implicit agreement is an understanding that is not legally enforceable. We could think, for example, of the informal understanding between employer and employee that the employee will be rewarded when his effort level is high or when his attachment to the job is strong. Implicit contracts are not legally enforceable. This does not render the implicit agreement valueless. Implicit agreements will be made when parties can rely on self enforcement of the agreement. The basic idea of *self-enforcing implicit contracts* is that if both parties benefit from the continuance of the employment relationship, they will not cheat on their promises implicitly made. Self enforcing implicit contracts will exist only if upholding the agreement will generate a surplus for the two parties (MacLeod and Malcomson, 1987, 1989). The way in which the surplus is divided between the two parties is important, because this is what determines the form of the contract. Among others, Carmichael (1989) has summarized the potential sources for a surplus of self enforcing implicit contracts in the labor market.

A first source for a surplus in the relationship is savings of direct mobility costs for each party. One of the earliest approaches (for example Baily, 1974) was to assume the existence of mobility costs for workers and costs for the employer of replacing workers. If employers profit more from the continued employment of their existing workforce than they could from hiring replacements, they will suffer losses, for example by failing to promote 'good' workers as promised and thereby inducing them to quit.

Investment in specific human capital is a second source for a surplus. Terminating the contract is unattractive when it makes the investments disappear.

Reputation is a third source for a surplus, as illustrated by Holmstrom (1981) and Carmichael (1984). If either employer or workers gain a reputation for breaking contracts when it is in their short term interest to do so, we might expect them to have difficulty in finding employers or workers to sign contracts with them in the future, that is they will acquire a bad reputation which is costly to them in the future. According to Bull (1987) strong reputation effects require that accurate information about breach of the agreement flows rapidly to a large portion of the labor market. It is unlikely that market-based or external reputation will, in many labor markets, be strong enough to support implicit agreements. While the market will not have timely, accurate information on the outcomes of trades within the firm, the information flows *within* the firms will be fast and accurate. It is these strong intrafirm reputations that will support implicit agreements. An unfair breach of a promise on the part of the employer could result in an unprofitable drop in the morale of the workforce.

Efficiency wages can also do the trick. The employee will not quit when he will earn less elsewhere. If workers are receiving more from the existing relationship than they expect to receive elsewhere, they will automatically lose if they shirk on their duties and are fired as a consequence.

7. Conclusion

It has been shown how parties to the employment contract cope with imperfections such as asymmetric information, uncertainty and opportunistic behavior with respect to different areas of the employment relationship. The employment contract has several roles or functions: to match employer and employee, to regulate and divide the surplus from relation-specific investments, to share risks and smooth the income stream and to induce a high effort level (Ehrenberg and Smith, 1997, p. 394). For many employees, setting a compensation policy consists of more than just 'finding out' the market wage for given jobs. Paying above-market wages might attract high-

productivity workers, reduce the incentive of the employee to quit after receiving specific training and reduce the incentive to shirk. Risk-averse employees prefer certain income streams which leads to the rigid wage result of implicit contract theory; wages do not fluctuate in response to fluctuations in the firm's output price. Rigid wages have also been proposed as a solution for the hold up problem.

Besides explicit agreements, employers and employees exchange a set of informal, implicit promises regarding their current and future behavior. To make these implicit contacts self-enforcing there must be a surplus of the relationship and the challenge for employer and employee is to make arrangements concerning the division of the surplus.

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Bibliography on Labor Contracts (5510)

- Abowd, John M. and Card, David (1987), 'Intertemporal Labor Supply and Long-Term Employment Contracts', *77 American Economic Review*, 50-68.
- Akerlof, George A. (1984), 'Gift Exchange and Efficiency Wage Theory: Four Views', *74 American Economic Review. Papers and Proceedings*, 79-83.
- Antel, John J. (1985), 'Costly Employment Contract Renegotiation and the Labor Mobility of Young Men', *75 American Economic Review*, 976-991.
- Arnott, Richard J., Hosios, Arthur J. and Stiglitz, Joseph E. (1988), 'Implicit Contracts, Labor Mobility, and Unemployment', *78 American Economic Review*, 1046-1066.
- Azariadis, Costas (1987), 'Implicit Contracts', in Eatwell, John, Milgate, Murray and Newman, Peter (eds), *The New Palgrave: A Dictionary of Economics*, London, Macmillan, 733-737.
- Ball, Laurence (1987), 'Externalities from Contract Length', *77 American Economic Review*, 615-629.
- Baron, David P. (1974), 'Incentive Contracts and Competitive Bidding: Reply', *64 American Economic Review*, 1072-1073.
- Blaydon, Colin C. and Marshall, Paul W. (1974), 'Incentive Contracts and Competitive Bidding: Comment', *64 American Economic Review*, 1070-1071.
- Canes, Michael E. (1975), 'The Simple Economics of Incentive Contracting: Note', *65 American Economic Review*, 478-483.
- Cooper, Russell (1988), 'Will Share Contracts Increase Economic Welfare?', *78 American Economic Review*, 138-154.

- Dana, James D., Jr and Spier, Kathryn E. (1993), 'Expertise and Contingent Fees: The Role of Asymmetric Information in Attorney Compensation', **9** *Journal of Law, Economics, and Organization*, 349-367.
- Dau-Schmidt, Kenneth G. (1992), 'A Bargaining Analysis of American Labor Law and the Search for Bargaining Equity and Industrial Peace', **91** *Michigan Law Review*, 419 ff.
- Dau-Schmidt, Kenneth G. (1993a), 'Bargaining Theory and Canadian Labour Law', in Kuttner, T. (ed.), *The Industrial Relations System: Proceedings of the XXIXth Conference of the Canadian Industrial Relations Association*, 753 ff.
- Dau-Schmidt, Kenneth G. (1993b), 'Meeting the Demands of Workers Into the Twenty-First Century: The Future of Labor and Employment Law', **68** *Indiana Law Journal*, 685 ff.
- Dau-Schmidt, Kenneth G. (1995), 'The Labor Market Transformed: Adapting Labor and Employment Law to the Rise of the Contingent Workforce', **52** *Washington and Lee Law Review*, 879 ff.
- Dau-Schmidt, Kenneth G. (1996), 'Employment Security: A Comparative Institutional Debate', *Texas Law Review*.
- Dudley, Leonard (1986), 'Implicit Labor Contracts and Public Choice: A General Equilibrium Approach', **29** *Journal of Law and Economics*, 61-82.
- Dye, Ronald A. (1985), 'Optimal Length of Labor Contracts', **26** *International Economic Review*, 251-270.
- Flanagan, Robert J. (1984), 'Implicit Contracts, Explicit Contracts, and Wages', **74** *American Economic Review. Papers and Proceedings*, 345-349.
- Frech, H. Edward III (1985), 'The Property Rights Theory of the Firm: Some Evidence from the U.S. Nursing Home Industry', **141** *Journal of Institutional and Theoretical Economics*, 146-166.
- Frech, H. Edward III, Borjas, George J. and Ginsburg, Paul B. (1983), 'Property Rights and Wages: The Case of Nursing Homes', **18(2)** *Journal of Human Resources*, 231-246.
- Freeman, Smith (1977), 'Wage Trends as Performance Displays Productive Potential: a Model and Application to Academic Early Retirement', **8** *Bell Journal of Economics*, 419-443.
- Goldberg, Victor P. (1980), 'Bridges Over Contested Terrain: Exploring the Radical Account of the Employment Relationship', **1** *Journal of Economic Behavior and Organization*, 249-274.
- Goldberg, Victor P. (1984), 'A Relational Exchange Perspective on the Employment Relationship', in Stephen, Frank H. (ed.), *Firms, Organization and Labour: Approaches to the Economics of Work Organization*, London, Macmillan, 127-145.
- Greene, Kenneth V. and Moulton, George D. (1986), 'Municipal Employee Residency Requirement Statutes: An Economic Analysis', **9** *Research in Law and Economics*, 185-204.
- Hall, Robert E. (1982), 'The Importance of Lifetime Jobs in the U.S. Economy', **72** *American Economic Review*, 716-724.
- Harris, Milton and Holmström, Bengt (1987), 'On the Duration of Agreements', **28** *International Economic Review*, 389-406.

- Harris, Milton and Raviv, Artur (1978), 'Some Results on Incentive Contracts with Applications to Education and Employment, Health Insurance, and Law Enforcement', *68 American Economic Review*, 20-30.
- Hashimoto, Masanori and Yu, Ben T. (1980), 'Specific Capital, Employment Contracts, and Wage Rigidity', *11 Bell Journal of Economics*, 536-549.
- Hertog, Johan A. and Kraamwinkel, Margriet M. (1991), 'Pensioennadelen in Het Licht Van De Contracttheorie (Pension Disadvantages in the Light of Contract Theory)', *Economisch-Statistische Berichten*, 908-912.
- Hirsch, Werner Z. (1989), 'The Economics of Contracting Out: The Labor Cost Fallacy', *40 Labor Law Journal*, 536-542.
- Ichino, Pietro (1998), 'Il Diritto del Lavoro e i Modelli Economici (Labour Law and Economic Models)', *Lavoro e Diritto*, 309-322.
- Ickes, B.W. and Samuelson, Larry (1987), 'Job Transfers and Incentives in Complex Organizations: Thwarting in the Ratchet Effect', *18 Rand Journal of Economics*, 275-286.
- Ioannides, Y.M. and Pissarides, C.A. (1983), 'Wages and Employment with Firm-Specific Seniority', *14 Bell Journal of Economics*, 573-580.
- Klein, Benjamin (1984), 'Contract Costs and Administered Prices: An Economic Theory of Rigid Wages', *74 American Economic Review. Papers and Proceedings*, 332-338.
- Kübler, Dorothea (1997), 'Auctioning Off Labor Contracts: Legal Restrictions Reconsidered', *17 International Review of Law and Economics*, 63-74.
- Lazear, Edward P. (1984), 'Incentives and Wage Rigidity', *74 American Economic Review. Papers and Proceedings*, 339-344.
- Lazear, Edward P. (1987), 'Incentive Contracts', in Eatwell, John, Milgate, Murray and Newman, Peter (eds), *The New Palgrave: A Dictionary of Economics*, London, MacMillan, 744-748.
- Lemley, Mark A. and Durie, Daralyn J. (1992), 'The Antitrust Liability of Labor Unions for Anticompetitive Litigation', *80 California Law Review*, 757 ff.
- Lewis, Tracy R. (1980), 'Bonuses and Penalties in Incentive Contracting', *11 Bell Journal of Economics*, 292-301.
- MacDonald, Glenn M. (1982), 'Specific Investments and Nonlabor Income', *13 Bell Journal of Economics*, 225 ff.
- Magee, R.P. (1978), 'Accounting Measurement and Employment Contracts: Current Value Reporting', *9 Bell Journal of Economics*, 145-158.
- Martin, Donald L. (1977), 'The Economics of Employment Termination Rights', *20 Journal of Law and Economics*, 187-204.
- McCall, John, J. (1970), 'The Simple Economics of Incentive Contracting', *60 American Economic Review*, 837-846.
- Murphy, Kevin J. (1986), 'Incentives, Learning, and Compensation: A Theoretical and Empirical Investigation of Managerial Labor Contracts', *17 Rand Journal of Economics*, 59-76.
- Nogler, Luca (1992), 'Una Ventata di Analisi Economica del Diritto in Tema di Contratto di Lavoro a Termine (Nota a Cass., sez. lav., 21 febbraio 1992, n. 2153, Matteucci c. Cassa risp. Città di Castello) (A Wave of Economic Analysis of Law on Forward Employment Contract)', *I Giustizia Civile*, 2104-2105.

- Peltzman, Sam (1987), 'Comment (on R. B. Freeman, 'How Do Public Sector Wages and Employment Respond To Economic Conditions')', in Wise, D. (ed.), *Public Sector Payrolls*, Chicago, IL, University of Chicago Press.
- Petersen, Trond (1991), 'Reward Systems and the Distribution of Wages', *7(S) Journal of Law, Economics, and Organization*, 130-158.
- Plaut, Steven E. (1986), 'Implicit Contracts in the Absence of Enforcement: Note', *76 American Economic Review*, 257-258.
- Rasmusen, Eric and Zenger, Todd (1990), 'Diseconomies of Scale in Employment Contracts', *6 Journal of Law, Economics, and Organization*, 65-92.
- Roemer, J. (1979), 'Divide and Conquer Microfoundations of a Marxian Theory of Wage Discrimination', *10 Bell Journal of Economics*, 695-705.
- Rosen, Sherwin (1982), 'Authority, Control, and the Distribution of Earnings', *13 Bell Journal of Economics*, 311-323.
- Rubin, Paul H. and Shedd, Peter (1981), 'Human Capital and Covenants Not to Compete', *10 Journal of Legal Studies*, 93-110.
- Schwab, Stewart J. (1987), 'Collective Bargaining and the Coase Theorem', *72 Cornell Law Review*, 245-287.
- Schwab, Stewart J. (1992), 'Union Raids, Union Democracy, and the Market for Union Control', *22 University of Illinois Law Review*, 367-416.
- Schwab, Stewart J. (1994), 'Employment Life Cycles and the Employment-At-Will Doctrine', *20 Cornell Law Forum*, 7-11.
- Schwab, Stewart J. (1995), 'The Diversity of Contingent Workers and the Need for Nuanced Policy', *52 Washington and Lee Law Review*, 915-933.
- Schwab, Stewart J. (1996), 'Wrongful Discharge Law and the Search for Third-Party Effects', *Texas Law Review*, 74 ff.
- Shadowen, Steve D. and Voytek, Kenneth (1984), 'Note: Economic and Critical Analyses of the Law of Covenants Not To Compete', *72 Georgetown Law Journal*, 1425-1450.
- Simon, Herbert A. (1951), 'A Formal Theory of the Employment Relationship', *19 Econometrica*, 293-305.
- Sklivas, S.D. (1987), 'The Strategic Choice of Managerial Incentives', *18 Rand Journal of Economics*, 452-460.
- Spier, Kathryn E. and Dana, James D., Jr (1993), 'Expertise and Contingent Fees: The Role of Asymmetric Information in Attorney Compensation', *9 Journal of Law, Economics, and Organization*, 349-367.
- Taylor, John B. (1980), 'Aggregate Dynamics and Staggered Contracts', *88 Journal of Political Economy*, 1-23.
- Topel, Robert H. and Welch, Finis (1986), 'Efficient Labor Contracts with Employment Risk', *17 Rand Journal of Economics*, 490-507.
- Verkerke, J. Hoult (1995), 'An Empirical Perspective on Indefinite Term Employment Contracts: Resolving the Just Cause Debate', *61 Wisconsin Law Review*, 837-918.
- Vogel, Kenneth R. (1983), 'Analysis of Labour Contracts and their Administration Using Transaction Costs Economics', *5 Law and Policy Quarterly*, 129-152.
- Waldman, Michael (1984), 'Job Assignments, Signalling, and Efficiency', *15 Rand Journal of Economics*, 255-267.
- Weitzman, Martin L. (1980), 'Efficient Incentive Contracts', *94 Quarterly Journal of Economics*, 719-730.

- Weitzman, Martin L. (1984), *The Share Economy. Conquering Stagflation*, Cambridge, MA, Harvard University Press, 167 p.
- Williamson, Oliver E., Wachter, Michael L. and Harris, Jeffrey F. (1975), 'Understanding the Employment Relation: The Analysis of Idiosyncratic Exchange', *6 Bell Journal of Economics*, 250-278.
- Willman, Paul (1982), 'Opportunism in Labor Contracting: An Application of the Organizational Failures' Framework', *3 Journal of Economic Behavior and Organization*, 83-98.

Other References

- Akerlof, George A. (1970), 'The Market for 'Lemons': Qualitative Uncertainty and the Market Mechanism', *84 Quarterly Journal of Economics*, 488-500.
- Alchian, Armen A. and Demsetz, Harold (1972), 'Production, Information Costs, and Economic Organization', *62 The American Economic Review*, 777-795.
- Azariadis, Costas (1975), 'Implicit Contracts and Underemployment Equilibria', *83 Journal of Political Economy*, 1183-1202.
- Azariadis, Costas and Stiglitz, Joseph E. (1983), 'Implicit Contracts and Fixed-Price Equilibria', *98 Quarterly Journal of Economics Supplement*, 1-22.
- Baily, Martin N. (1974), 'Wages and Employment under Uncertain Demand', *41 Review of Economic Studies*, 37-50.
- Becker, Gary S. (1962), 'Investment in Human Capital: A Theoretical Analysis', *70 Journal of Political Economy*, S9-49.
- Becker, Gary S. (1975), *Human Capital*, 2nd edn, New York, National Bureau of Economic Research.
- Bhattacharya, Sudipto (1986), 'Tournaments, Termination Schemes and Forcing contracts', Bell Communications Research, Working Paper, December.
- Bosworth, Derek L., Dawkins, Peter J. and Stromback, Thorsten (1996), *The Economics of the Labour Market*, Harlow, Longman, 460 p.
- Büchtemann, Christoph F. and Walwei, Ulrich (1996), 'Employment Security and Dismissal Protection', in Schmid, Günther, O'Reilly, Jacqueline and Schönmann, Klaus (eds), *International Handbook of Labour Market Policy and Evaluation*, Cheltenham, Edward Elgar, 652-693.
- Bull, Clive (1987), 'The Existence of Self Enforcing Implicit Contracts', *102 Quarterly Journal of Economics*, 147-159.
- Carmichael, H. Lorne (1984), 'Reputations in the Labor Market', *74 American Economic Review*, 713-725.
- Carmichael, H. Lorne (1989), 'Self Enforcing Contracts, Shirking, and Life Cycle Incentives', *3 (4) Journal of Economic Perspectives*, 65-83.
- De Geest, Gerrit (1994), *Economische Analyse van het Contracten- en Quasi-Contractenrecht. Een Onderzoek naar de Wetenschappelijke Waarde van de Rechtseconomie* (Economic Analysis of Contract Law and Quasi Contract Law. Research of the Scientific Value of Law and Economics), Antwerpen, Maklu, 568p.
- De Geest, Gerrit, Siegers, Jacques, Jaspers, Teun and Vandenberghe, Ann-Sophie (1999), 'The Right to Lie: New Law and Economics versus Dutch Labour Law?', in De Geest, Gerrit,

- Siegers, Jacques and Van den Bergh, Roger (eds), *Law and Economics in the Labour Market*, Cheltenham, Edward Elgar, forthcoming.
- Douma, Sytse W. and Schreuder, Hein (1998), *Economic Approaches to Organizations*, London, Prentice Hall, 238 p.
- Ehrenberg, Ronald G. and Smith, Robert S. (1997), *Modern Labor Economics. Theory and Public Policy*, Reading, MA, Addison-Wesley, 652 p.
- Elliott, Robert F. (1991), *Labor Economics: A Comparative Text*, London, McGraw-Hill, 536 p.
- Gordon, Donald F. (1974), 'A Neo Classical Theory of Keynesian Unemployment', **12(4) *Economic Inquiry***, 431-459.
- Hart, Oliver D. (1987), 'Incomplete Contracts', in Eatwell, John, Milgate, Murray and Newman, Peter (eds), *The New Palgrave: A Dictionary of Economics*, London, Macmillan, Volume 2, 752-759.
- Hart, Oliver D. and Holmstrom, Bengt (1986), 'The Theory of Contracts', in Bewley, Truman (ed.), *Advances in Economic Theory*, Cambridge, Cambridge University Press.
- Holstrom, Bengt (1981), 'Contractual Models of the Labor Market', **71 *American Economic Review. Papers and Proceedings***, 308-313.
- Klein, Benjamin, Crawford, Robert G. and Alchian, Armen A. (1978), 'Vertical Integration, Appropriable Rents, and the Competitive Contracting Process', **21 *The Journal of Law and Economics***, 297-326.
- Knight, Frank (1921) *Risk, Uncertainty and Profit*, Boston, Houghton Mifflin.
- Lazear, Edward P. (1979), 'Why is there Mandatory Retirement?', **87 *Journal of Political Economy***, 1261-1284.
- Macleod, W. Bentley and Malcomson, James M. (1987), 'Involuntary Unemployment in Dynamic Contract Equilibria', **31 *European Economic Review***, 427-435.
- Macleod, W. Bentley and Malcomson, James M. (1989), 'Implicit Contracts, Incentive Compatibility, and Involuntary Unemployment', **57 *Econometrica***, 447-480.
- MacLeod, W. Bentley and Malcomson, James M. (1993), 'Investments, Holdups, and the Form of Market Contracts', **84 *American Economic Review***, 811-837.
- Malcomson, James M. (1984), 'Work Incentives, Hierarchy, and Internal Labor Markets', **92 *Journal of Political Economy***, 486-507.
- Malcomson, James M. (1986), 'Rank Order Contracts for a Principal with Many Agents', **53 *Review of Economic Studies***, 807-817.
- Malcomson, James M. (1997), 'Contracts, Hold up, and Labor markets', **35 *Journal of Economic Literature***, 1917-1957.
- Manning, A. (1990), 'Implicit Contract Theory', in Sapsford, David and Tzannatos, Zafiris (eds), *Current Issues in Labour Economics*, Basingstoke, Macmillan, 63-85.
- Mincer, Jacob (1962), 'On-The-Job Training: Costs, Returns, and Some Implications', **70 *The Journal of Political Economy***, 50-79.
- Oi, Walter Y. (1962), 'Labor as a Quasi Fixed Factor', **70 *Journal of Political Economy***, 538-555.
- Parsons, Donald O. (1972), 'Specific Human Capital: An Application to Quit Rates and Layoff Rates', **80 *Journal of Political Economy***, 1120-1143.
- Parsons, Donald O. (1986), 'The Employment Relationship: Job Attachment, Work Effort, and the Nature of Contracts', in Ashenfelter, Orley C. and Layard, Richard G., *Handbook of Labor Economics*, Amsterdam, North-Holland, Volume 2, 789-848.

- Pencavel, John H. (1972), 'Wages, Specific Training, and Labor Turnover in U.S. Manufacturing Industries', **13** *International Economic Review*, 53-64.
- Rosen, Sherwin (1994), *Implicit Contract Theory*, Aldershot, Edward Elgar, 467p.
- Salop, J. and Salop Steven C. (1976), 'Self Selection and Turnover in the Labor Market', **90** *Quarterly Journal of Economics*, 619-627.
- Salop, Steven C. (1973), 'Wage Differentials in a Dynamic Theory of the Firm', **6** *Journal of Economic Theory*, 321-344.
- Salop, Steven C. (1979), 'A Model of the Natural Rate of Unemployment', **69** *The American Economic Review*, 117-125.
- Schäfer, Hans-Bernd and Ott, Claus (1993), *Lehrbuch der Ökonomischen Analyse des Zivilrechts* (Handbook of the Economic Analysis of Civil Law), Berlin, Springer-Verlag, 2nd edn.
- Shapiro, Carl and Stiglitz, Joseph E. (1984), 'Equilibrium Unemployment as a Worker Discipline Device', **75** *American Economic Review*, 433-444.
- Smith, Adam (1776), *The Wealth of Nations*, Oxford, Clarendon.
- Spence, Michael (1973), 'Job Market Signaling', **87** *Quarterly Journal of Economics*, 355-374.
- Stiglitz, Joseph E. (1974), 'Alternative Theories of Wage Determination and Unemployment in LDC's: The Labor Turnover Model', **88** *Quarterly Journal of Economics*, 194-227.
- Teulings, Coenraad N (1996), *De Plaats van de Vakbeweging in de Toekomst* (The Future Position of Labour Unions), Amsterdam, Welboom, 96p.
- Weiss, Andrew (1980), 'Job Queues and Layoffs in Labor Markets with Flexible Wages', **88** *Journal of Political Economy*, 526-538.
- Weiss, Andrew (1991), *Efficiency Wages: Models of Unemployment, Layoffs, and Wage Dispersion*, Oxford, Clarendon Press, 118 p.
- Williamson, Oliver E. (1985), *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracts*, New York, Free Press.