Social Psychology, Unemployment and Macroeconomics

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A major concern for labor economists has been to understand how wages, employment and productivity respond to variations in predetermined factors such as tastes for leisure and endowments of human capital. The starting point for their analysis has tended to emphasize choice rather than the circumstances that dictate the range of perceived options. In contrast, social psychologists have tended to have a greater interest in understanding the factors that economists customarily treat as predetermined in affecting aggregate outcomes in labor markets. When they direct their attention to subjects within the sphere of interest of labor economists, they ask about the roles of motivation, personality, cognitive ability and early childhood socialization in the formation of attitudes toward work and task performance. They seek to comprehend the processes leading to action, as well as the consequences of such action.

The tension between the two approaches is reflected in Simon's (1986) important distinction between “the substantive view of human rationality” common to neoclassical microeconomics and “the procedural view of human rationality” common to psychology. We are convinced that a synthetic approach that combines elements of substantive human rationality with the real-time, procedural view of human rationality can improve our understanding of such phenomena as aggregate unemployment and aggregate productivity.

Consider, for instance, a macroeconomic shock that unexpectedly exposes individuals to unemployment. Exposure to unemployment can affect the psychological well-being of the individuals exposed to joblessness, including their general

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outlook on life, their emotional frame of mind, their self-conception, their cognitive efficiency and their attitude toward work. These factors can affect tastes for work and search strategies for the unemployed, which may influence whether or when they become reemployed. Moreover, if they do get another job, such factors can affect their productivity.

Of course, we are hardly the first economists to recognize the potential influence of social psychological factors on productivity and labor supply (Darity and Goldsmith, 1995). Many of our arguments were anticipated by Michael Kalecki (1943) and Joan Robinson (1937). However, we are convinced that the time is now especially ripe to integrate the research endeavors of labor economists and social psychologists to generate a fuller understanding of the overall causes and consequences of macroeconomic performance.

The purpose of this paper is to discuss some of the relevant psychological literature and to give a sense of how that literature can be used by economists. We sketch a simple “behavioral” model of the macroeconomy that accounts for elements of simultaneity between employment outcomes and psychological well-being. We will also examine the implications of such a model for various issues in macroeconomics. Perhaps most fundamental, there is no reason for the economy to return to some preordained equilibrium level of employment after a shock, since the existence of greater unemployment will cause changes in productivity and attachment to work that create a new, possibly sustainable, equilibrium level of employment. Therefore, the endogenous response of labor to exposure to unemployment calls into question the existence of a singular natural rate of unemployment; indeed, the definition of full employment itself requires reconsideration. This framework also provides an alternative foundation for an explanation for the persistence of unemployment (Darity and Goldsmith, 1993), along with new insights into productivity, search strategies of the unemployed and layoff protocols.

Joblessness, Psychological Well-Being and the Labor Market

Unemployment can be hazardous to your emotional health. Eisenberg and Lazarsfeld (1938), using a descriptive study, were the first psychologists to catalog the unpleasant and emotionally destructive consequences of unemployment. Since psychological well-being is a multidimensional concept, the impact of unemployment on mental health takes many forms, including depression, anxiety, low self-esteem and strained personal relations. Since then, many prominent psychologists have theorized about the relation between employment, joblessness and psychological well-being, as Feather (1990) shows in an excellent review of this literature.

Social psychologists have drawn the connection from joblessness to negative emotional consequences to lower productivity in several interrelated ways: as a consequence of lower self-esteem; as a consequence of feeling that life is not under one’s control; and as a loss of what might be called byproducts of participating in a work environment. We will describe each of these.
According to Erikson (1959), the founder of the life span developmental theory, the healthy development of an individual's ego and self-esteem depends on successful completion of eight successive stages. During the fifth stage, Erikson's "industry stage," an individual must move from adolescence to adulthood, which is contingent upon attaining a desirable occupational identity. Erikson postulated that in "middle age," fulfilling life goals that involve career, family and society obligations are the developmental tasks that must be completed. In these ways, lack of success in the labor market is likely to diminish an individual's sense of worth and psychological well-being. In a more recent view, Jahoda (1982) also offers a theory of a direct relation between joblessness and self-perception.

Psychologists envision self-esteem to be a stable and enduring property of the individual, shaped during childhood. However, even proponents of this view acknowledge that self-esteem may be altered by major life changes or traumatic events (Gergen, 1978). There is some evidence that job loss could constitute the sort of traumatic event that could alter self-esteem. According to Akerlof and Yellen (1985), periods of joblessness are often a crucial experience interconnecting with many dimensions of a person's life, leaving a trail of vivid and persistent memories. They support this point by comparing data from the Work Experience Survey on a person's recollection of unemployment with data on their actual exposure to unemployment, drawn from the Current Population Survey.

Following Rosenberg (1965), psychologists treat self-esteem as multidimensional, comprising notions of worth, goodness, health, appearance, skill and social competence. Indeed, Lane (1991) asserts that opinions about "self" are the most treasured of all our opinions and a crucial aspect of individual personality. When understood in this way, self-esteem has clear implications for a worker's potential level of productivity.

A second way in which joblessness can have far-reaching effects on one's psychological well-being and personality is by creating a feeling that life is not under one's control (Brehm, 1966; O'Brien, 1986; Goldsmith and Darity, 1992). People often feel a need to seek out causes for what is happening to them (Heider, 1958; Kelly, 1967). Heider (1958) suggested the useful distinction that in understanding the events shaping their current environments, individuals attribute causes either to self or to situation. Rotter (1966) proposed a similar distinction in classifying individuals either as "internalizers," who believe they are masters of their own fates and thus responsible for what happens to them, or "externalizers," who generally believe that their life is controlled by outside forces and that they bear little or no responsibility for what happens to them.

Whether unemployment is likely to promote feelings of externality may be deduced from research involving interviews with the unemployed by Eisenberg and Lazarsfeld (1938), Harrison (1976) and Hill (1977). These studies describe a phased response in emotional well-being involving three stages. First is the stage of shock, a phase in which the individual still is optimistic. In the second stage, when efforts to obtain work fail, the individual becomes pessimistic and suffers active distress. This is the period of onset of learned helplessness. In the third stage, the
individual becomes fatalistic and adapts to the new state. Now helplessness becomes acute. Our suspicion is that these effects may be faster to develop if an individual is laid-off and slower to develop if the individual quits voluntarily; but either way, they are predictable consequences of prolonged unemployment.

A similar connection operates through the mechanism of depression. Seligman (1975) postulates that one of the primary causes of depression is the realization that valued experiences such as meaningful work may be independent of efforts to obtain them. Seligman’s hypothesis is consistent with the results of clinical studies conducted by Beck (1967), who found that the symptoms of depression are “learned” from past experience such as unemployment.

Helplessness, perhaps augmented with depression, does not make a productive employee. Seligman (1975) reports that feelings of helplessness reduce motivation and result in detrimental cognitive effects that hamper learning. Similarly, Baum, Fleming and Reddy (1986) find, among the unemployed, that the persistence of effort applied to solve problems declines as unemployment duration lengthens and, presumably, feelings of helplessness intensify.

In a third approach to the connection between joblessness and future employment prospects, Jahoda (1981, 1988) identifies five latent benefits people derive from work: employment imposes a time structure on the working day; employment implies regularly shared experiences and contacts with people outside the nuclear family; employment links individuals to goals and purposes that transcend their own; employment defines aspects of personal status and identity; and finally, employment enforces activity. She believes that unemployment is psychologically destructive because the individual is deprived of these latent functions. Jahoda (1982, p. 61) asserts that even unsatisfactory employment is preferable to the absence of work.

The decline in productivity due to poorer psychological health is not confined to those who experience unemployment directly. There is evidence that those who are underemployed, and even those who must watch their coworkers become unemployed, suffer psychological damage as well.

The evidence on those who are underemployed comes from a variety of sources: reemployment in a dissatisfying job (one with lower pay or where hard-earned skills are underutilized) does not enhance psychological health relative to that of unemployed persons (O’Brien and Feather, 1990; Winefield, Tigemann and Winefield, 1990).

Those who remain employed throughout the contraction also appear to suffer psychologically. Brockner (1992, 1988) investigated the impression of managers in firms that experienced layoffs and the self-reported behavior of the “survivors,” who remained with the firm. Many managers reported that layoffs have a decidedly negative effect on their subordinates’ productivity, morale and commitment to the organization. Noer (1993) attributes the decline in productivity among the “survivors” to guilt, poor concentration and the effort to seek alternative employment. Moreover, the job insecurity of “survivors” generally increases after layoffs, since many organizations downsize in waves (Greenhalgh and Rosenblatt, 1984). Other
studies find that feelings of insecure employment can lead to helplessness (Greenhalgh and Rosenblatt, 1984), depression (Dooley, Rook and Catalano, 1987) and a combination of stress, less organizational commitment and greater mental health problems (Brockner, Grover and Blonder, 1988)—all of which are likely to harm job performance.

To the extent that standard economic models of labor markets deal with these issues at all, they leave at least two considerable shortcomings. In some cases (like efficiency wage models), the assumption is that a greater fear of becoming unemployed provides an incentive for “survivors” to enhance productivity by working harder. While we concede the existence of this effect, and will discuss it at greater length later in this paper, we believe that the counterbalancing effect whereby diminished psychological health hampers productivity is often at least as strong.

A second approach is to wrap these considerations into a broader notion of human capital. Although “human capital” can be defined broadly enough to encompass psychological well-being, new insights into the productive process are gained by maintaining a distinction between conventional human capital—based in skills (and sometimes physical health)—and psychological health. In our view, skill-based human capital defines an individual’s capacity to initiate and complete tasks. A person’s “effective human capital” is the portion of their capacity that they actually realize. This will depend on a person’s motivation.

Currently, the most widely accepted and empirically verified theory of motivation is known as “expectancy theory” (Robbins, 1993). This theory posits that a person’s motivation is directly related to beliefs that 1) effort will lead to performance, like achievement of the attempted task; 2) performance will be rewarded by compensation, opportunity to use skills, security and opportunity to develop professional relations; and 3) the rewards contribute to the realization of individual goals like autonomy, achievement, self-respect, status, recognition, friendship and security. Psychologists believe that motivation depends, in part, on certain features of personality. These same features are altered by exposure to unemployment, like the concepts of self-esteem and internalization discussed earlier in this section.

For example, because internalizers see themselves as in control and perceive their efforts as producing desired outcomes, expectancy theory predicts that internalizers will be more motivated than externalizers. Internalizers are significantly more involved in their jobs, less alienated in the work setting and more satisfied with their work (Spector, 1982). They are less likely to quit their job (Blau, 1987), presumably because they feel greater involvement and motivation in their work environment. In fact, those with high job involvement have significantly lower rates of absenteeism and job turnover (Blau, 1986; Blau and Boal, 1987), characteristics likely to be associated with highly motivated employees.

There is no particular reason to believe that skill-based human capital and “effective” human capital accumulate at the same rates or in the same ways, depreciate in the same rates or in the same ways during an economic downturn, or can be increased or restored at the same rates or in the same ways. Therefore, aggregation over these two forms of human capital should be avoided for most
purposes, since it would prevent economists from acquiring a richer understanding of the process governing productivity and, hence, the relation between unemployment and productivity.

Quantifying the Connection Between Unemployment and Emotional Well-Being

Economic theories must test themselves against the available evidence. For our behavioral macroeconomic approach, there are two key connections: that unemployment damages psychological well-being in a measurable way, and that psychological well-being has a measurable influence on productivity.

Many economists are skeptical that psychological constructs such as self-esteem and locus of control can be accurately measured by scales constructed from self-reported evaluations collected in the form of responses to survey questions. (Of course, many other economists have ignored this literature altogether.) Likewise, many psychologists were initially uneasy about the precision of these measures. However, their confidence in the accuracy, and hence usefulness, of these measures has grown with time. Robinson and Wrightsman (1991) and Robinson and Shaver (1980) offer an excellent description and psychometric evaluation of the most commonly used measurement instruments for the full range of psychological constructs.

One of the best-known surveys for measuring a person's emotional state is the Minnesota Multiphasic Personality Inventory (MMPI), which was originally developed in the 1940s and last substantially revised in the late 1980s. It is generally used to assist clinicians in evaluation and treatment of depression, paranoia, schizophrenia, self-alienation and anxiety (Lanyon and Goldstein, 1982). Literally thousands of scientific papers have cited research based on the MMPI (Alker, 1978). Other useful, perhaps less well known surveys include the inventory of questions to measure an individual's "global" self-esteem developed by Rosenberg (1965) and the survey instrument to gauge an individual's "locus of control" constructed by Rotter (1966). Goldberg (1972) produced the General Health Questionnaire to measure minor psychiatric symptoms, while Beck (1967) developed a battery of questions to document depression.

Psychologists assess the usefulness of surveys like these by examining three features: convergent validity, internal consistency and stability. Convergent validity is concerned with whether an alternative scale seeking to measure the same construct yields a similar assessment. For instance, would a person rated as high in self-esteem using Rosenberg's Self-Esteem Scale score correspondingly high on Coopersmith's Self-Esteem Inventory or the Lerner Self-Esteem Scale? Studies of this nature have been conducted by Reynolds (1988). Another aspect of convergent validity is that the results of self-reporting by individuals should correspond to observations by peers or trained observers. Demo (1985) compared these different measures.

A scale is internally consistent when the questions that comprise the scale are
all probing features of the individual related to the construct the scale seeks to measure. If there is a high correlation between responses on each scale item, the scale is regarded as internally consistent. Finally, a scale is only considered stable if a similar assessment is generated by administering the same scale a short time in the future. Two weeks is a common interval to retest for purposes of examining stability.

Survey tools like the MMPI and the General Health Questionnaire perform well along the dimensions of convergent validity, internal consistency and stability. Our discussion has focused particular attention on self-esteem and feelings of being in control. There is similarly strong evidence that investigators can confidently measure a person’s global self-esteem using Rosenberg’s Self-Esteem Scale (Fleming and Courtney, 1984; Reynolds, 1988; Demo, 1985) and a person’s feeling of being in control using a subset of questions from Rotter’s original Internal-External Locus of Control Scale (Lefcourt, 1991). For a more complete discussion of issues relating to the using the Rosenberg and Rotter scales in economic research, the interested reader should begin with Goldsmith, Veum and Darity (1995c). Economists have also been reluctant to use subjective psychological data because of concerns over the feasibility of making interpersonal comparisons. This problem is largely overcome by the manner in which the scales are constructed (Goldsmith, Veum and Darity, 1995e).

Early attempts to quantify the influence of a person’s labor force experience on their emotional well-being did establish significant correlations between unemployment and various measures of psychological health. But these studies were plagued by the statistical problems of selectivity and heterogeneity bias. For example, no attempt was made in these early studies to control for the possibility that individuals already suffering from poor mental health may be those most likely to become unemployed. People who dropped out of the labor force altogether were generally not included in the data set, since they were not officially “unemployed,” in spite of the large monthly movements between those who are unemployed and those who are out of the labor force, and the fact that these may be the individuals whose psychological well-being is most adversely affected by joblessness. Finally, since the data sets used by psychologists lack information on characteristics such as prior labor force histories, it was impossible to control for such factors. The early studies used cross-sectional data, but when later studies turned to longitudinal data, many of the same problems remained.

More recent research has upheld the conclusion that emotional well-being is indeed damaged in a measurable way by joblessness, while attempting to address these statistical concerns. In one such study, Korpi (1994) used longitudinal data from the “Stockholm survey” on unemployed youth in Stockholm to find the impact of unemployment on psychological health, as measured by an index of psychological distress. To deal with the statistical issues just mentioned, Korpi estimated two different models. In one, he assumed that prior psychological health governs selection into unemployment. In the other, he postulates that unemployment may be due to aspects of individual personality that are unobserved
and time invariant. The two models were estimated with cross-sectional and panel
data, respectively. In each case, he found that unemployment leads to psychological
distress, but people recover over time.

Goldsmith, Veum and Darity (1995a,b,c) use the National Longitudinal Survey
of Youths (NLSY) to examine whether psychological health is damaged by jobless-
ness. The NLSY contains both Rosenberg's Self-Esteem Scale and a useful subset of
Rotter's Internal-External Locus of Control questions. In addition, the NLSY pro-
vides information on a person's home environment at age 14, an age where certain
aspects of personality relevant to subsequent labor market success are developed,
and can be controlled for directly in the estimating equations. They report that
being jobless injures self-esteem and fosters feelings of externality and helplessness
among youths. Moreover, there is some evidence that the psychological imprint of
joblessness persists.

The findings just mentioned both deal with youth, which makes them especially
striking. One might expect that unemployment would be less excruciating and
salient for the young, given their lesser financial responsibilities and numerous
outlets for idle time.

The second key connection for our behavioral macroeconomic approach is to
show that productivity at work depends significantly on psychological well-being.
There is some direct evidence on this point. Psychologists Barrick and Mount
(1991) find that job performance depends on various dimensions of personality.
However, economic researchers are often forced to rely on indirect measures of
worker output and productivity, since the available data sets rarely contain direct
measures. Since neoclassical theory predicts that wages will reflect marginal prod-
uct, it is common for economists to rely on real-wage data as a proxy for a worker's
marginal product. In practice, factors found to influence variations in the real wage
are considered determinants of labor productivity.

A variety of studies have estimated the effect of standard measures of human
capital—like education, experience, tenure and aptitude—on real wages. In our
view, such studies are attempting to relate the capacity for productivity to real wages,
rather than trying to measure "effective" productivity as determined by human
capital and factors in psychological capital like self-esteem and locus of control. In
other words, such studies suffer from a problem of omitted variables.

There is good reason to fear that leaving out these particular variables will lead
to unreliable estimates of the relation between skill-based human capital (and other
factors) and wages (or productivity). Greene (1993) offers a discussion of the two
standard ways of dealing with a problem of omitted variables: either treat the omit-
ted variable (in this case, psychological capital) as a random variable that is uncor-
related with the observable regressors, resulting in estimation by random-effects
procedures; or treat the omitted variable as a time-invariant variable whose impact
is not contingent upon any observable regressor, resulting in estimation by a fixed-
effects procedure. Neither procedure works well in this case. Goldsmith, Veum and
Darity (1995d) point out that psychological capital probably is correlated to some
extent with conventional measures of human capital. The expected correlation is
due, in part, to the influence on productivity of human and psychological capital being contingent on each other. Moreover, some aspects of psychological health, particularly self-esteem, are unlikely to be time invariant. Even worse, psychological health may be jointly determined with wages and personal productivity, creating an additional problem of simultaneity bias.

The straightforward approach here, when data on both human capital and psychological capital are available, is to control for selectivity, simultaneity and individual specific heterogeneity, and to estimate separately the impact of both human and psychological capital on wages. Goldsmith, Veum and Darity (1995d) do this with the NLSY survey data. They find evidence that while both psychological capital and conventional human capital are important determinants of productivity, a "one-unit" improvement in psychological capital has a much larger effect on productivity than an equivalent increase in skill-based human capital. For females in particular, the impact of human capital is heavily contingent upon motivation.

We believe that the available evidence shows a persuasive link from unemployment to psychological well-being to productivity. However, the quantitative evidence on these two key connections is clearly still being developed, and many links remain to be drawn out, tested and strengthened. This should be a fertile field for young researchers to plow.

On the relation between unemployment and psychological health, here are some of the key questions as we see them. How does unemployment affect psychological health among different groups: for example, older workers vs. younger ones; those with different cultural backgrounds; or those who were already externalizers before becoming unemployed vs. those who were previously internalizers? Is the connection affected by whether unemployment was unanticipated? By whether there were previous bouts of unemployment? By whether unemployment compensation is available? By whether the overall macroeconomy is doing well or poorly? How long, if ever, does it take for reemployment to wash away the psychological imprint of exposure to unemployment? Can any of the likely psychological damage of unemployment be avoided by those who find alternative ways to provide the latent functions of work identified by Jahoda (1981, 1988)?

A second litany of questions must be explored if economists and psychologists are to gain a fuller understanding of the relation between psychological capital and productivity. How does this connection differ for different groups: men vs. women; older workers vs. younger; unemployed vs. "survivors"; those in different firms, industries or occupations? Is the connection between psychological capital and productivity illuminated by looking at direct measures of output (rather than wages)? Or by looking at the quality of a worker's output? Or by controlling for the psychological health of coworkers and family members? Or by considering whether physical health may mediate the connection between psychological health and productivity? Finally, if fear of unemployment generates both greater motivation to work and psychological damage that reduces motivation to work, which factor is more substantial?

The NLSY is a data set that can be used to investigate some of these issues, but
it is richer in economic detail than in measures of psychological capital. Investigators will need to locate additional data sets. In the short term, it may be useful to search the psychology literature for data sets not presently being exploited by economists. Eventually, we hope (and expect) that a research institute or center will perceive the clear need for a data set that contains data on a wide range of psychological constructs, in addition to demographic data and detailed information on labor force experience.

A Behavioral Macroeconomic Model

Macroeconomists have long postulated that psychological factors may play a prominent role in explaining events such as fluctuations in consumption (Katona, 1968), business investment (Keynes, 1936) and equity markets (Rappoport and White, 1994). However, the tradition in macroeconomic modeling is to ignore such influences or to incorporate them narrowly as exogenous disturbances. We believe that the influence of psychological well-being on productivity and labor force attachment should be integrated directly into macroeconomic modeling. In this section, we will describe a model of the aggregate labor market in which the psychological health of household members responds to changing economic circumstances. In such a model, a society's economic vitality and psychological health are influenced simultaneously.

At the core of this model is a fundamental change in thinking about how the aggregate labor market operates. In a typical macroeconomic model, the quantity of labor demanded and supplied depends on real wages. From our perspective, a second variable must be added to both labor supply and demand.

On the demand side, we have argued that labor efficiency depends in part on the social psychological state of the labor force which, sequentially, depends upon recent and more distant labor force histories of household members who desire work. Greater labor efficiency will cause aggregate demand for labor to shift to the right; lesser labor efficiency—including the situation where joblessness injures the psychological state of the workforce—will cause a backward shift in aggregate labor demand.

On the supply side, economists will readily admit that labor supply depends on labor force attachment, which manifests itself in the form of tastes and preferences over work/leisure and consumption, but many models assume this factor is exogenous and unimportant. In our view, the psychological well-being stemming from labor force experience has an important effect on labor force attachment and thus on labor supply (Goldsmith and Darity, 1992, pp. 452–6).

However, the direction of how unemployment affects labor force attachment is not clear. The emotional distress of joblessness may create a “discouragement” effect, which would provide an incentive to become less attached to work, and lead the labor supply curve to shift back. However, an alternative approach to protecting psychological health, referred to as the “trauma escape effect,” entails becoming
more attached to work, by offering a given amount of labor for a lower real wage (Goldsmith and Darity, 1992). There is some indirect evidence that the psychological trauma of unemployment may lead to such a reaction. Kessler, Turner and House (1988) found that in their data set, the unemployed experiencing the highest levels of anxiety and depression at the base line had the greatest probabilities of reemployment over the subsequent year, an outcome consistent with “trauma escape” behavior. Indeed, if a sufficient number of the unemployed adopt a strategy of responding to unemployment by reducing their reservation wage, both individual and aggregate labor supply will expand.

To understand how the approach we are advocating differs from a more conventional macroeconomic approach, let us use Figure 1 to first describe the reaction in the labor market to an adverse shock in a conventional model, and then show how our approach would differ.

Begin with the aggregate labor market at the equilibrium given by point $A$ in Figure 1. The labor market is depicted with the nominal wage on the vertical axis. Labor demand is specified to depend on movements in the aggregate price level while labor supply responds to changes in workers expectations of aggregate price. Suppose the economy experiences a change in a policy variable, like a reduction in government spending, a decline in money supply or higher taxes, which lead to a decline in aggregate demand and in turn the aggregate price level. In the labor market, labor demand falls to $D_1$, and, if the policy change and corresponding price reduction is anticipated, labor supply shifts to $S_1$. If nominal wages are sticky in the short run at $w_0$, as suggested by Knesner and Goldsmith (1987) and others, then the contraction in aggregate demand will reduce the quantity demanded for labor, resulting in the layoff unemployment denoted by distance $AZ$ in Figure 1.
It is then typical to argue that nominal, and hence real, wages adjust over time, perhaps as implicit and explicit contracts expire or employers become convinced that the policy change is permanent. The labor market will settle down at point \( B \) in the intermediate run. In a conventional model, the recession runs its course, and the economy returns to its original real levels of employment, output and wages, but with nominal wage and output price deflation. In such a model, the short-term experience of joblessness has no long-term effect on workers, nor on supply and demand for labor. As the nominal wage rate falls in this framework, from \( w_0 \) to \( w_1 \), those laid off will be able to locate new jobs or even to reclaim their old positions.

Based on the evidence presented here, a different story emerges. In our view, the rise in joblessness damages the cognitive, motivational and emotional status of those laid off, ultimately leading to a deterioration in the psychological state of the labor force. Thus, the story of the intermediate run must include not only flexible nominal wages, but the productivity and labor market attachment consequences of joblessness.

Recall that unemployment reduces the quality of the workforce history embedded in the labor force, which by the intermediate run damages the psychological health of this group. To the extent that unemployment leaves a psychological imprint that persists following reemployment, individuals suffer lower self-esteem, learned helplessness, and a loss of the latent byproducts of working (like practice in time management), and their personal productivity is likely to suffer. Personal productivity of "survivors" is also expected to decline, as they witness the trauma of their coworkers. Even as employment returns, the feeling of insecurity remains, perhaps amplified by the reduction in nominal wages that workers see. Therefore, deterioration in psychological well-being brought about by a recession triggers a subsequent decline in productivity across the labor force.

This contraction of workforce productivity is reflected in a backward shift in the demand for labor, from \( D_1 \) to \( D_2 \), as shown in Figure 1. Although this appears similar to the backward shift in demand for labor caused by a fall in aggregate demand, this shift is instead caused by a reduction in the efficiency of the labor force. This shift will cause a further reduction in the nominal wage rate to \( w_2 \)—and since productivity is actually lower, some of this will be a reduction in real wages as well. (In other words, \( w_2/p_1 < w_1/p_1 = w_0/p_0 \).) The result can easily be that the equilibrium quantity of labor in the market is reduced with employment falling to \( N_2 \). In turn, the lower real wages and labor force participation levels associated with equilibrium at point \( C \) could lead to further productivity declines. Ultimately, with a labor force showing lower participation, employment and productivity, the output of the economy will be lower than the original potential, as well.

The decline in the psychological health of the labor force may also alter the labor supply function, but as already noted, the direction of this effect is unclear. If the "discouraged worker" effect dominates, then labor supply falls and the equilibrium moves toward point \( D \). In this case, employment falls even further, leading
to a still greater contraction of aggregate product supply and output. Alternatively, if the "trauma escape" effect dominates, the psychological disruption will increase the labor supply. This will lead to a smaller decline in employment, and, at least theoretically, greater attachment to work could even lead an expansion of employment and output. However, this case seems empirically unlikely. The equilibrium at point C is drawn to represent the case where the "discouragement" and "trauma escape" effects offset one another, so no additional shift in the labor supply function is included.

The equilibrium at point C will be stable—a point of gravitation—unless the labor force regains its initial level of psychological well-being. This may take awhile for three reasons: 1) unemployment creates a salient and lasting impression; 2) reemployment in a dissatisfying job, say due to accepting a position at a lower real wage, fails to improve psychological health (O'Brien and Feather, 1990; Winefield, Tiggemann and Winefield, 1990); and 3) those who find upon reemployment that they harbor feelings of job insecurity—due possibly to loss of seniority, skill depreciation or a belief that further layoffs are forthcoming—fail to exhibit an improvement in psychological health (Burchell, 1994). Even if the original level of psychological well-being is eventually restored, the economy is unlikely to return to its prior market-clearing position, point B, due to income and wealth changes in the adjustment process to point C.

In the end, the demand side contraction may cause the real wage to rise, fall or be unaffected—depending on the magnitude of the initial decline in labor demand, coupled with the subsequent decline in labor demand due to poorer psychological health of the labor force and the effect of the change in psychological well-being on labor force attachment. The response of the aggregate price level to the contraction in aggregate demand is also ambiguous. It depends on the decline in aggregate product supply, as the psychological health of the labor force deteriorates, relative to the reduction in aggregate demand. Thus, both the price level and the real wage level may exhibit little movement during a contraction as the natural outcome of a market gravitating to equilibrium, not due to additional assumptions of price and real wage rigidity.

Some Implications of a Behavioral Macroeconomic Model

Hysteresis

The previous argument provides the macroeconomic and psychological reasoning behind hysteresis—the persistence of unemployment in the intermediate run. It is interesting to discuss how it would actually work from the microeconomic perspective of an employer's decision to hire. There are several possible channels here.

First, employers do make some attempt to screen directly for personality factors. For example, a battery of personality and ability tests can be used to screen applicants about many aspects of personality such as locus of control or self-esteem.
Or such screening may happen informally through the interview process. Cox (1989) ranked 16 factors that human resource managers consider important to assess during an interview. Three of the five most important factors correspond to aspects of personality that are likely to reflect components of psychological well-being: "enthusiasm," "confidence" and "emotional stability." Can-do enthusiasm is nearly the opposite of learned helplessness; confidence is closely related to self-esteem; emotional stability would imply no great volatility in mental health in the past. Clearly, the destructive psychological legacy of unemployment can affect traits that are important to employers.

Of course, employers may be unsure whether their tests and interviews will detect psychological damage. However, almost every interview will discuss recent experiences in the labor force, and the existence of recent unemployment can be used as cheap screening device to signal that a potential employee may be suffering psychological damage. If Greenwald and Stiglitz (1993) are correct that firms are risk averse and that information is asymmetric, then firms are likely to be cautious and reluctant in hiring from the pool of the unemployed, since they are not sure how much a given individual has been damaged psychologically by their exposure to joblessness. As a result, the unemployed will have a low rate of job acquisition—the jobs simply are not offered.

In addition to this process of employer screening, the jobless themselves are likely to contribute directly to their personal unemployment pattern. When unemployment leads to helplessness, it also undermines the motivation to search for employment and the intensity of search. Thus, employer and employee behavior, motivated by psychological factors, may explain why unemployment duration is procyclical (Dynarski and Sheffrin, 1990).

Previous attempts to explain unemployment hysteresis have not been promising. Some of the possible explanations that have been floated with minimal success include more generous unemployment benefits (Summers, 1986), demographic changes in the labor force (Cain, 1979; Summers, 1986), structural changes that lead to greater mismatches between employers and employees (Blanchard and Summers, 1988, pp. 315–316), "insider" behavior (Lindbeck and Snower, 1988) and efficiency wages (Summers, 1988; Shapiro and Stiglitz, 1984; Yellen, 1984). A behavioral macroeconomic model offers an alternative perspective for unemployment hysteresis in an equilibrium framework that is worth testing.

The Natural Rate Hypothesis and the Meaning of Full Employment

It is conventional to argue that when labor markets clear, "full employment" results. However, full employment is only identical to labor market clearing when the real wage is the only endogenous variable upon which both labor supply and labor demand depend. If an additional endogenous variable enters the labor supply and labor demand function, such as psychological well-being, then the (intermediate run) labor market clears in various positions. For example, the labor market can clear at a high level of psychological well-being, motivation and productivity—point A in Figure 1—or at a low level—point C in Figure 1. The length of a typical
bout of unemployment is probably longer at point $C$—because fewer job offers are located (due to reduced search effort and effectiveness) and received (employer reluctance).

In such a behavioral macroeconomic model, the economy is not likely to gravitate toward any "natural rate" level of employment and output. However, it seems likely that most of the labor force would prefer a labor market clearing situation with high psychological well-being. Thus, the policy goal of full employment should be expanded to include not only a labor market that clears, but one in which workers have a labor market history that leads them to be psychologically healthy, motivated, productive and in which they are therefore earning as much as possible for their time on the job. For a more complete discussion of the concept of full employment, see Goldsmith and Darity (1995).

The Existing State of Macroeconomics

According to Lindbeck (1992), the lesson of the 1970s was that a better understanding of the labor market, and hence aggregate supply, must be at the center of any acceptable macroeconomic theory. While there are many schools of macroeconomic thought, we believe that they can usefully be divided into two main families: descendants of the classical school, referred to as neoclassical and real business cycle models, and descendants of the Keynesian school, often referred to as neo-Keynesians. This article is not the place for a review of the strengths and weaknesses of these approaches. But it may be useful to point out some basic facts about labor markets that are not well explained by these approaches and that we believe are better explained in the context of a behavioral macroeconomic model.

The New Classical paradigm claims that members of the labor force form price expectations rationally. In this framework, unanticipated shocks have real effects as they are assimilated by the macroeconomy, thus leading to consequences like a business cycle and persistent unemployment. The theory is clear enough, but the rationality of the actual formation of expectations remains unclear. Lovell (1986) evaluated the literature on empirical attempts to determine if individuals form expectations rationally—basically a literature that compares individual's forecast of economic variables with the "actual" outcome—and concluded that the data were generally not in support of the hypothesis. In addition, Lott and Miller (1982) use the Livingston Survey and the Michigan Survey data to measure employer and employee price forecasts, respectively. They report that "in the United States, as in the United Kingdom, workers are better predictors of inflation than employers."

Real business cycle models usually incorporate rational formation of expectations but focus on the possibility that technological shocks that alter productivity are responsible for fluctuations in real output and employment. An additional assumption of such models is that labor force attachment, and hence labor supply, is directly related to changes in productivity. Thus, improved technology not only increases labor productivity and demand, but the temporarily high wage stimulates a desire to supply additional labor. This intertemporal substitution of labor supply,
away from low-wage periods and toward high-wage periods, allows a productivity shock to have a large effect on employment and output.

Such real business cycle theories have been criticized on many grounds (Mankiw, 1989); for example, it is hard to find independent evidence of large technical disturbances preceding economic contractions. Kniesner and Goldsmith (1987) find that the elasticity of labor supply with respect to the expected real wage is simply too small to warrant confidence in the intertemporal characterization of labor supply behavior. Thus, it is not surprising that Stadler (1994, p. 44) concluded in his recent review of the empirical literature on real business cycle models that "there is no clear evidence in their favor."

Compared to new classical and real business cycle models, a behavioral macroeconomic model has the advantage that it does not have to rely on a hypothesis about reactions to unanticipated events, nor on strong claims about technology, nor on unreasonably high estimates of labor supply elasticities to explain swings in economic activity that persist. Instead, in a behavioral model, the actual productivity and labor force participation of the workforce change—and hence change real output—for well-specified reasons.

Modern proponents of the New Keynesian paradigm claim that persistent unemployment is the result of various rational rigidities in the economy. For example, one such model emphasizes "efficiency wages." In this model, it is argued that profit-seeking firms will pay workers a "high" wage—one in excess of equilibrium—because such a wage increases worker productivity by allowing firms to select a higher quality labor force, reducing turnover and inspiring greater effort. If many firms pay efficiency wages, they will be reluctant to reduce wages in bad times, and persistent unemployment will result. Alternative assumptions about aspects of firm behavior that can lead to nominal rigidities including price stickiness in the setting of prices (Romer, 1993; Mankiw, 1985) and financing (Greenwald and Stiglitz, 1993). Although many New Keynesian propositions regarding firm behavior are provocative, they have been difficult to prove or deny empirically (Carmichael, 1990).

Compared to New Keynesian models, a behavioral macroeconomic model has the advantage that its assumptions about the behavior of firms and the nature of production functions are readily testable. In addition, unemployment hysteresis is the result of unfavorable labor force histories rather than persistent rigidities of real wages or prices.

**Conclusion**

Orthodox macroeconomics is largely independent of time. Cultural, social and institutional evolution is neglected. For instance, it is commonly asserted that an exogenous shock to the macroeconomy leading to unemployment can be offset by an appropriate policy stimulus that returns the economy to its original point. This description of events ignores the social psychological consequences of exposure to
unemployment. These factors are likely to affect personal productivity, motivation, attitudes toward participation in the labor force and relations with acquaintances, spouses, offspring and friends. The emotional damage to a society's labor force that accompanies aggregate economic decline and unemployment makes it all the more important to devise a policy response.

The behavioral macroeconomic model we advance offers new insights into unemployment hysteresis, the natural rate hypotheses and the meaning of full employment. The implications of this model for other issues of interest to macroeconomists are yet to be explored. This model is clearly "new" and "Keynesian," since deficient demand will lead to a new and less desirable equilibrium characterized by persistently higher unemployment in a world of flexible prices, even if prices are forecast rationally. Our hope is that this approach inspires macroeconomic scholars to adjust their research agenda, both to develop further the simple behavioral macroeconomic model presented here and to join us in investigating the assumptions and implications of the model.

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