

## Comment

on 'Labour Markets from the Microeconomic Perspective: Implicit Contract Theory'

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One of the most difficult and important issues for macroeconomic theory and policy is the seeming rigidity of wages, even in the face of substantial unemployment. Seen through neo-classical eyes this apparent fact is a problem of considerable magnitude since it seems to imply that wage changes do not reflect variations in excess labour supply. A series of theoretical developments, known generally as implicit contract theory (ICT), have recently been promoted in attempts to explain the anomaly, and it is this literature that Judith Sloan and Mark Wooden have reviewed.

We owe Sloan and Wooden a vote of thanks for presenting a useful overview of a difficult literature. It is easy to imagine economists choosing to avoid coming to grips with ICT, for the intricacies and technical sophistication of what is essentially an application of Walrasian general equilibrium theory are not easily mastered. Yet this literature represents an important contemporary effort to understand the most intractable problem in macroeconomics and so deserves to be given a careful and informed hearing.

In this discussion I focus on some of the problems of the various forms of ICT. I argue that while no version is presently satisfactory, the 'invisible handshake' story can be made so through an additional assumption. The exercise complements, rather than contradicts, Sloan and Wooden's paper, and draws heavily on their lucid descriptions of theoretical developments.

Implicit contract theories of the risk-sharing (ICT1) and 'invisible handshake' (ICT2) varieties both attempt to explain a stylised fact about labour markets: the insensitivity of nominal (and, more recently, real) wages to changes in the aggregate demand for and supply of labour. But they do so from very different assumptions. It is the contention of the discussion below that neither perspective is convincing without the prin-

ciple insight of the competing model. It is further argued that incorporating the major assumption of ICT1 into ICT2 allows the development of a logical and consistent basis for understanding much of labour market experience.

The essential requirement of ICT1 models is the view that workers are risk-averse and, hence, prefer income-smoothing arrangements such that real wages are invariant to the vagaries of short-run supply and demand factors. Importantly, these models assume that labour is homogeneous, an approach justified by Azariadis and Stiglitz (1983) in the following way in a critique of the specific human capital literature: 'the technical heterogeneity of labour that is crucial for this argument is itself an unnecessary complication in traditional macroeconomic models that are built on the simpler assumptions of homogeneous inputs and zero transactions costs'.<sup>1</sup> It is on this point that ICT1 and ICT2 models diverge, for the essential glue holding firms and workers together in the latter model is the sharing between the parties of investments in specific human capital,<sup>2</sup> a process that necessarily implies heterogeneous labour. Thus one question of interest is, what is the necessity or otherwise for ICT of the assumption of technical heterogeneity of labour? Sloan and Wooden review the history of the major objections raised with respect to ICT1, and it is useful to retrace these with the above question in mind.

First, why should risk-averse workers prefer lay-offs to wage fluctuations? This question has been raised by Akerlof and Miyazaki (1980), Thurow (1983) and Olson (1982), the last with the observation that 'people are risk averse, as implicit contract

theory rightly assumes, so that, other things being equal, they will prefer to enter into contracts that reduce the probability of layoffs'.<sup>3</sup> The income-smoothing implied by risk-aversion requires both constant wages and no lay-offs.

Second, why should the firm always keep the faith? The argument offered is that of reputation, but it must be acknowledged that there are situations in which renegeing is optimal. In particular, the short-term interest rate payments on wages saved may exceed the benefits of maintained reputation. The possibility of contract violation is not absurd and depends to some extent on discount rates and potential workers' memories of the renegeing.<sup>4</sup>

Third, ICT1, in its most recent versions, relies on the concept of asymmetric information. But this is a difficult argument to sustain over any period longer than the very short-run, such as the Great Depression or the experience of the 1970s. Moreover, if reputation matters, it stands to reason that firms exploiting initial informational advantages must over time pay a penalty.

ICT2 explicitly rejects the notion of homogeneous labour. Unemployed workers are quite different from employed workers, and this perception leads directly to the prediction that increases in the supply of unemployed labour will have little effect on real wages paid. However, this version of ICT says nothing about workers' risk-preferences, an omission that leads to a difficulty in explaining income-smoothing. If workers are not risk-averse, what is there to stop the firm from varying wages to reflect changes in the value of the workers' (albeit, firm-specific) marginal product? ICT2 will rightly predict the insensitivity of wages to changes in the *economy's* business cycle, but has problems in explaining wage rigidity over the course of the *firm's*

1 Azariadis and Stiglitz (1983, p. 3).

2 See Becker (1962) for the original idea. Hall (1980) and Okun (1981) argue the same case, although the latter puts most emphasis on the 'toll', or hiring costs.

3 Olson (1982, p. 192).

4 See Stiglitz (1984).

\* Sue Richardson made useful comments on an earlier draft.

business cycle.

The problems of ICT1 are resolvable with an expansion of the model to allow firm-specific training investments. It is more straightforward however, to rescue ICT2 with the assumption of worker risk-aversion. The basis of the reconstituted model is explained below.

The essence of the 'invisible handshake' or specific training models is that employment will be smoothed over the firm's business cycle. That is, labour hoarding exists, because firms and workers do not wish to forgo their expected returns from past specific investments. Shared investments mean less lay-offs and less quits.

Further, shared investments enforce the contract, thus no allusion to asymmetric information is necessary. If firms renege on the long-term employment agreement for some workers, they increase the possibility that workers will leave eventually, taking the firm's future investment returns with them. This would be of much less significance in a world of homogeneous labour since in such a situation the firm will be indifferent between current and potential employees. 'Reputation' is thus not a nebulous concept in a specific training world, since only workers employed in the firm need observe the firm's poor behaviour for it to have long-term profit consequences. The important point is that 'reputation' particularly matters when some labour resources have specific training investments.

There is nothing so far in this model that leads to income-smoothing, and this is where the principle insight of ICT1 is useful. If workers are risk-averse, they will be prepared to pay a premium to ensure a predictable wage stream. On the other hand, if workers are concerned only with the long-run level of discounted returns to past investments, the variance of the stream will not matter and firms will be prepared to change wages to reflect short-run variations in the value of workers' (firm-specific) marginal productivities. In the absence of transactions costs, risk-aversion is an essential component of a model seeking to

explain wage insensitivity to demand fluctuations.

The above brief exposition of the microeconomics of labour markets is an amalgam of the various streams of thought that go to make up ICT. Its foundation is neo-classical in origin and to some extent it incorporates features of human capital theory, Okun's 'invisible handshake', and internal labour market theory. It relies explicitly on the assumption that workers are risk-averse and prefer income (and employment) smoothing, but because of the assumed existence of specific investments the model avoids some of the *ad hocery* of ICT1.

On what grounds should the impartial observer of labour markets prefer the above model to ICT1, ICT2, or indeed, to internal labour market theory (ILMT), the candidate nominated for the prize by Sloan and Wooden? One criterion would be the consistency of prediction with observed empirical regularities, and it is here that the modified model does well. The following list of 'stylised facts' provides ammunition for this claim:

1. Job turnover is concentrated on individuals with low levels of measured specific training.<sup>5</sup>
2. Labour hoarding exists, a fact that explains the pro-cyclical movements in labour productivity.
3. Workers tend to hold jobs for considerable lengths of time.
4. Overtime and vested pension schemes are commonplace.
5. A negative relationship exists between job starting salaries and rates

<sup>5</sup> Indirect tests of this proposition have been carried out, as well as the obvious (and pervasively found) negative relationship between time on-the-job and turnover probabilities. See, for example, Chapman (1982).

of growth of wages on-the-job.<sup>6</sup>

6. Wages paid are invariant to short-term fluctuations in the value of the marginal product.

ICT2 has no difficulty explaining observations 1 to 5, but requires risk-aversion to be consistent with point 6. Okun's allusion to 'fairness' is insufficient because it fails to explain why income-smoothing is 'fair'. Risk-aversion in an insurance context will be fair if workers are trading part of their wage level for low wage variance.

ILMT in its original form has problems explaining observation 5, because of its general reliance on the notion that labour markets are segmented.<sup>7</sup> If this is the case there is no reason to expect there to be tendencies towards the equalisation across jobs of discounted wages. Moreover, the existence of occupational upgrading poses an important dilemma for models assuming segmentation.<sup>8</sup>

In summary, empirical realities seem to be reasonably consistently handled by ICT2, but the model lacks formalism and a convincing explanation for short-run deviations between the value of marginal product and the wage paid. Neo-classical human capital theory provides the former and the basic assumption of ICT1, worker risk-aversion, provides the latter. Internal labour market theory descriptively captures much of the essence of labour markets but, at least in its segmented labour market version, has problems with empirical evidence. Thus, while I support the flavour of Sloan and Wooden's review, we diverge somewhat on our final judgements of the power of particular models.

<sup>6</sup> See Chapman and Tan (1980).

<sup>7</sup> See Doeringer and Piore (1971).

<sup>8</sup> For example, see Blandy *et al.* (1977), for evidence on immigrants to the Australian economy.

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