

# Can Unemployment Be Involuntary?: Reply

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The central message of the efficiency wage models<sup>1</sup> is that firms may not lower their wages, even in the face of unemployment, if net productivity depends on wages. Lower wages could increase rather than decrease a firm's net labor costs. As a result, wage rigidities and unemployment arise in efficiency wage models.

Since these models were first promulgated, labor market economists have questioned whether one could avoid involuntary unemployment with more complex contractual arrangements. In the context of the labor turnover model, the question has been asked, "Could not workers themselves pay for the turnover costs?" Lorne Carmichael, in his comment on our 1984 paper, poses the question, "Could not individuals purchase their jobs? If they could, would not the 'price of a job' clear the 'market for jobs,' in the sense that a marginal individual would be indifferent between remaining unemployed and purchasing a job?"

At one level, the issue here is just a matter of semantics. It is little different from the old story that so long as there is a competitive labor market anywhere in the economy (grape picking in California) all unemployment must be voluntary, since any individual could have moved to California ("purchased a job"). To us, the fact that during the Great Depression 20 or 25 percent of the labor force in Chicago, workers who were once gainfully employed,

were sitting idle at home, willing to work at the going wage in Chicago, suggests a massive market failure, regardless of whether one says that, because of their decision not to migrate to California, they were voluntarily unemployed. As Carmichael points out in his comment, even if the market for job openings operated smoothly, there still might be unemployment; only the label we attach to that unemployment would change.

Our concern in developing the efficiency wage model has been to help explain the level of unemployment and its fluctuations, and to ascertain whether, under the stipulated circumstances, the market outcome is efficient. Our paper shows that the market outcome is generally *not* efficient, regardless of how one labels the unemployment. This would be true whether firms could charge applicants for jobs or not. There are grounds for government intervention to alter the unemployment rate. At the same time, our analysis provides an important caution to government policy: some policies, such as mandatory unemployment insurance, aimed at alleviating the problems of the unemployed, may actually lower welfare and increase the level of unemployment. These results are quite independent of whether the unemployment is labelled voluntary or not.

The efficiency wage theory also provides an explanation of wage dynamics: it explains why one firm may be slow to lower its wages, until other firms do so. In fact, in the labor turnover version (Stiglitz, 1974) there may exist multiple equilibria. There may exist a high-wage equilibrium with a high level of unemployment and a low-wage equilibrium with a low level of unemployment. This result is also independent of the feasibility of workers buying their jobs.

There is a second level at which the possibility of entrance fees for jobs is not of much concern: the fact of the matter is, in modern economies individuals do not for the most part purchase jobs. Workers also do not bear

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<sup>1</sup>These models have a long history. References to the importance of the connection between worker quality and productivity can be found in Marshall (1928) and Weber (1925). The more recent interest in development economics dates to the work of J. Leibenstein (1957), James Mirrlees (1975), and Stiglitz (1976). In macroeconomics, early contributions include those of Stiglitz (1974), Steven Salop (1979), Andrew Weiss (1980), and G. A. Calvo (1979). For a more extensive survey, see Stiglitz (1984).

all of the training and turnover costs themselves, so firms are concerned with the turnover of their labor force. Therefore, the efficiency wage theory is directly relevant.

Still, the *possibility* that individuals might purchase jobs or pay for their training costs poses two difficult questions to which we have given some thought over the past few years. First, *why* do we not see job purchases more frequently? Second, are there conditions under which there is unemployment (job rationing) in the narrow sense of the word despite the possibility of entrance fees?

The answer to the second question is "yes." Indeed, the original nutritional wage productivity models are precisely of that form: forcing individuals to accumulate capital to finance a job purchase may have deleterious effects on their on-the-job productivity. But even in more developed economies, the answer may be yes. Among individuals with capital, it may be the less able that apply for employment at any given "job price;" the more able can do better by being self-employed. Thus, as the price of a job is increased, the mix of applicants may change adversely. These quality-efficiency wage effects interact with the incentive-efficiency wage effects in such a way as to result in unemployment.

Efficiency wage theory provides further insights into why firms may not be able to charge the market-clearing price for jobs (besides the adverse selection effects that arise when the price of a job is increased). There may also be important incentive effects: workers' incentives may be adversely affected if they feel that they have been unfairly treated. In terms of our model, effort  $e$  may decrease, and the propensity to quit,  $b$ , may increase with increases in the entrance fee at a particular job. These changes will necessitate a higher wage  $w$ , in order to induce workers not to shirk. The firm's total wage costs may actually increase as a result of increasing the price charged for the job.

But this is not the only argument against the use of fees for purchasing jobs. Another important theoretical argument against entrance fees is the double moral hazard problem: individuals will be concerned about putting money up front, less the firm take

their money and either fire them or make their job so unpleasant as to induce them to quit. Though there are ways of mitigating this firm moral hazard problem, such as relying on firms' reputations, none are fully satisfactory. Even small entrance fees can reduce (discontinuously) the demand for jobs, since firms could simply go into the business of collecting entrance fees and then firing workers. In our 1984 paper, we discussed bonding at some length; entrance fees are a particular way in which employees might post bonds.

Firm moral hazard problems, and the incentive and adverse selection effects of charging entrance fees for jobs, are each sufficient to explain why job purchases are not more prevalent, and why, even where they might exist, the market for jobs may not function well.

Carmichael is right, however, in pointing out that other arguments sometimes put forward against the efficacy of job purchases cannot explain involuntary unemployment (in the particular sense in which he uses the term). Thus, limitations on individuals' capital may explain why the price for jobs is low, but so long as individuals have some capital, the marginal individual will be indifferent between remaining unemployed and buying a job.

In other contexts, R. Arnott and Stiglitz (1985) have shown how risk aversion implies that workers will not pay all of their specific training costs. Similarly, risk aversion explains why individuals might be loathe to pay for a job, since there is some chance that they will be ill-matched for the job (or otherwise have to leave the job), in which case the money they have put up front will be lost. But again, risk aversion will explain why the price for obtaining a job will be low, not the persistence of involuntary unemployment.

The fact that these particular arguments—imperfect capital markets and risk aversion—cannot explain involuntary unemployment does not, in any way, reduce the force of our earlier arguments (based on efficiency wage and moral hazard considerations) for why jobs are not typically purchased, and for why, even when they are, the market for jobs does not clear.

To us, involuntary unemployment is a real and important phenomenon with grave social consequences that needs to be explained and understood. No single, simple model will provide the explanation. But simple models can provide us insights into its various aspects and facets. The efficiency wage models (either the incentive version, as we presented it, the quality version, or the turnover version) provide us with a simple, basic insight: firms may not lower wages when doing so lowers workers' net productivity. And the effect of any wage reduction on net productivity at a given firm generally depends upon the wages being paid by other firms.

Unemployment was a problem before minimum wage legislation was passed. Such legislation may well have exacerbated the unemployment problem. But to suggest, as Carmichael does, that unemployment problems would disappear in the absence of minimum wages or other governmental interferences with the market is to fly in the face of history and common sense.

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