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Relational contracts and specific training



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ABSTRACT

This paper explores the implications of specific training for relational contracts. A standard result for sustaining a relational contract is that the parties must jointly receive a surplus over what they can get by separating. This has been interpreted as employees with relational contracts having discretely higher pay and productivity than inherently equally productive, or near equally productive, employees without relational contracts. Investment in specific training relaxes the incentive constraints on relational contracts, so the optimal level of investment can be higher for those with a relational contract than for those without, adding further to the productivity of those employed under a relational contract. But the additional cost of optimal investment precisely offsets the post-investment surplus for marginal employees in relational contracts, which removes the discontinuity in the joint payoff from a relational contract. An example shows that with optimal investment there may not even be a discontinuity in productivity between those employed with a relational contract and those employed without one because the incentive constraints on the former result in lower effort despite their higher training.

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1. Introduction

There is a long tradition in labour economics of labour markets being viewed as segmented in the sense that inherently equally productive, or near equally productive, workers have discretely different labour market outcomes. Early views of this segmentation are reflected in the concepts of dual labour markets used by [Lewis \(1954\)](#) and of separate primary and secondary labour markets discussed by [Doeringer and Piore \(1971\)](#). The reason for it has been a major concern of Dale Mortensen, whose contributions to labour economics this issue honours – see, for example, [Mortensen \(2005\)](#). This paper explores the role relational contracts and specific training might play in generating such outcomes.

The classic unemployment model of [Shapiro and Stiglitz \(1984\)](#) has been reinterpreted by [Bulow and Summers \(1986\)](#) as a model of a dual labour market. In that model, the employed are in a job in which performance is unverifiable in the sense that payment cannot be explicitly contracted on it. Instead, performance is sustained by the possibility that the employment will be ended or its terms made less advantageous in the future. Such arrangements have become known as relational contracts. The unemployed in the original model are reinterpreted by [Bulow and Summers \(1986\)](#) as being employed in less productive jobs in which performance is sufficiently well measured for pay to be explicitly conditioned on performance and so a relational contract is unnecessary to sustain it. In that reinterpretation, there is a discrete jump in productivity, and in the corresponding payoffs, between the two jobs even when there is no difference in the inherent productivity of the employees in them.

Investment in specific training might be expected to increase this jump in productivity. As [Klein and Leffler \(1981\)](#) note in the context of consumer product markets in which the quality of the product is not observable by consumers before purchase, sunk expenditures make it easier to sustain unverifiable performance because they reduce the benefits to firms of

shading current quality at the expense of future business. There is, therefore, an incentive to incur such expenditures beyond the level that would occur if quality were observable in advance. In the context of employment, investment in specific training is a natural form for such expenditure to take. As long as this investment is to some extent productive, it will enhance the productivity of those employed under relational contracts relative to others.

Discontinuities in outcomes have also been attributed to the incentives for training that leave workers in a “low skill trap”. See, for example, [Finegold and Soskice \(1988\)](#) and the papers discussed in [Keep and Mayhew \(1999\)](#). [Burdett and Smith \(2002\)](#) model this formally in the context of a matching market. Workers choose their level of training before they enter the labour market. The training is general, so it is equally valuable in any match they make. Because of the matching framework, there can be multiple equilibria. For a given specification, there can be equilibria with high average skills and high average productivity but also equilibria with low average skills and low average productivity. The primary concern in this literature is comparison between separate labour markets, particularly their relevance to differences in productivity between British and German firms, and the distinct equilibria in [Burdett and Smith \(2002\)](#) correspond to this. But these papers recognize that some employers establish high skill/high productivity jobs alongside low skill/low productivity ones.

The present paper explores formally the implications of specific training in the context of relational contracts. In such settings, specific training has the same role as the sunk expenditures in consumer markets discussed by [Klein and Leffler \(1981\)](#). In the classic treatment in [Becker \(1975\)](#), specific training becomes more valuable when a relationship is longer term in the sense that there is a lower probability of exogenous quits. In a relational contract setting, specific training makes longer term relationships easier to sustain because it increases the benefits of continuing the relationship relative to making an alternative match. That results in a return to specific training over and above the return in a job in which performance can be enforced without a relational contract. This paper demonstrates that formally. Thus, in contrast to the contract literature that has emphasized the *under*-investment in specific training that occurs because of unverifiable information, here there can be *over*-investment in specific training relative to that arising when performance is verifiable.

The possibility of specific training also has implications for the discrete jump in the joint payoff to employer and employee at the start of employment between marginal employees in a relational contract and marginal employees not in a relational contract. In their context of consumer markets, [Klein and Leffler \(1981\)](#) argue that firms cannot earn super-normal profits in a market with free entry and so will incur expenditures that drive profits to zero. But the conclusion that firms would receive super-normal profits in the absence of such expenditures is a consequence of consumers paying a constant price for purchasing the product.¹ More generally, as [MacLeod and Malcomson \(1989\)](#) show, where (as in employment) bonuses and back-loading of payments can be used in addition to fixed wages, the gain from a relational contract can be divided in any way between the two parties, so there is no need for a particular party to receive more than it could get from alternatives available elsewhere. Which party receives the benefit then depends on market characteristics, see [MacLeod and Malcomson \(1998\)](#). But at least one party must still receive a payoff from a relational contract discretely higher than available elsewhere.

The present paper shows that the possibility of specific training changes things. Provided all those employed under a relational contract receive some specific training, the discontinuity in the joint payoff to employer and employee at the start of employment between marginal employees with a relational contract and marginal employees without one is removed. Essentially, the amount of specific training under the relational contract is adjusted so that these joint payoffs are equated for the marginal employee. This result does not come from the free entry argument in [Klein and Leffler \(1981\)](#) – it is the outcome the parties choose independently of assumptions about entry. Perhaps even more starkly, an example shows that, when the only advantage of jobs with relational contracts is that specific training is valuable in them, there may not even be a discrete jump in productivity between marginal employees in the two types of jobs – the increase in productivity from investment is precisely offset by the lower effort resulting from the additional incentive constraints on a relational contract.

This paper is organized as follows. The next section sets out the model and the assumptions used for the analysis. [Section 3](#) analyses jobs with relational contracts. [Section 4](#) studies the interaction of jobs with relational contracts and those without. [Section 5](#) illustrates the results with a specific example. Proofs of results are in an appendix.

2. The model

There are two types of jobs that differ in the extent to which specific training adds to productivity. Both can potentially continue indefinitely. In training (*T*) jobs, specific training is productive but an employee's performance is unverifiable, so payment explicitly conditional on performance is not possible. In non-training (*NT*) jobs, specific training is not productive but an employee's performance is verifiable, so payment can be made explicitly contingent on that performance. There are differences between employees that affect their productivity in the two types of jobs.

Output in a *T* job in period *t* is $y(e_t, I, \theta)$, where $e_t \in [0, \bar{e}]$ is the employee's effort at *t*, $I \in [0, \bar{I}]$ is the investment in specific training for the employee at the start of the relationship and $\theta \in [\underline{\theta}, \bar{\theta}]$ is the employee's inherent type that affects productivity, with higher θ resulting in lower output for given (e_t, I) . (An employee's *type* could reflect an inherent general skill that is transferable between the two types of jobs.) An employee's type is observed by both employer and employee

¹ It is similarly a consequence of payment in [Shapiro and Stiglitz \(1984\)](#) being restricted to a constant wage that the benefit from the relational contract is captured by employees in the form of efficiency wages.

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