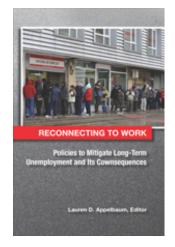# W.E. UPJOHN INSTITUTE
FOR EMPLOYMENT RESEARCH

Causality in the Relationship between Mental Health and Unemployment

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Reconnecting to Work

Policies to Mitigate Long-Term Unemployment and Its Consequences

Lauren D. Appelbaum
Editor

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Unemployment is costly to society and individuals. Fifty years ago economist Arthur Okun (1962) demonstrated that for the United States in the postwar period, a 1 percent increase in the unemployment rate is associated with a 3 percent decline in gross national product. Subsequent work (Moosa 1997) revealed that this rule of thumb, known as Okun's Law, closely characterizes most developed economies. At the individual level, unemployed persons who are laid off experience financial losses in the form of a drop in income, even if they are covered by UI. Moreover, when reemployed, their wages typically fall short of their previous level for a number of reasons, one of which is that workers' skills are not fully portable across firms, occupations, and industries (Goldsmith and Veum 2002).

Social scientists also assert that unemployment lasting more than a few weeks is damaging to mental health. For instance, two meta-analytic studies (McKee-Ryan et al. 2005; Paul and Moser 2009) report that unemployed persons have substantially poorer psychological well-

being after controlling for a wide range of factors expected to influence emotional health. However, a largely unresolved issue is whether the poor mental health status associated with the unemployed is *caused* by their involuntary joblessness. The purpose of this chapter is to move toward resolution of that question. First, we offer a new method for identifying whether there is a causal link between exposure to unemployment and emotional well-being. Second, by using this identification strategy, and by drawing upon data from two large nationally representative data sources—the National Comorbidity Survey Replication (NCS-R) and the National Latino and Asian American Study (NLAAS)—we estimate the impact of both short-term and long-term unemployment on a broad measure of emotional health.

UNEMPLOYMENT, PSYCHOLOGICAL HEALTH, AND CAUSALITY

Social psychologists have proposed a number of pathways whereby involuntary joblessness potentially diminishes emotional well-being. Jahoda (1982) contends that unemployment is psychologically destructive primarily because it deprives an individual of the latent by-products of work, including a structured day, shared experiences, status, and opportunities for creativity and mastery.[1] Erikson (1959), in his life-span development theory, asserts that healthy emotional well-being as an adult is contingent upon the realization of occupational success for those intent on being breadwinners; therefore, unemployment is harmful to mental health. Attribution theory (Heider 1958; Weiner 1974) suggests that individuals seek an explanation for developments in their lives. Those who blame themselves for undesirable happenings such as involuntary joblessness are likely to experience feelings of "helplessness" (Seligman 1975), which damages mood (i.e., depression, anxiety) and self-perception.[2] Thus, for these persons, unemployment is expected to foster psychological distress. A number of psychologists and epidemiologists have asserted that the deleterious effects of unemployment increase as unemployment duration advances (Jackson and Warr 1984). They support the idea that stress accumulates, so there is reason to believe that each additional week of joblessness is even more emo-

tionally damaging than prior weeks (Eisenberg and Lazarsfeld 1938; Harrison 1976). This suggests that long-term unemployment is more harmful to psychological well-being than short-term unemployment.

There is an extensive empirical literature dating to the Great Depression that documents a negative association between unemployment and psychological health.[3] Ethnographic studies conducted by Jahoda, Lazarsfeld, and Zeisel (1933) and Eisenberg and Lazarsfeld (1938) found that the unemployed exhibited both poor emotional well-being and an inferior view of themselves. Subsequently psychologists have developed inventories of questions designed to measure various dimensions of psychological health, including depression (Beck et al. 1961); anxiety (Spielberger et al. 1983); mastery or self-efficacy (Pearlin et al. 1981; Rotter 1966); self-esteem (Rosenberg 1965); and general psychiatric status (Goldberg and Blackwell 1970). Using these measures, numerous researchers conducting quantitative studies using cross-sectional survey data report that unemployed groups have lower levels of psychological well-being than employed groups. Unemployed persons have been found to exhibit higher levels of depression (Fryer and Payne 1986) and anxiety (Kessler, Turner, and House 1989), as well as lower levels of self-esteem (Feather 1982; Goldsmith, Veum, and Darity 1997) and self-efficacy (Goldsmith, Veum, and Darity 1995) compared to the employed.[4] However, because unemployment can be the consequence of poor mental health, it is not appropriate to interpret these results as conclusive evidence that unemployment causes deterioration in emotional well-being.

A common strategy to address the issue of reverse causality is to use longitudinal or panel data and examine whether changes in mental health coincide with changes in workforce status. The fundamental idea is that if involuntary joblessness leads to psychological distress, then persons moving from an employed to an unemployed state will exhibit a decline in mental health, and those switching over time from an unemployed to a working state will experience an improvement in psychological well-being. Numerous researchers report evidence consistent with this perspective. Their findings, although compelling, are not definitive evidence in favor of the hypothesis that unemployment causes deterioration in mental health.[5] The problem is that it is still possible that an individual's emotional well-being changed, for some reason, prior to the alteration in workforce status. We attempt to shed

further light on the question of causality by examining whether psychologically resilient persons (i.e., individuals who have always exhibited sound emotional well-being) exposed to unemployment in the past year are more likely to experience their first spell of poor emotional well-being than persons employed throughout the past year.

DATA AND A STRATEGY FOR DETERMINING IF UNEMPLOYMENT CAUSES POOR MENTAL HEALTH

Data and Methodology

The NCS-R and the NLAAS were designed to collect information on potential determinants of mental disorders in the United States through face-to-face interviews with respondents conducted in the privacy of their homes. The NCS-R was carried out on a nationally representative group of 9,282 racially and ethnically diverse respondents between February 2001 and April 2003. The NLAAS contains information on a nationally representative group of 4,649 Latino or Asian respondents collected between May 2002 and November 2003. These data sets, which we merge together, are ideal to use in our investigation of whether a causal link exists between unemployment and emotional health because of the way that the survey collects respondent information on emotional well-being.

The NCS-R and the NLAAS respondents provided retrospective information on whether they were sad, empty, discouraged, depressed, or disinterested most of the day nearly every day for at least two weeks or every month in the past year, which we use to construct a broad measure of psychological distress.[6] An unusual and desirable feature of the survey is that respondents who had suffered psychological distress were asked to provide the year during which they first suffered a bout of poor emotional health. We take advantage of this unique aspect of the NCS-R and the NLAAS to develop a new strategy for assessing the link between unemployment and psychological health. Using information on the year of first onset of poor psychological health, we stratify our data into two separate subsamples or data sets. We construct a data set composed of psychologically resilient persons (resilient)—those

who have either never experienced a significant bout of poor emotional well-being or had their first spell in the past year—and a second data set of psychologically vulnerable persons (vulnerable)—those who have experienced psychological distress in prior years.

The resilient subsample allows us to focus on those individuals without previous bouts of poor mental health. We suspect that persons who report never experiencing sustained psychological distress over the course of their life cycle and who are in the workforce will continue to be emotionally healthy. The resilient subsample allows us to analyze those least likely to have a bout of poor mental health leading to unemployment. Therefore, the findings of this subsample represent a significant step forward in resolving the problem of identifying a causal relationship between unemployment and poor mental health. However, there are conditions where the resilient subsample could still suffer from reverse causality.

For example, it is possible that some individuals in the resilient subsample are misclassified and should rightfully be in the vulnerable subsample. These individuals would need to represent a substantial portion of the resilient subsample to undermine the identification strategy. This would occur if there are many individuals who fail to report their prior poor mental health status because of poor recall, fail to recognize that they have mental health problems but their employers observe the problems, or the survey questions fail to identify those with mental health problems that employers observe. These individuals would be more likely to have a bout of poor mental health in the current year that causes unemployment. People may struggle to remember highly specific events, but the questionnaire is designed to identify general features of distress, such as being sad or feeling empty or discouraged. Therefore, we suspect that misclassification bias from failure to recall, poor recognition of their mental state, or inadequate questions is limited. A separate challenge to our identification strategy arises if a substantial group of individuals have mental health issues that are latent or dormant, these issues manifest themselves in the current year, or these individuals experience unemployment in the past 12 months as well. These individuals would be misclassified in our resilient subsample, belonging instead in the vulnerable subsample.

The data also contain information on the number of weeks during the past year that the respondent spent employed; unemployed; legiti-

mately out of the labor force (i.e., disabled, retired, in school, or taking care of a family member); and discouraged or out of the labor force but not for justifiable reasons. We treat the latter category as time spent unemployed. Following the literature we classify those who spent 26 or more weeks unemployed during the past year as having suffered from long-term unemployment, while those who spent less time unemployed are designated as having experienced short-term unemployment.

Our primary interest is in examining the effect of involuntary unemployment on mental health. Therefore, persons who are out of the labor force for acceptable or genuine reasons are excluded from the data.[7] Thus, we focus our investigation on whether those who experience either short- or long-term unemployment in the past year had a higher probability of experiencing their first lifetime bout of emotional distress than those who spent the past year fully employed while holding constant other economic and social determinants of mental health.

Descriptive Statistics

Our analysis is conducted separately on the subsample of resilient persons, those who have either never experienced a spell of prolonged psychological distress or have in the past year had their first bout of poor emotional health, and on the subsample of vulnerable individuals who have experienced sustained psychological distress prior to the past 12 months. Table 4.1 reveals that there are 5,485 persons in the resilient subsample, 5,421 of whom have never been "sad" or experienced a substantial period of poor mental health, while 64 individuals (slightly more than 1 percent of the subsample) were sad this past year for the first time. There are 2,109 respondents who have proven to be vulnerable to bouts of poor emotional well-being prior to the current year. Forty percent (845) of these persons also were saddled with psychological distress this past year, while 1,264 avoided poor mental health over the course of the previous 12 months.

Table 4.1 also presents information on labor force status for those who experienced psychological distress in the past year and for those who were emotionally healthy throughout the past 12 months, for both the resilient and vulnerable subsamples. Of interest is whether a disproportionate share of the individuals who are in distress this year experienced unemployment—especially long-term unemployment—over the past year.

Table 4.1 History of Psychological Distress and Workforce Status Summary Statistics for Resilient and Vulnerable Subsamples

Panel A: Workforce status—resilient subsample ($n = 5,485$)		
	Psychological distress this past year ($n = 64 = 1\%$)	No psychological distress this past year ($n = 5,421 = 99\%$)
Employed	45 (70%)	4,425 (82%)
Short-term unemployment	5 (8%)	383 (7%)
Long-term unemployment	14 (22%)	613 (11%)

Panel B: Workforce status—vulnerable subsample ($n = 2,109$)		
	Psychological distress this past year ($n = 845 = 40\%$)	No psychological distress this past year ($n = 1,264 = 60\%$)
Employed	619 (73%)	1,051 (83%)
Short-term unemployment	96 (12%)	86 (7%)
Long-term unemployment	130 (15%)	127 (10%)

NOTE: Resilient persons have either never experienced psychological distress—a sustained period over at least one month in the past year of sadness/discouragement/disinterest—or had their first spell of distress in the past year. Vulnerable persons have experienced psychological distress prior to the past 12 months and may also have experienced a spell of distress in the past year. People who were unemployed in the past year and spent, in total, less than 26 weeks unemployed are identified as having experienced a bout of short-term unemployment. The long-term unemployed spent 26 or more weeks in the past year unemployed.
SOURCE: Data are drawn from the NCS-R and the NLAAS.

A large share (30 percent) of the persons in the resilient subsample who express being sad or distressed this year—for the first time in their lives—were exposed to unemployment during the past 12 months. Among those who experienced no psychological distress in the past year, only 18 percent spent some weeks unemployed. The same pattern exists for the vulnerable subsample. There is a higher proportion unemployed among those suffering poor emotional well-being in the

past year (27 percent) relative to those with good emotional health in the most recent year (17 percent). Thus, it appears that involuntary job-lessness is associated with psychological distress, although caution is in order since we are not controlling for other determinants of emotional health that could be correlated with unemployment.

Psychologists expect a variety of social and economic factors to cushion the impact of unemployment on emotional health.[8] A valuable aspect of the NCS-R and the NLAAS data is the provision of informa-tion on a myriad of factors, both economic and social, that are believed to buffer the impact of unemployment on psychological health. This makes it possible to account for these features of a person's environ-ment when examining the influence of unemployment on psychologi-cal health. The potential buffers that we are able to control for in our analysis include the number of siblings, the number of adult children, the extent of their wealth, and if the respondent has a parent who is still living, is currently married, has friends he speaks to often, and is part of a close-knit religious community. Table 4A.1 in Appendix 4A provides detailed definitions for all of the variables used in our formal analyses of psychological health.

The NCS-R and the NLAAS also provide extensive information on demographic factors that may contribute to psychological health, including a respondent's gender, educational attainment, age, and racial/ethnic heritage. Moreover, information is available on respondents' family characteristics when they were youths, allowing us to control for whether they were raised by both of their parents, whether the fam-ily received public assistance, and parents' education.

Appendix Table 4A.2 presents summary statistics on all of these variables used in our empirical analysis for both the resilient and vul-nerable subsamples. We describe these characteristics below beginning with the resilient subsample. About half of the subsample is female (49 percent), 67 percent are married, 55 percent completed more than high school or are highly educated, 72 percent are more than 30 years old, 34 percent have young children in their homes, 44 percent are foreign born (unsurprising, since much of the data come from the NLAAS), and the average individual has accumulated $65,000 of net worth. The resilient subsample we analyze is very diverse with respect to race/ethnicity: 7 percent are African American, 34 percent are of Hispanic origin, 27

percent are Asian, and 32 percent are white. Most people were raised by both parents (79 percent), around half have highly educated mothers (49 percent) and fathers (47 percent), and only 4 percent grew up in poor families.

A third of the respondents in the resilient subsample had a mother who was still alive, and a quarter reported that their dad was still living. The typical person has 1.5 siblings and 1.3 adult children. Moreover, 45 percent say they speak to friends regularly and are frequent participants in a religious community. The characteristics of the vulnerable subsample are similar to those of the resilient subsample on a number of dimensions. However, the vulnerable group, relative to the resilient group, are only half as likely to be born outside the United States, more likely to be female (63 percent), more likely to have young children, less likely to be Asian, twice as likely to have grown up in a family on welfare, and have amassed substantially less wealth.

Empirical Procedures

In order to investigate the impact on emotional well-being of exposure to short- or long-term unemployment during the past year relative to employment throughout the past 12 months, we use Equation (4.1) to estimate the following model of psychological distress:

$$(4.1) \quad PsyDistress = \alpha + \beta(ShortTermUnem) + \psi(LongTermUnem) \\ + \delta(\boldsymbol{Buffer}) + \lambda(\boldsymbol{X}) + \varepsilon \ .$$

PsyDistress takes on a value of 1 if the respondent reports being sad, empty, discouraged, depressed, or disinterested most of the day nearly every day for either at least two weeks or every month in the past year, otherwise it is 0. Two bivariate indicators are used to capture the extent of a person's unemployment experience over the past year. Those individuals who experienced some unemployment in the past year and the total number of weeks, whether or not they were concurrent, fall short of 26 weeks and are identified as having experienced short-term unemployment, in which case *ShortTermUnem* = 1. The variable *LongTermUnem* = 1 if an individual spent more than 25 weeks unemployed in the past year. **Buffer** is a vector containing social and economic support

variables expected to mitigate or exacerbate the impact of involuntary joblessness on emotional health. X is a vector of demographic and family control variables.

We estimate Equation (4.1) using a logistic regression to estimate the impact of unemployment and other factors on the odds that a person has suffered psychological distress in the past year. We report the odds ratios from the logistic regression. The odds ratios represent the effect of a unit increase in a continuous independent variable or a value of 1 for a bivariate variable on the odds of experiencing psychological distress in the past 12 months, relative to the odds when that same variable takes on a value of 0. A coefficient greater than 1 indicates an increase in the odds of suffering psychological distress (i.e., a coefficient estimate of 1.2 means a 20 percent increase in odds relative to when the bivariate variable is 0). A coefficient estimate of 1 suggests no change in the odds of poor emotional health occurring and a value less than 1 means the probability of poor emotional well-being in the past year is reduced (i.e., an estimate of 0.8 means the odds are 20 percent smaller relative to when the bivariate variable is zero).

For individuals in the resilient data set, the estimation of Equation (4.1) tests whether unemployment in the past year enhances the odds that a person will experience their first ever bout of sustained psychological distress in the past year. It is a commonly held belief that unemployment causes a decline in emotional well-being. The advantage of estimating Equation (4.1) with these data is that if unemployment is found to be associated with a greater likelihood of poor emotional health, the impact can be interpreted as causal with a high degree of confidence. Since these are resilient individuals who have only experienced their first bout of poor emotional health in the past year, it seems questionable that this bout of poor emotional health led to their current stretch of involuntary joblessness. A more likely story is that unemployment over the past year led to a deterioration of psychological well-being among persons with a history of sound psychological health.

In addition, to explore whether social and economic support mediates the impact of unemployment on contemporaneous emotional health, we stratify our subsamples by the presence (or not) of each buffer and reestimate the model.

RESULTS

Unemployment and Psychological Distress

Table 4.2 is a summary table that presents our estimates of the impact of both short- and long-term unemployment on the chances of experiencing psychological distress in the past year for the resilient subsample (Panel A) and the vulnerable subsample (Panel B). However, in our view reverse causality may mar the accuracy of the findings using the vulnerable population, while estimation of Equation (4.1) on a subsample of resilient persons may well purge the estimates of the endogeneity generated by reverse causality. Thus, the use of the resilient subsample can produce estimates that are capable of illuminating whether unemployment causes deterioration in emotional well-being. Model 1 is a sparse specification of Equation (4.1), where psychological distress is stipulated to depend solely on workforce status. Model 2 adds controls for a host of social and economic buffers. Model 3, the most complete specification, further augments the model to account for individual characteristics and family features when growing up. Full results for the resilient subsample are presented in Table 4A.3 in Appendix 4A, and Table 4A.4 reports our complete set of findings for the vulnerable subsample.

Panel A in Table 4.2 reveals that in all three models exposure to long-term unemployment in the past year significantly increases the odds that a resilient person will experience their first ever bout of poor emotional well-being in the current year relative to resilient individuals who were employed throughout the past year. The estimates range from a 125 percent increase in likelihood in Model 1 to a 218 percent increase in Model 2. However, those resilient persons who are subject to short-term unemployment during the past year have the same likelihood of experiencing their first bout of poor mental health as persons who were employed throughout the past year. Thus, our findings suggest that long-term unemployment has a larger detrimental impact on emotional health than bouts of short-term unemployment.

Recall that we classify people who have experienced poor mental health prior to the current year, regardless of the source of their poor emotional states, as vulnerable. Among these persons, exposure to

Table 4.2 Logit Estimates of the Impact of Short-Term and Long-Term Unemployment on the Odds of Currently Experiencing Psychological Distress for Resilient and Vulnerable Subsamples—Summary Table

Variables	Model 1 Odds ratio	Model 2 Odds ratio	Model 3 Odds ratio
Panel A: Resilient subsample			
Workforce status			
Short-term unemployment	1.28	1.10	1.04
	(0.61)	(0.53)	(0.52)
Long-term unemployment	2.25***	3.18***	2.85***
	(0.69)	(0.99)	(0.96)
Observations	5,485	5,485	5,485
Panel B: Vulnerable subsample			
Workforce status			
Short-term unemployment	1.90***	1.85***	1.80***
	(0.30)	(0.29)	(0.29)
Long-term unemployment	1.74***	1.69***	1.58***
	(0.23)	(0.24)	(0.22)
Observations	2,109	2,109	2,109
Controls			
Buffers	No	Yes	Yes
Demographics & family factors	No	No	Yes

NOTE: *** $p < 0.01$. Reference group for unemployment is employed throughout the previous year, those out of the labor force are excluded from the data, and discouraged workers are counted as unemployed. The set of buffer variables includes measures of assets, marital status, parents living, number of living siblings, number of adult children, having close friends, being part of a religious community, and the lack of young children in the home (see Table 4A.1 for detailed definitions of all variables included in the estimated models). Demographic controls include indicators for foreign born, gender, education level, age cohort, and racial and ethnic heritage. Family characteristics as a youth contain indicators that reveal who raised the respondent, their parents' education level, and the financial status of the family when the respondent was a youth. In addition, Models 2 and 3 include indicators for missing data on assets, number of siblings, talking on the phone with friends, and regular attendance at religious services.
SOURCE: Data are drawn from the NCS-R and the NLAAS.

either short- or long-term unemployment over the past year leads to a significant increase in their reporting to have experienced poor emotional health in the past year relative to similar persons who worked throughout the past year. For instance, vulnerable individuals who were subject to long-term unemployment were 58 percent more likely (Model 3) to experience psychological distress compared to those vulnerable persons in the labor force who worked the entire past year.

Consistent with our theory, we find that a number of buffers—being married, having adult children, having friends with whom you are in regular contact, and being part of a religious community—significantly reduce the odds of experiencing psychological distress over the past year, regardless of exposure to unemployment, for vulnerable persons (see Appendix Table 4A.4). However, emotional health does not appear to be directly related to such buffers for resilient persons.

Do Buffers Mediate the Link between Unemployment and Psychological Distress?

An interesting question is whether social characteristics or features of a person's life act to insulate them from the adverse impact of unemployment on their psychological health. We explore this question by evaluating the link between unemployment and emotional well-being when a potential social buffer is present and when it is absent across both of our subsamples. Our findings for seven social buffers (i.e., being married or having a mother who is alive) are presented in Table 4.3. Table 4A.4 presents evidence on the prevalence of the various buffers in our data sets and on the size of the subsamples used to estimate the impact of unemployment on psychological health when a potential buffer is present and when it is absent.

Among resilient persons (the left side of Table 4.3), long-term unemployment is positively associated with the odds of experiencing psychological distress (i.e., an estimated coefficient > 1) in all seven cases when the buffer is not present (on 4 occasions the estimate is statistically significant), but also for 6 of the seven scenarios when the buffer is present (again, 4 of the estimated impacts are statistically significant). Moreover, the odds of poor emotional health due to long-term unemployment exposure are elevated to a greater extent when the buffer is not present relative to when it is present on three occasions

Table 4.3 The Impact of Social and Economic Buffers on the Effect of Short-Term and Long-Term Unemployment on the Odds of Currently Experiencing Psychological Distress

	Resilient subsample		Vulnerable subsample	
	Panel A: Marriage stratifications			
	Not married (n = 1,732)	Married (n = 3,649)	Not married (n = 939)	Married (n = 1,170)
Short-term unemployment	1.63 (1.03)	0.45 (0.48)	2.61*** (0.63)	1.30 (0.30)
Long-term unemployment	4.03*** (2.00)	1.92 (0.93)	1.84*** (0.39)	1.41* (0.28)
	Panel B: Mother stratifications			
	Mom not alive (n = 3,531)	Mom alive (n = 1,731)	Mom not alive (n = 975)	Mom alive (n = 1,134)
Short-term unemployment	3.10* (1.92)	0.49 (0.36)	1.47 (0.41)	1.99*** (0.40)
Long-term unemployment	4.366*** (2.21)	2.03 (1.01)	1.45** (0.26)	1.83** (0.44)
	Panel C: Father stratifications			
	Dad not alive (n = 763)	Dad alive (n = 1,376)	Dad not alive (n = 607)	Dad alive (n = 851)
Short-term unemployment	1.75 (2.52)	1.24 (0.72)	1.79** (0.53)	1.51* (0.37)
Long-term unemployment	11.14*** (8.10)	0.57 (0.60)	1.98** (0.54)	1.12 (0.34)
	Panel D: Adult children stratifications			
	No adult children (n = 2,256)	Adult children (n = 2,845)	No adult children (n = 1,042)	Adult children (n = 1,067)
Short-term unemployment	0.84 (0.52)	1.730 (1.38)	1.59** (0.32)	2.29*** (0.62)
Long-term unemployment	2.34* (1.17)	3.69** (1.92)	1.19 (0.28)	1.80*** (0.33)

Table 4.3 (continued)

	Resilient subsample		Vulnerable subsample	
	Panel E: Talk to friends stratifications			
	Talk rarely ($n = 2,824$)	Talk often ($n = 2,473$)	Talk rarely ($n = 1,022$)	Talk often ($n = 1,027$)
Short-term unemployment	1.12 (0.90)	1.30 (0.81)	1.56* (0.38)	1.77** (0.39)
Long-term unemployment	1.88 (1.06)	4.26*** (1.87)	1.72*** (0.35)	1.40 (0.29)

	Panel F: Attend religious services stratifications			
	Attend rarely ($n = 2,472$)	Attend regularly ($n = 2,292$)	Attend rarely ($n = 1,011$)	Attend regularly ($n = 864$)
Short-term unemployment	1.27 (0.75)	0.71 (0.75)	2.31*** (0.54)	1.26 (0.38)
Long-term unemployment	1.52 (0.88)	4.44*** (2.34)	1.91*** (0.38)	1.30 (0.31)

	Panel G: Young children in the home stratifications			
	Children ($n = 1,054$)	No children (426)	Children ($n = 626$)	No children (1,483)
Short-term unemployment	1.02 (0.81)	0.99 (0.65)	1.82* (0.56)	1.79*** (0.36)
Long-term unemployment	1.27 (1.05)	3.53*** (1.43)	1.03 (0.36)	1.73*** (0.28)

NOTE: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.
SOURCE: Data are drawn from the NCS-R and the NLAAS.

(marriage, mother alive, father alive), but for the other four social buffers the deleterious impact of long-term unemployment on emotional well-being is larger when the buffer is present. Thus, the evidence is mixed on whether social factors considered buffers reduce the impact of long-term unemployment on mental health for resilient persons. Furthermore, the results exhibit the same mixed pattern for the vulnerable population.

Short-term unemployment is essentially unrelated to psychological health regardless of whether social buffers are present or not for resilient individuals. Experiencing short-term unemployment only significantly

damages emotional well-being for those without a mother who is alive in our resilient subsample. However, the situation is very different for the vulnerable who, prior to the current year, reported having suffered through bouts of poor emotional health. For them, whenever social buffers are not present, short-term unemployment leads to elevated odds of psychological distress, and in 6 out of 7 cases, the impact is statistically significant. The same pattern holds when the social barrier is present, which suggests that for vulnerable people the presence of what could well be a buffer does not mitigate the deleterious impact of short-term unemployment on mental health status. Thus, for persons with a prior history of poor emotional well-being, short-term unemployment exhibits the same negative pattern of effects on psychological health as long-term unemployment.

Do Demographic Factors and Education Mediate the Link between Unemployment and Psychological Distress?

It is possible that the connection between psychological well-being and unemployment is influenced by demographic factors such as age and gender, as well as skill level or educational investment. To explore this possibility we stratified our data sets by gender, education level (more than high school, high school or less), and age (30 years of age or older, less than 30 years old). The results, reported in Table 4.4, offer three key insights. First, for the resilient individuals, short-term unemployment is unrelated to emotional well-being, regardless of gender, education level, or age cohort. Second, the results for the vulnerable individuals are consistent with the findings in Table 4.2, Panel B: both short- and long-term unemployment significantly damage mental health, regardless of gender, educational attainment, or age cohort. Finally, among the resilient population, those most negatively affected by long-term unemployment are males, highly educated, and older individuals—groups typically associated with being primary breadwinners.

CONCLUSION

A longstanding belief among social scientists is that unemployment, especially long bouts, has deleterious effects on emotional health.

Table 4.4 The Impact of Select Demographic Factors on the Effect of Short-Term and Long-Term Unemployment on the Odds of Currently Experiencing Psychological Distress

	Panel A: Gender stratifications			
	Resilient subsample		Vulnerable subsample	
	Male (*n* = 2,683)	Female (*n* = 2,349)	Male (*n* = 790)	Female (*n* = 1,319)
Short-term unemployment	0.59 (0.64)	1.33 (0.82)	1.94*** (0.49)	1.78*** (0.38)
Long-term unemployment	5.62*** (2.93)	2.15* (0.98)	1.93** (0.53)	1.43** (0.24)

	Panel B: Education level stratifications			
	More than high school (*n* = 2,933)	High school or less (*n* = 2,468)	More than high school (*n* = 1,234)	High school or less (*n* = 875)
Short-term unemployment	1.32 (0.93)	0.75 (0.61)	1.85*** (0.39)	1.82** (0.47)
Long-term unemployment	5.74*** (2.55)	1.53 (0.73)	1.42* (0.29)	1.80*** (0.36)

	Panel C: Age stratifications			
	More than 29 (*n* = 3,934)	Less than 30 (*n* = 1,443)	More than 29 (*n* = 1,565)	Less than 30 (*n* = 544)
Short-term unemployment	2.39 (1.33)	0.26 (0.27)	1.87*** (0.38)	1.87** (0.52)
Long-term unemployment	4.03*** (1.81)	1.96 (1.09)	1.63*** (0.26)	1.21 (0.38)

NOTE: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.
SOURCE: Data are drawn from the NCS-R and the NLAAS.

There is extensive evidence of a direct link between mental health and involuntary joblessness; however, the possibility that poor emotional well-being leads to long periods of unemployment has left the question of causality unresolved. This chapter introduces a new approach to the assembly of data that allows estimation of the link between emotional health and unemployment that may address concerns about the direction of causality. Our estimates are conducted using a subsample of resilient persons—those who until the current year have never experi-

enced poor mental health. If resilient individuals are exposed to unemployment and exhibit poor mental health, it seems most likely that the joblessness harmed their psychological health. We find that long-term unemployment—but not short-term unemployment—promotes psychological distress among resilient persons. Moreover, the negative psychological consequences of long-term unemployment are present even when buffers exist, suggesting that policymakers consider both the monetary and nonpecuniary costs of unemployment when formulating policy to address economic downturns. Our findings suggest that the Great Recession and subsequent slow recovery have likely generated extraordinary negative psychological consequences: at the peak of this recession, about 45 percent of the unemployed had been out of work six months or longer, and one-third of the unemployed were jobless for at least a year.

Notes

1. Warr's (1987) vitamin model is similar to Jahoda's (1982) functionality framework, in that desired features of work—like vitamins—contribute to psychological health, and when they are withheld or withdrawn through unemployment, emotional well-being is impaired.
2. Similarly, the Life Event model advanced by Brenner (1976) and Catalano and Dooley (1977) argues that any alterations in life circumstances, especially those deemed important to personal identity and status such as joblessness, are stressful and thus may hamper psychological health.
3. Poorer mental health status for the unemployed relative to the employed has been found for both men (Ensminger and Celentano 1990; Rowley and Feather 1987), and women (Dew, Bromet, and Penkower 1992), and long-term unemployment is especially damaging (Warr and Jackson 1985).
4. For a meta-analysis review of cross-sectional studies of the link between various forms of emotional health and unemployment, see Paul and Moser (2009).
5. For a meta-analytic review of longitudinal studies finding improvements in emotional health for unemployed who find work, see McKee-Ryan et al. (2005).
6. Kessler et al. (2003) combined respondents' self-reports on a similar set of feelings and emotions to construct a nonspecific psychological distress score to assess mental health.
7. Examples of acceptable reasons included those who are retired, homemakers, in school, and physically or mentally unable to work.
8. Numerous studies report that social support buffers the psychological distress associated with unemployment. See, for instance, Atkinson, Liem, and Liem (1986).

Appendix 4A

Table 4A.1 Definition of Variables Used in Logit Estimation of the Influence of Unemployment on Psychological Distress

Variable name	Variable definition
Data sets	
Resilient	1 if respondent has never experienced psychological distress (see outcome definition below) or had their first bout in the past year, 0 otherwise
Vulnerable	1 if respondent has experienced psychological distress prior to the current year, 0 otherwise
Outcome	
PsyDistress	1 if respondent reports being sad, empty, discouraged, depressed, or disinterested most of the day nearly every day in the past year for either at least two weeks or every month, 0 otherwise
Work force status	
Short-term unemployment	1 if experienced unemployment during the past year and the total weeks summed to 25 or fewer weeks, 0 otherwise
Long-term unemployment	1 if experienced unemployment during the past year and the total weeks summed to 26 or more weeks, 0 otherwise
Employed	1 if employed throughout the past year at least 40 weeks and experienced no unemployment in past 12 months
Economic & social buffers	
Assets	Respondent's estimated value of assets less debts in thousands
Married	1 if respondent is currently married or cohabitating, 0 otherwise
Mother living	1 if respondent's biological mother is still alive, 0 otherwise
Father living	1 if respondent's biological father is still alive, 0 otherwise
Siblings	Number of siblings respondent had while growing up, top coded at 8

Table 4A.1 (continued)

Variable name	Variable definition
Economic & social buffers	
Adult children	Total number of adult children respondent has that are living—both biological and nonbiological, 0 otherwise.
Friends	1 if respondent often talks on phone or gets together with friends most every day or a few times a week, 0 if less often.
Religious community	1 if respondent attends religious services at least 3 times per month, 0 otherwise.
Young children	Total number of living biological and nonbiological children under 17 years of age living in respondent's home.
Demographics	
Foreign born	1 if respondent reports being born outside the United States, 0 otherwise.
Female	1 if respondent is female, 0 otherwise.
Highly educated	1 if respondent reports having completed more than 12 years of formal education, 0 otherwise.
Young	1 if respondent is less than 31 years of age, 0 otherwise.
African American	1 if respondent reports being African Caribbean or African American, 0 otherwise.
Hispanic	1 if respondent reports being Hispanic, 0 otherwise.
Asian	1 if respondent reports being Asian, 0 otherwise.
Family characteristics	
Both parents	1 if respondent reports being raised by both their biological father and biological mother, 0 otherwise.
Mother highly educated	1 if respondent reports their mother completed 12 or more years of formal education, 0 otherwise.
Father highly educated	1 if respondent reports their father completed 12 or more years of formal education, 0 otherwise.
Welfare	1 if respondent reports their family was on welfare at some time during their youth, 0 otherwise.

Table 4A.2 Summary Statistics for All Variables Used in Logit Estimates for Resilient and Vulnerable Samples

Variable	Resilient (n = 5,485)	Vulnerable (n = 2,109)	Variable	Resilient (n = 5,485)	Vulnerable (n = 2,109)
PsyDistress	0.01 (0.11)	0.40 (0.49)	Young children	0.34 (0.81)	0.50 (0.95)
Short-term unemployment	0.07 (0.26)	0.09 (0.28)	Foreign born	0.44 (0.50)	0.21 (0.41)
Long-term unemployment	0.11 (0.32)	0.12 (0.33)	Female	0.49 (0.50)	0.63 (0.48)
Assets	65.05 (163.43)	75.25 (179.56)	Highly educated	0.55 (0.50)	0.59 (0.49)
Assets—missing	0.38 (0.49)	0.31 (0.46)	Young	0.28 (0.45)	0.26 (0.44)
Married	0.67 (0.47)	0.56 (0.50)	African American	0.07 (0.25)	0.07 (0.26)
Mother living	0.35 (0.48)	0.54 (0.50)	Hispanic	0.34 (0.48)	0.26 (0.44)
Father living	0.26 (0.44)	0.40 (0.49)	Asian	0.27 (0.45)	0.11 (0.31)
Father living—missing	0.57 (0.51)	0.31 (0.46)	Both parents	0.79 (0.41)	0.76 (0.43)
Siblings	1.51 (2.29)	2.37 (2.44)	Mother highly educated	0.49 (0.50)	0.59 (0.49)
Siblings—missing	0.57 (0.50)	0.30 (0.46)	Mother highly educated—missing	0.11 (0.31)	0.09 (0.29)

Adult children	1.31	1.04	Father highly educated	0.47	0.52
	(1.48)	(1.37)		(0.50)	(0.50)
Friends	0.45	0.49	Father highly educated—missing	0.20	0.19
	(0.50)	(0.50)		(0.40)	(0.39)
Friends—missing	0.03	0.03	Welfare	0.04	0.08
	(0.18)	(0.17)		(0.20)	(0.28)
Religious community	0.45	0.41	Welfare-missing	0.57	0.31
	(0.50)	(0.49)		(0.50)	(0.46)
Religious community—missing	0.10	0.11			
	(0.30)	(0.31)			

SOURCE: Data drawn from the NCS-R and the NLAAS. Means are reported with standard errors in parentheses. Indicator variables are constructed that take on a value of 1 if the individual does not answer a question and therefore have a missing value and a value of zero for a valid response. We use the name construct of "variable name—missing" for each of these indicators. These indicators allow the observation to be included in the sample but not influence the coefficient of the related variable.

Table 4A.3 The Impact of Short-Term and Long-Term Unemployment on the Odds of Currently Experiencing Psychological Distress for Resilient Individuals—Full Results

Variables	Model 1 Odds ratio	Model 2 Odds ratio	Model 3 Odds ratio
Workforce status			
Short-term unemployment	1.28	1.10	1.04
	(0.61)	(0.53)	(0.52)
Long-term unemployment	2.25***	3.18***	2.85***
	(0.70)	(0.99)	(0.96)
Buffers			
Assets		1.00	1.00
		(0.00)	(0.00)
Assets—missing		1.07	1.04
		(0.32)	(0.30)
Married		0.71	0.80
		(0.193)	(0.22)
Mother living		1.20	1.12
		(0.47)	(0.47)
Father living		1.30	1.12
		(0.46)	(0.42)
Father living—missing		0.10**	0.03**
		(0.10)	(0.04)
Siblings		1.03	1.02
		(0.07)	(0.07)
Siblings—missing		4.19	5.02
		(43.00)	(5.07)
Adult children		0.98	1.02
		(0.09)	(0.10)
Friends		1.01	0.99
		(0.26)	(0.26)
Friends—missing		0.50	0.46
		(0.38)	(0.36)
Religious community		0.69	0.64
		(0.19)	(0.18)
Religious community—missing		0.77	0.82
		(0.34	(0.37)
Young children		1.15	1.16
		(0.11)	(0.13)
Born in foreign country		0.93	0.86
		(0.40)	(0.37)

Table 4A.3 (continued)

Demographics			
Female			1.96**
			(0.55)
Highly educated			0.87
			(0.24)
Young			1.42
			(0.43)
African American			1.45
			(0.64)
Hispanic			1.91*
			(0.76)
Asian			1.64
			(0.91)
Family characteristics			
Both parents			1.08
			(0.34)
Mother highly educated			1.07
			(0.39)
Mother highly educated—missing			0.92
			(0.46)
Father highly educated			1.34
			(0.47)
Father highly educated—missing			0.95
			(0.37)
Welfare			0.69
			(0.38)
Welfare—missing			1.91
			(2.00)
Constant	0.01***	0.02***	0.01***
	(0.01)	(0.01)	(0.01)
Observations	5,485	5,485	5,485

NOTE: *** p < 0.01, ** p < 0.05, * p < 0.1. Resilient persons have either never experienced psychological distress—a sustained period over at least one month in the past year of sadness/discouragement/disinterest—or had their first spell of distress in the past year. Reference group for unemployment is employed throughout the previous year, those out of the labor force are excluded from the data, and discouraged workers are counted as unemployed. Indicator variables are constructed that take on a value of 1 if the individual does not answer a question and therefore have a missing value and a value of zero for a valid response. We use the name construct of "variable name—missing" for each of these indicators. These indicators allow the observation to be included in the sample but not influence the coefficient of the related variable.
SOURCE: Data are drawn from the NCS-R and the NLAAS.

Table 4A.4 The Impact of Short-Term and Long-Term Unemployment on the Odds of Currently Experiencing Psychological Distress for Vulnerable Individuals—Full Results

	Model 1	Model 2	Model 3
Variables	Odds ratio	Odds ratio	Odds ratio
Workforce status			
Short-term unemployment	1.90***	1.85***	1.80***
	(0.30)	(0.30)	(0.29)
Long-term unemployment	1.74***	1.69***	1.58***
	(0.23)	(0.24)	(0.22)
Buffers			
Assets		1.00***	1.00***
		(0.00)	(0.00)
Assets—missing		0.89	0.89
		(0.09)	(0.10)
Married		0.61***	0.63***
		(0.06)	(0.06)
Mother living		0.99	0.97
		(0.13)	(0.13)
Father living		0.97	0.99
		(0.12)	(0.13)
Father living—missing		1.86*	1.71
		(0.61)	(0.59)
Siblings		1.01	0.99
		(0.03)	(0.03)
Siblings—missing		0.66	0.79
		(0.22)	(0.31)
Adult children		0.93**	0.93**
		(0.03)	(0.03)
Friends		0.77***	0.77***
		(0.07)	(0.07)
Friends—missing		0.73	0.69
		(0.21)	(0.20)
Religious community		0.82**	0.84*
		(0.08)	(0.08)
Religious community—missing		0.87	0.87
		(0.13)	(0.13)
Young children		1.03	1.01
		(0.05)	(0.05)
Born in foreign country		0.99	1.05
		(0.14)	(0.15)

Table 4A.4 (continued)

Demographics			
Female			1.06
			(0.10)
Highly educated			0.88
			(0.09)
Young			1.21
			(0.15)
African American			1.11
			(0.22)
Hispanic			0.80
			(0.15)
Asian			0.71
			(0.17)
Family characteristics			
Both parents			0.92
			(0.11)
Mother highly educated			0.93
			(0.11)
Mother highly educated—missing			1.06
			(0.20)
Father highly educated			0.95
			(0.12)
Father highly educated—missing			1.06
			(0.17)
Welfare			1.46**
			(0.26)
Welfare—missing			1.02
			(0.33)
Constant	0.59***	1.11	1.31
	(0.03)	(0.22)	(0.35)
Observations	2,109	2,109	2,109

NOTE: *** p < 0.01, ** p < 0.05, * p < 0.1. Vulnerable persons have experienced psychological distress—a sustained period over at least one month in the past year of sadness/discouragment/disinterest—or had their first spell of distress in the past year, prior to the past 12 months and may also have experienced a spell of distress in the past year. Reference group for unemployment is employed throughout the previous year, those out of the labor force are excluded from the data, and discouraged workers are counted as unemployed. Indicator variables are constructed that take on a value of 1 if the individual does not answer a question and therefore have a missing value and a value of zero for a valid response. We use the name construct of "variable name—missing" for each of these indicators. These indicators allow the observation to be included in the sample but not influence the coefficient of the related variable.
SOURCE: Data are drawn from the NCS-R and the NLAAS.

Table 4A.5 Sample Size for Buffers and Demographics Used to Stratify the Data to Evaluate If the Impact of Unemployment on the Odds of Psychological Distress Depends on These Elements

| | Resilient subsample | | | Vulnerable subsample | |
| | Variable status | | | Variable status | |
Variable (*n* prior to stratification)	Yes	No	Variable (*n* prior to stratification)	Yes	No
Buffers			Buffers		
Married (*n* = 5,485)	66.5	33.5	Married (*n* = 2,109)	55.5	44.5
Mother living (*n* = 5,485)	34.6	65.4	Mother living (*n* = 2,109)	53.8	46.2
Father living (*n* = 2,356)	59.4	40.6	Father living (*n* = 1,458)	58.4	41.6
Adult children (*n* = 5,485)	58.9	41.1	Adult children (*n* = 2,109)	50.6	49.4
Friends (*n* = 5,297)	46.7	53.3	Friends (*n* = 2,049)	50.1	49.9
Religious community (*n* = 4,921)	49.8	50.2	Religious community (*n* = 1,875)	46.1	53.9
Young children (*n* = 5,485)	20.5	79.5	Young children (*n* = 2,109)	29.7	70.3
Demographics			Demographics		
Female (*n* = 5,485)	48.9	51.1	Female (*n* = 2,109)	62.5	37.5
Highly educated (*n* = 5,485)	55.0	45.0	Highly educated (*n* = 2,109)	58.5	41.5
Young (*n* = 5,485)	28.3	71.7	Young (*n* = 2,109)	25.8	74.2

NOTE: Sample size prior to stratification may be smaller than the full subsamples used in the estimates presented in Tables 4.2 and 4.3. In the full subsamples, some observations contain missing values for specific buffers or demographics. Estimates with the full subsample include separate indicator variables for missing values for each variable. The stratification analysis eliminates observations with a missing value for the buffer or demographic variable that is the basis for stratifying the resilient or vulnerable subsamples.

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