THE IMPOSSIBILITY OF INVOLUNTARY UNEMPLOYMENT IN NEW KEYNESIAN EFFICIENCY WAGE MODELS

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INTRODUCTION

Economists of the "Classical" school believe that freely functioning markets lead to market-clearing equilibrium outcomes that are Pareto optimal. In this vein, they have attacked New Keynesian efficiency wage models for depicting involuntary unemployment resulting from the failure of the "price" in the labor market to effectively fluctuate. Keynesian economists who are not New Keynesians have also criticized these models.

The purpose of this paper is to show explicitly why New Keynesian efficiency wage models cannot depict involuntary unemployment. New Keynesians do provide intuitive rationales for the efficiency wage effect. Empirical confirmation of the efficiency wage effect offers some support for their theories [Pernecky, 1990]. New Keynesians also re-elevate the importance of providing an explanation for the pressing social problem of involuntary unemployment. But they fail in this theoretical explanation because they adopt the New Classical goal of utilizing neoclassical microfoundations to explain macroeconomic phenomena.

Paul Davidson notes the impossibility of providing neoclassical microfoundations for involuntary unemployment. He further recognizes the need to replace wage rigidity with insufficient effective demand to explain involuntary unemployment. He also refutes the idea that rigid wages create involuntary unemployment by emphasizing the positive influence of wages on aggregate demand [Davidson, 1978, 452-3, 457]. This paper extends these ideas, utilizing New Classical criticisms of New Keynesian efficiency wage models, as well as New Keynesian responses, to identify and explain the specific reasons for the inconsistency between involuntary unemployment and neoclassical microfoundations. The New Keynesian inclusion of the Classical production function helps to create this inconsistency. Also, methodological problems exist in the New Keynesian attempt to model involuntary unemployment within a fundamentally New Classical framework.

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RATIONALITY, RIGID WAGES, AND INVOLUNTARY UNEMPLOYMENT

In both New Classical and New Keynesian models, rationality requires that a person choose the least costly method for achieving an objective. Or, conversely, the dual holds that a rational person chooses an alternative which produces the greatest utility or profits given some constraint. Theoretically, rational choices are made from an infinite number of alternatives. Information gaps concerning these alternatives are either assumed not to exist or to close quickly. Both New Classical and New Keynesian theories either assume perfect information or rational expectations [Gordon, 1990, 1137].

However, unlike the New Classical case, rational agents in New Keynesian efficiency wage theories choose a wage that does not respond to exogenous shocks to the labor market. As a result, involuntary unemployment develops; wages do not fluctuate to clear labor markets [Shapiro and Stiglitz, 1984, 434-8]. As a definitional matter, involuntary unemployment exists if firms' wage offers exceed the unemployed workers' reservation wages but there are no vacancies [Carmichael, 1985, 1213].

NEW KEYNESIAN EFFICIENCY WAGE MODELS

New Keynesians base the importance of wage rigidity, in part, on Keynes's rejection of the "second postulate" of Classical economic theory; only labor demand, not labor supply, plays a role in determining wages [Keynes, 1936, 10-13]. They essentially accept the *New Classical misinterpretation* that Keynes's theory can be summarized as "the Classical Model with rigid wages" [Sargent, 1979, 18, 46]. In keeping with the Classical Model, New Keynesians even highlight monetary shocks as the sole (or at least primary) source of aggregate demand fluctuations [Mankiw, 1985, 529-37]. However, the source of the shock tends to be ancillary in these models; the focus is on seeking rationales for, and understanding the implications of, rigid (real) wages [Gordon, 1990, 1117, 1135; Greenwald and Stiglitz, 1993, 26].

New Keynesians focus on wage rigidity in differentiating themselves from New Classicals to answer the following New Classical criticism of Keynes, as stated by Charles Plosser: "The essential flaw in the Keynesian interpretation of macroeconomic phenomenon was the absence of a consistent foundation based on the choice theoretic framework of microeconomics" [1989, 51].[1] The efficiency wage assumption attempts to provide a microfoundation for wage rigidity in New Keynesian efficiency wage models. According to this assumption, the wage positively affects productivity. Thus, employers in a labor market do not cut wages in light of a fall in labor demand because the consequent loss in productivity would raise unit labor costs and reduce profits. More specifically, in various New Keynesian efficiency wage models, lower wages (1) increase shirking by reducing the opportunity cost of dismissal, (2) raise turnover costs, (3) adversely affect the quality of job applicants, or (4) invite a "gift" from workers of lower productivity [Gordon, 1990, 1157].

New Keynesians note that a worker-paid bond which workers would forfeit if caught shirking would not provide a viable alternative to involuntary unemployment as a disciplining device. A moral hazard problem would result. Employers could unjustly dismiss non-shirking workers in order to expropriate the bond [Shapiro and Stiglitz, 1984, 442].[2]

NEW CLASSICAL CRITICISMS

New Classical economists effectively negate the New Keynesian strategy of explaining involuntary unemployment in a fundamentally neoclassical labor market. New Classicals reject the New Keynesian usage of the neoclassical microfoundations framework because they view most wage rigidity as a sign of irrational behavior. They wonder why rational people would fail to take advantage of the unexploited gains associated with rigid wages. Specifically, they ask why rational workers in New Keynesian models choose a situation where the non-work decision by the unemployed is rationally inferior to working but employment cannot be obtained [Barro, 1979, 54]. They also question these theories for not allowing profit-maximizing employers to offer lower wages to involuntarily unemployed workers [Carmichael, 1985, 1213-4].

New Classicals have responded to New Keynesian efficiency wage theory by developing models in which higher wages enhance productivity but there is no involuntary unemployment. Any unemployment results from voluntary contracting, and therefore must be voluntary. For instance, in tournament models, higher wages established for certain job slots are considered akin to "prizes" which enhance the productivities of all of the "contestants" [Lazear and Rosen, 1981]. Or, as noted earlier, they can make an up-front expenditure in the form of a bond that they would forfeit if found shirking. An upward-sloping age-earnings profile represents such a bond. In it, the expected lifetime values of the wage and marginal product are equal, although the spot wage and the spot value of marginal product are not. Workers choose to post such a bond because it yields greater lifetime utility. The model includes the efficiency wage effect because the higher lifetime wages enhance lifetime productivity [Lazear, 1981, 609-11, 617-8]. New Classicals believe that the bond can negate involuntary unemployment in the shirking and turnover cost versions of efficiency wage theory, as well as in some adverse selection models [Carmichael, 1990, 277-88].

Thus, New Classicals have produced models based upon neoclassical microfoundations which include the efficiency wage effect but preclude involuntary unemployment. The theoretical possibility of a rational alternative repudiates the New Keynesian view that the efficiency wage effect, built on these foundations, yields involuntary unemployment; rational agents would choose otherwise. The empirical existence of the upward-sloping age-earnings profile lends further support to this refutation [Lazear, 1981, 606].

New Classicals do have a response to the argument that the bond would result in unjust dismissals. They believe that the firm's fear of developing a bad reputation would prohibit this moral hazard in light of competitive pressures from rival firms [Lazear, 1981, 607-08]. Thus, the ability of New Keynesians to explain involuntary unemployment with neoclassical microfoundations seems to collapse to contending that competition is not sufficient to keep firms from unjustly dismissing workers. Of course, if upward sloping age-earnings profiles provide empirical examples of bonds, then even this small theoretical addition becomes discredited.

The debate between New Classicals and New Keynesians over these issues has left at least two members of the latter camp with doubts concerning its ability to provide adequate microfoundations for wage rigidities. George Akerlof and Janet Yellen write,

> [T]he introduction of ... imperfections has still not provided a *total* rationalization of Keynesian economics when judged according to the rule that the proposed theory be *fully* consistent with rational optimizing behavior and the absence of unexploited gains from trade. In the end, it invariably turns out either that there is an unrealistic assumption or that some clever, complicated neoclassical contract will eliminate involuntary unemployment. For example, most versions of efficiency wage theory which are grounded in optimizing behavior suffer from the 'defect' that there exist contracts which, while rarely observed, are feasible in principle (for example, employment bonds, job auctions, tournament contracts) and can eliminate involuntary unemployment if firms can establish reputations for trustworthy labor relations. [1987, 138]

Another New Classical strategy has been to develop models which exclude the efficiency wage effect, but where rational agents choose rigid wages. In these theories, risk-averse workers can receive unemployment insurance so that the non-work choice is not inferior to the employment solution for those unemployed. Thus, only voluntary unemployment occurs in the face of this wage rigidity [Gordon, 1990, 1154-5].

Other theoretical alternatives to involuntary unemployment in a fundamentally neoclassical labor market also exist. For instance, the unemployed could become self-employed. Indeed, some New Classicals completely blur the line between employer and employee. Models which base labor supply decisions upon specific versus general price changes, or real business cycle models in which there are dynamic labor supply decisions, both provide examples where the worker/capitalist is a single agent who determines output [Lucas, 1973, 326-30; Plosser, 1989, 52-5]. Still, even if employers and workers are depicted as having distinct roles, when adequate information and an absence of barriers to entry are assumed, anyone can be an employee, an employer, or both.

Furthermore, if unemployed workers could not rent start-up capital individually, they could pool their savings and form a worker-owned enterprise. Or, new firm entrants who are able to exploit a more profitable wage-effort bargain could hire the unemployed [Mason, 1993, 434-5]. Involuntary unemployment need not occur.

METHODOLOGICAL ISSUES IN ADDRESSING INVOLUNTARY UNEMPLOYMENT

Theories do not exist in a vacuum. They are influenced by, and in turn affect, a methodology. Theories and methodologies are also interwoven with certain ultimate goals [Laudan, 1984, 62-3]. One such goal for New Classicals is to demonstrate that activist government intervention is ineffective and unnecessary. As noted earlier, they also seek to provide theoretical consistency between macroeconomics and neoclassical microeconomics [Davidson, 1992, 451]. In terms of the methodology, New Classicals espouse instrumentalism; theories are to be judged solely by their predictive power, not by their realism [Friedman, 1953]. In practice, New Classicals tend to rely on deduction from neoclassical principles rather than inductively utilizing more realistic concepts. These espoused and practiced methodologies mutually reinforce the reduced importance given to realism. When combined with New Classical goals, they allow for the theoretical dismissal of such realistic ideas as (1) the inability of markets to clear continuously (for institutional or other reasons which may be rational), (2) the crucial distinction between the roles of employers and employees, (3) the non-neutrality of money, and (4) the existence of involuntary unemployment. As to the last idea, New Classicals believe that an unemployed worker can always find some job, even if it is one he/she would be extremely over-qualified for, and which pays substantially less than his/her previous job [Lucas, 1981, 242-3]. Thus, for example, a laid-off accountant who refuses to work as a migrant farm worker, if that is his/her best alternative, must still be considered voluntarily unemployed.[3]

New Keynesians, on the other hand, find involuntary unemployment to be prevalent, empirically.

> 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. [Shapiro and Stiglitz, 1985, 1217]

To summarize so far, New Keynesians attempt to include the realistic ideas of the efficiency wage effect, wage rigidity, and involuntary unemployment within a fundamentally New Classical framework. Their most basic problem in explaining involuntary unemployment follows from adopting the New Classical strategy of utilizing neoclassical microfoundations [Davidson, 1992, 449-52]. This New Classical approach cannot be so adapted because it can generate market alternatives to involuntary unemployment. The Pareto-inferior outcomes in New Keynesian efficiency wage models need not obtain. Unemployed workers who would not accept such alternatives could not be considered to be involuntarily unemployed.

To explain involuntary unemployment, New Keynesians should, instead, fundamentally differentiate their research from the New Classicals. Other Keynesian economists offer a productive and clear divergence. Such models rely on greater realism and inductive reasoning [Blinder, 1987, 135][4]. The theoretical usage of effective demand rather than the production function reflects these methodological concerns.

THE IMPORTANCE OF THE PRODUCTION FUNCTION

The New Keynesian usage of the Classical aggregate production function exemplifies the problematic nature of providing microfoundations for involuntary unemployment. According to the short-run aggregate production function, total output depends solely on the summation of microeconomic decisions in labor markets; "employment drives output." The occasional usage of a representative rather than an aggregate production function makes no substantive difference. A decline in the wage always enhances employment and thus output in the short run. Thus, if rational employers and employees solely determine employment levels, why would they choose a situation involving some involuntary unemployment?

A theory of the determination of employment based on *aggregate* effective demand would provide an explanation of involuntary unemployment, and be more Keynesian. If "output drives employment," involuntary unemployment would result from insufficient aggregate demand, and thus effective demand, regardless of wage rigidity.[5] Indeed, wage rigidity could be helpful; wage reductions could worsen involuntary unemployment by lowering effective demand [Davidson, 1992, 453; Keynes, 1936, 18, 257-81]. In a theory which highlights insufficient effective demand as the cause of involuntary unemployment, employers and employees would be constrained from "choosing" full employment.

Such a theory would also adequately meet the Keynesian (and Post Keynesian) goal of theoretically demonstrating the effectiveness of policies which address real world problems [Pernecky 1992a, 48-50; Pernecky, 1992b, 131]. New Keynesians do intend to demonstrate policy effectiveness theoretically [Greenwald and Stiglitz, 1987, 131-32]. But, according to Davidson, basing a theory of involuntary unemployment on wage rigidity implies that the market solution of wage flexibility, not government intervention, is required [Davidson, 1992, 450, 456-57]. New Keynesians would respond that the market cannot remove the rigidity because it rationally results from the efficiency wage effect, which has no "market solution". As noted, New Classicals *do* answer with market solutions to involuntary unemployment, such as the bond. But more fundamentally, New Keynesians cannot theoretically justify government intervention to reduce involuntary unemployment because they cannot adequately model involuntary unemployment.

CONCLUSIONS

New Keynesians do utilize Keynes's own insights into rational microeconomic reasons for wage rigidities based on relative wage concerns, while adding a number of important new ones [Keynes, 1936, 14, 264; Summers, 1988, 383-6]. Unfortunately, they do not focus on Keynes's message that involuntary unemployment results from insufficient effective demand, not rigid wages, and that cutting wages would probably increase involuntary unemployment. Nor have they heeded Keynes's warnings that the Classical model could not be used to explain involuntary unemployment. Specifically, a rigid wage would be based on the recalcitrance of workers if introduced into the Classical framework, and thus unemployment would still be considered voluntary. Keynes wrote,

> The classical school [states that] while the demand for labour at the existing money-wage may be satisfied before everyone willing to work at this wage is employed, this situation is due to an open or tacit agreement amongst workers not to work for less, and that if labour as a whole would agree to a reduction of money-wages more employment would be forthcoming. If this is the case, such unemployment, though apparently involuntary, is not strictly so, and ought to be included under the above category of 'voluntary' unemployment due to the effects of collective bargaining, etc. [1936, 7-8]

Keynes's assessment of this Classical approach could cogently apply to the real wage, as well as the money-wage.

As Thomas Kuhn notes, concepts within alternative paradigms are often misunderstood [Kuhn, 1970, 267-77]. The inclusion of the "foreign" idea of a rigid wage, when introduced into the New Classical paradigm, not surprisingly seems *ad hoc* to New Classicals. Because the goals, the methodology, and the theory need be consistent, it is also not surprising that this New Keynesian strategy has not succeeded.

Still, even with these fundamental problems, the current macroeconomic debate centers around "New Classical versus New Keynesian" economics. The following words of Keynes, unfortunately, are as insightful today as they were almost sixty years ago.

> Obviously, however, if the classical theory is only applicable to the case of full employment, it is fallacious to apply it to the problems of involuntary unemployment — if there be such a thing (and who will deny it?). The classical theorists resemble Euclidean geometers in a non-Euclidean world who, discovering that in experience straight lines apparently parallel often meet, rebuke the lines for not keeping

straight — as the only remedy for the unfortunate collisions which are occurring. Yet, in truth, there is no remedy except to throw over the axiom of parallels and to work out a non-Euclidean geometry. Something similar is required to-day (sic) in economics. [1936, 16]

NOTES

1. Robert Gordon notes that,

   The development of new-Keynesian economics in the past decade has primarily involved the search for rigorous and convincing models of wage and/or price stickiness based on maximizing behavior and rational expectations. [1990, 1137]

   In the words of two New Keynesians,

   [Our] approach seeks to adapt microtheory to macrotheory. For the want of a better term, one can refer to it as the New Keynesian Economics. The phenomena of unemployment, credit rationing and business cycles are inconsistent with standard microeconomic theory. New Keynesian Economics aims to develop a microtheory that can account for them. [Greenwald and Stiglitz, 1987, 120]

2. New Keynesian responses to the criticisms concerning the bond as a theoretical alternative to involuntary unemployment include: (1) the lack of wealth held by workers to post a bond, (2) the inability to finance such bonds due to imperfect capital markets, and (3) the moral hazard problem that would result as employers would unjustly dismiss workers in order to expropriate the bond [Shapiro and Stiglitz, 1985, 1216]. New Keynesians admit that imperfect capital markets are an insufficient rejoinder as long as the unemployed worker owns some capital. However, they maintain that the moral hazard consideration combined with the efficiency wage effects provide good reasons for the inadequacy of a bond. They doubt that firms are concerned enough about developing a bad reputation to sufficiently reduce the moral hazard problem. Shapiro and Stiglitz write,

   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. [1985, 1216]

3. Robert Lucas writes,

   [T]he unemployed worker at any time can always find *some* job at once, and a firm can always fill a vacancy instantaneously. That neither does so *by choice* is not difficult to understand given the quality of the jobs and the employees which are easiest to find. Thus, there is an involuntary element in *all* unemployment in the sense that no one chooses bad luck over good; there is also a voluntary element in all unemployment, in the sense that however miserable one's current work options, one can always choose to accept them. [1981, 242]

   Lucas also dismisses involuntary unemployment by positing that,

   [I]nvoluntary unemployment is not a fact or a phenomenon which it is the task of theorists to explain. It is, on the contrary, a theoretical construct which Keynes introduced in the hope that it would be helpful in discovering a correct explanation for a genuine phenomenon; large-scale fluctuations in measured, total unemployment. [ibid., 243]

4. Alan Blinder sums up many of the methodological differences between New Classical economists and Keynesian economists who are not New Keynesians. He writes,

   Lapses from what Lucas called "the only 'engine for the discovery of truth' " are one of the chief grounds on which Keynesianism is branded unscientific ... The issue is how religiously we must adhere to frictionless neoclassical optimizing principles until that glorious day arrives. Here the devoutness of American economists distinguishes us from our colleagues in other lands. But which attitude leads to better science? Is it better to start deductively from axioms or inductively from facts? When the time comes to choose between internal consistency and consistency with observations, which side should we take? Must we be restricted to microfoundations that preclude the colossal market failures that created macroeconomics as a subdiscipline?

   Here followers of Keynes and followers of Lucas often part company. Like Keynes, modern Keynesians are inclined to begin by 'taking things as they are'; rigorous optimizing explanations for what they observe (such as nominal wage contracts) can come later. The important thing is to make sure our models are congruent with the facts. Lucasians, it seems to me, reverse the sequence. They want to begin with fully articulated, tractable models and worry later about realism and descriptive accuracy. [1987, 135]

   George Akerlof and Janet Yellen, who have worked in New Keynesian economics, also perceive some of these methodological issues. They note,

   Keynesian analysis violates the commonly regarded sine qua non of good economic theory — a microeconomic foundation based on perfectly rational, maximizing behavior.... This association between 'impure' assumptions and ritual pollution has had the ill effect of confusing the esthetic task of economics — which is to provide clear logic for analyzing economic phenomena — with the agenda of economics — which is to explain the economic events of the real world. Keynesian theory, with its partial reliance on psychological, sociological, and rule-of-thumb behavior to derive departures from full employment and Pareto optimality, is the worst casualty of this failure to dissociate esthetic from agenda. If agents really behave according to impure assumptions, is it not likely that the best models to fulfill the agenda will mirror that behavior? [137]

5. Keynes notes that money serves as a store of value with two properties: zero elasticities of both production and substitution. The latter means that an increased demand for money generates no greater employment to produce it. "Zero substitutability" means that an increase in the price of money due to a money demand increase creates no substitution away from money toward employment-generating goods production (ie. the production of goods which do not have "zero elasticity of production") [Keynes, 230-36]. Davidson extends these arguments to demonstrate that zero elasticity in production and substitution in both money and other assets which serve as a store of value generates involuntary unemployment based on insufficient effective demand [Davidson, 1978, 145, 215, 222-8].

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