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Healing and/or Breaking? The Mental Health Implications of Repeated Economic Insecurity

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## HEALING AND/OR BREAKING? THE MENTAL HEALTH IMPLICATIONS OF REPEATED ECONOMIC INSECURITY

### Abstract

Current literature confirms the negative consequences of contemporaneous economic insecurity for mental health, but ignores possible implications of repeated insecurity. This paper asks how much a person's history of economic insecurity matters for psychological distress by contrasting the implications of two models. Consistent with the health capital literature, the Healing model suggests psychological distress is a stock variable affected by shocks from life events, with past events having less impact than more recent shocks. Alternatively, the Breaking Point model considers that high levels of distress represent a distinct shift in life state, which occurs if the accumulation of past life stresses exceeds some critical value. Using five cycles of Canadian National Population Health Survey data (2000-2009), we model the impact of past economic insecurity shocks on current psychological distress in a way that can distinguish between these hypotheses. In our sample of 1,775 males and 1,883 females aged 25 to 64, we find a robust healing effect for one-time economic insecurity shocks. For males, only a recent one-time occurrence of economic insecurity is predictive of higher current psychological distress (0.19 standard deviations). Moreover, working age adults tend to recover from past accumulated experiences of economic insecurity if they were recently economically secure. However, consistent with the Breaking Point hypothesis, males experiencing three or four cycles of recent insecurity are estimated to have a level of current psychological distress that is 0.26-0.29 standard deviations higher than those who were employed and job secure throughout the same time period. We also find, consistent with other literature, distinct gender differences - for working age females, all economic insecurity variables are statistically insignificant at conventional levels. Our results suggest that although Canadians are resilient to one-time insecurity shocks, males most vulnerable to repeated bouts suffer from elevated levels of psychological distress.

**Keywords:** mental health; economic insecurity; job insecurity; unemployment; Canada

## 1. INTRODUCTION

Recently, Katz and Krueger (2016) have suggested that employment growth in the United States, particularly since the Great Recession, has been concentrated in precarious employment. Cranford et al. (2003) report a similar finding for Canada. Economic insecurity, defined as the “inability to obtain protection against subjectively significant potential economic losses” (Osberg 1998, p. 17), has been on the rise in North America (Hacker et al., 2010; Osberg & Sharpe, 2009). As Hacker (2006) notes, many of society's risks which were at one time pooled and managed by over-arching institutions have, in recent years, been shifted to the individual (e.g. the decline in number of North American firms offering health insurance and pension plans to their employees) [See also Wisman and Capehart (2010)]. Thus, long term growth of the precariat implies that economic insecurity is likely to be a recurring state for an increasing fraction of the population.

Numerous studies have confirmed the negative consequences of economic and job insecurity for mental health (Godin et al., 2005; Green, 2011; Marchand & Blanc, 2011; Meltzer et al., 2010; Rohde et al., 2014; Stansfeld & Candy, 2006; Sverke et al., 2002; Thomas et al., 2005; Watson & Osberg, 2016). However, this research has primarily focused on the contemporaneous relationship between insecurity and poor mental health and has, until now, not examined the possible implications of repeated insecurity. Nevertheless, it is reasonable to imagine that the mental health implications of the stress from economic insecurity might accumulate in their impacts. This paper therefore asks how much a person's history of economic insecurity matters for current psychological distress, over and above the impacts of recent insecurity.

We contrast two general perspectives of cumulative impacts. One hypothesis, consistent with the Grossman (1972) health capital model, is that mental health is a continuous stock variable which is

subject to the shocks of life events, but because individuals heal from past events, older stresses have consistently less impact than more recent events – we call this the “Healing” model. Our second hypothesis can be thought of as the “Breaking Point” model – that when past life stresses accumulate, a longer sequence of past shocks produces cumulatively larger negative impacts on mental health. In this view, poor mental health represents a distinct shift in life state, which happens when the accumulation of stresses exceeds some critical value. We model the impact of past economic insecurity shocks on current mental health, measured using a psychological distress index, in a way that can distinguish between these hypotheses. Although research suggests resilience has the potential to moderate the negative effects of accumulated stress (Beasley et al., 2003; Chen & Miller, 2013; Luthar et al., 2000; Schetter & Dolbir, 2011; Zautra et al., 2008), this study sheds light on the degree to which working age Canadians are expected to psychologically cope with past incidences (multiple or otherwise) of economic insecurity.

It is important to note these hypotheses are not mutually exclusive. That is, while it is reasonable to expect a person to heal from past one-time spells of economic insecurity, repeated bouts may cause this same individual to break. Additionally, if this individual is later able to find secure employment, thereby ending their streak of insecure incidences, they may once again heal. Therefore, we ask: what pattern of healing and/or breaking from past encounters of economic insecurity do we observe?

Psychological theorists have underscored the importance of differentiating between the impacts of contemporaneous and accumulative stressors in evaluating an individual’s mental health (Lazarus, 1999; Zautra, 2003). However, there is a dearth of empirical research regarding this topic. Both Bolger et al. (1989) and Schilling and Diehl (2014) find the accumulation stress on an individual’s negative affect is additive rather than multiplicative. However, in both studies, the analysis considered only the daily pile-

up of stressors with Schilling and Diehl (2014) recommending the study of the accumulation of stress over a longer time horizon in order “...to gain a clearer understanding of the role of stressor pile-up in the overall stress process and with regard to health and well-being” (p. 80).

Clark et al. (2001) suggest that mental health is poorer not only for those currently unemployed but also for those who experienced past bouts of unemployment – even if these individuals have since become re-employed. The authors refer to the impact of past spells of unemployment as having a “scarring” effect on an individual’s well-being, suggesting that individuals may find it difficult to heal from past negative economic shocks. In a subsequent paper, Knabe and Ratzel (2011) extended the above research noting that the scarring from past spells of unemployment is largely the result of worsened expectations of the probability of becoming unemployed in the future. That is, past unemployment is correlated with a person’s perception of future unemployment and once this perception is controlled for, past unemployment spells are no longer predictive of an individual’s well-being. The authors suggest that past unemployment produces not so much a “scarring” effect but a “scaring” effect.

We extend this research by evaluating the impact of the sequence of past spells of economic insecurity on mental health. Watson and Osberg (2016) find that the threat of unemployment can be just as detrimental, and in some cases even more concerning, to individuals than the actual occurrence of job loss. This is an issue of special importance for individuals who find themselves part of the precariat as they are more likely to transition frequently between states of job insecurity and joblessness. Thus, our objective is to examine the threat and/or occurrence of past negative economic shocks and their effect on current mental health. Moreover, while Clark et al. (2001) and Knabe and Ratzel (2011) evaluate the impact of past unemployment over the three years prior to their survey date, we include the effects of past economic insecurity during a period of eight years prior to time of survey.

Our data is drawn from Canada's National Population Health Survey (NPHS); a household survey of Canadians taking place every two years from 1994-95 (cycle 1) until 2011 (cycle 9). Because the Research Data Centres of Statistics Canada only make NPHS microdata available with rigorous safeguards to protect anonymity, ethics approval is not required. As stated by Tambay and Catlin (1995), "The NPHS target population includes household residents in all provinces and territories, except persons living on Indian Reserves, or Canadian Forces Bases, and in some remote areas" (p. 30). We examine data ranging from 2000-01 (cycle 4) until 2008-09 (cycle 8) with cycles 1, 2, and 3 being excluded given they do not contain questions regarding an individual's perception of job insecurity nor precise estimates of household income. Cycle 9 was released after we had secured access to the data, and thus is excluded. In determining the sample, the survey implemented a two-stage stratified design based on the selection of households within independent clusters. The clusters are derived by dividing each province into three types of areas: urban centres, urban towns, and rural areas. Clusters within each area are stratified by geography and/or socioeconomic characteristics. Finally, household lists within the clusters are used in determining the sample of households. To account for the survey's stratified sampling design, nonresponse rates, and distribution by province, gender, and age, longitudinal weights provided by NPHS are applied to all statistical analyses.

We examine working age adults who were at least 25 years of age at the beginning of the study period (i.e. cycle 4) and under the age of 64 by the end (cycle 8). Mental health is measured using the Kessler et al. (2002) psychological distress scale which measures "non-specific psychological distress" for respondents age 18 and older. The scale is derived based on responses to a set of questions regarding depressive and anxiety symptoms respondents may have experienced during the four weeks preceding the survey and has been widely validated (Arnaud et al., 2010; Kessler et al., 2010; Kubiak et al., 2010;

Prochaska et al., 2012). Respondents were asked to evaluate the following statements: “felt so sad that nothing could cheer you up”, “felt nervous”, “felt restless/fidgety”, “felt hopeless”, “felt worthless”, and “felt everything was an effort” on a 5 point Likert scale ranging from “strongly disagree” (0) to “strongly agree” (4). Summation of the responses produces an index that ranges from a minimum value of 0 to a maximum of 24 with higher values indicating a higher level of psychological distress. For interpretation purposes, this variable is standardized to have a mean of zero and a standard deviation of one.

NPHS also collected data on a respondent's labour force activity and perception of job security. Since the social norm for working age adults in Canada is to have a job and to continue in that job, for this study we define economic security as the state of being employed and having a perception of job security. Respondents were asked to evaluate the statement “my job security is good” on a 5 point Likert scale, ranging from “strongly agree” (1) to “strongly disagree” (5). We define the respondent as being job secure if they answer this question with “agree”, “strongly agree”, or “neutral” (values 1, 2, and 3 respectively); job insecure otherwise (values 4 and 5 which correspond to “disagree” and “strongly disagree” respectively). Individuals who, at the time of survey, report a perception of job insecurity, being unemployed, or not being in the labour force are classified as being economically insecure for that time period. Since NPHS did not ask respondents to cite the reason they were not part of the labour force, and given some individuals may voluntarily choose to exit, we exclude those not in the labour force for the entirety of the study period on the grounds that such individuals are unlikely to be discouraged workers and thus unlikely to experience mental distress as a result of their labour market status. Furthermore, we also exclude students.

As an identification strategy, our key regression model evaluates the effect of past spells of economic insecurity (cycles 4 through 7) on current psychological distress (cycle 8) (See Section 3.2). To examine

both the Healing and Breaking Point hypotheses, a set of economic insecurity dummy variables which control for all possible labour market outcomes over the study period are derived. To control for potential unobserved time-invariant traits (e.g. genetics, neuroticism, etc.), our model controls for the respondent's mean level of psychological distress over the three cycles of data prior to the actual study period. Including cycle 8 economic insecurity in the model poses a concern regarding reverse causality. That is, current economic insecurity may cause elevated psychological distress and/or current elevated psychological distress may cause economic insecurity. Therefore, to help obviate the possibility of reverse causality, we only control for lagged labour market outcomes in our regression analysis (i.e. it is unlikely that current psychological distress affects past incidences of economic insecurity).

For working age adults, we find a robust healing effect for one-time economic insecurity shocks. Of the males aged 25-64 who experienced a one-time occurrence of economic insecurity, we find that only those who experienced it recently are predicted to have a higher level of current psychological distress (0.19 standard deviations). Moreover, working age adults tend to recover from past accumulated experiences of economic insecurity if they were recently economically secure. However, consistent with the Breaking Point hypothesis, for males age 25-64, those who experienced three or four cycles of recent insecurity are estimated to have a level of current psychological distress that is 0.26-0.29 standard deviations higher than those who were employed and job secure throughout the same time period. For working age females, all economic insecurity variables are statistically insignificant.

The rest of the paper is laid out as follows. Section 2 asks: what is the norm for working age Canadian adults regarding their labour market status? In Section 3, we ask whether people are able to heal from past exposure to economic insecurity and whether a particular breaking point from repeated bouts of

economic insecurity produces a considerable rise in psychological distress. Section 4 discusses key results and Section 5 concludes.

## 2. WHAT IS THE “NORM”?

We start from the perspective that for working age Canadians, a “normal” aspiration is employment in a secure job. As noted in the Introduction, economic insecurity is defined as a state of job insecurity or joblessness. Over the five cycles of data (2000-01 to 2008-09), the first four cycles correspond to declining years of unemployment and job insecurity while the final cycle was observed during an upward surge in both variables. **Figure 1** presents the frequency of reporting economic insecurity – an online appendix presents regression results summarizing the characteristics associated with repeated spells of economic insecurity (**Table A.1**). For many Canadians there was little departure from being employed and job secure during this time period. Approximately 41.5 percent of the sample (46.3 percent of males and 37.3 percent of females) was employed and job secure for the entire study period. Moreover, another 23 percent of males and 22 percent of females reported only one incidence of economic insecurity.

However, remembering that we exclude those who reported being out of the labour force for the duration of the study period, about 3.5 percent of the sample (2.7 percent of males and 4.1 percent of females) reported never being economically secure. Additionally, 6 percent of males and 9 percent of females reported only being employed and job secure once over the study period. Although these percentages are relatively small, if these individuals were in fact prone to more psychological distress, they may be an important subset of the population for the health care system since individuals who are prone to heightened levels of psychological distress are more likely to experience additional flow-on

effects including obesity (Dallman et al., 2003), heart disease (Stansfeld et al., 2002) or even suicide (Stravynski & Boyer, 2001).

**(Insert Figure 1 About Here)**

### **3. DEVIATIONS FROM THE “NORM”**

#### **3.1. Comparison of Means**

A comparison of means (**Table 1**) suggests that working age males who were always economically insecure had a mean standardized psychological distress score in cycle 8 that was much higher relative to those who were employed and job secure for the duration of the study period ( $\bar{X}$  = 0.50 vs. -0.23). For women of working age, labour market insecurity was less salient than their always employed and job secure counterparts ( $\bar{X}$  = 0.40 vs. -0.02). For both males and females, a *t* – *test* confirms these descriptive results statistically differ at the 5 percent level.

**(Insert Table 1 About Here)**

#### **3.2. Econometric Specification**

For those who are neither always secure nor always insecure, the frequency and sequence of insecurity spells may matter for well-being – but is the impact of one-time past shocks on current psychological distress diminishing with time, and are repeated bouts causing a cumulative and non-linear impact on current psychological distress? Thus, to what extent are working age adults healing and/or breaking given the existence of past economic insecurity?

The Healing hypothesis considers mental health in period  $t$  as affected by both past shocks and by healing. If healing occurs at a constant rate of  $h$  (where  $0 < h < 1$ ), a shock in period  $t$  can be seen as having an impact of magnitude  $D$ , a shock in period  $t - 1$  as having an impact of  $D(1 - h)$ , a shock in period  $t - 2$  as having an impact of  $D(1 - h)(1 - h)$ , and so forth. Thus, in period  $t$ , mental health is affected by shocks in previous periods with a decay rate of  $h$ .

However, the Breaking Point hypothesis suggests that if economic insecurity endures for  $w$  time periods, stress could increase at a rate greater than  $D \times w$ . That is, if an individual experiences an economic insecurity shock of impact  $D$  in time period  $t$  and if another round of insecurity in time period  $t + 1$  occurs, the result may be an impact of magnitude  $D(1 + b)$  to mental health during that time period - where  $b > 0$ . This hypothesis argues mental health is negatively affected by cumulative exposure to economic shocks with a growth rate of  $b$ . In modeling the Breaking Point hypothesis, we predict that  $b$  is a non-constant growth rate parameter which increases given more exposure to economic stress.

The relationship between economic insecurity and current psychological distress may be endogenously determined due to unobserved person-specific time-invariant heterogeneity as demonstrated by Watson and Osberg (2016). For instance, some respondents may be innately resilient (endowed with the ability to cope with stress) while others are innately neurotic. Thus, to directly control for the possibility that unobserved time-invariant characteristics explain the relationship between economic insecurity and cycle 8 psychological distress, we include a variable measuring person-specific mean standardized psychological distress for each respondent during cycles 1 (1994-95) through 3 (1998-99) – a methodology comparable to Smith et al. (2009). This variable, akin to a within transformation of the dependent variable, captures permanent and pre-study period personal characteristics that affect cycle 8 psychological distress which would otherwise be unobserved.

As well, reverse causality explanations of the relationship between contemporaneous economic insecurity and psychological distress must be addressed. Higher strung people who are prone to being more stressed may be more likely to have increased absenteeism (Colligan & Higgins, 2006; Hardy et al., 2008; Mikolajczak et al., 2007), putting themselves at risk of dismissal. Alternatively, people who are more anxious may self-select into safer, yet lower paying, jobs (Ham, 2009; Moutafi et al., 2007; Mueller & Plug, 2006). To the extent that either is true, contemporaneous results may be biased. Therefore, our analysis uses lagged labour market outcomes as controls given it is unlikely that the psychological distress an individual incurs during cycle 8 is causing economic insecurity during previous cycles of data.

Given the above considerations and to address both the decay rate and the impact of cumulative exposure, our key econometric equation includes a set of lagged dummy variables which capture all states of economic insecurity ( $I$ ) during the study period with the reference category being “never economically insecure” during cycles 4 through 7. Equation 1 specifies the model for estimation:

$$PD_{i,8} = \beta_0 + \sum_{t=4}^7 \beta_t I_{i,t} + \beta_5 I_{i,4+5} + \beta_6 I_{i,5+6} + \beta_7 I_{i,4+5+6} + \beta_8 I_{i,4+5+6+7} + \beta_9 I_{i,5+6+7} + \beta_{10} I_{i,6+7} + \beta_{11} I_{i,NS} + \beta_{12} \overline{PD}_{i,1-3} + \mathbf{X}_{i,8} \boldsymbol{\beta} + v_{i,8}. \quad (1)$$

Where:

$PD$  is standardized psychological distress,

$I = 1$  if the respondent is job insecure, unemployed, or out of the labour force; 0 otherwise,

$X$  is a set of covariates thought to influence psychological distress,

$v$  is the error term, and

$i$  indexes for the individual and  $t$  indexes for cycle of data.

Using a set of dummy variables, parameters  $\beta_1$  through  $\beta_4$  estimate the healing component of the model. Each variable is representative of a one-time occurrence of economic insecurity over the course of the study period. Given  $\beta_1$  through  $\beta_4$  capture past one-time occurrences of economic insecurity, the Healing model with decay rate  $h$  expects:  $\beta_4 > \beta_3 > \beta_2 > \beta_1$ .

Even if an F-statistic suggests  $\beta_1$  through  $\beta_4$  are jointly significant, the sum of these variables may not produce an accurate estimate of the association between always being economically insecure and psychological distress given those suffering from such chronic economic insecurity are unable to heal from a previous period economic shock. Furthermore, if people really do have individual-specific breaking points with respect to stress then simply summing  $\beta_1$  through  $\beta_4$  may underestimate the true rise in psychological distress from being repeatedly economically insecure. To model the potential growth rate in psychological distress we include a set of dummy variables which test for the possibility of greater increases in psychological distress given cumulative exposure to economic insecurity.

The set of parameter estimates  $\beta_5$ ,  $\beta_6$  and  $\beta_7$  capture past accumulated economic insecurity experiences. The Breaking Point model and our expectation that accumulated experience of stress not only erodes an individual's stock of health but also obstructs their ability to heal from the original shock suggests that  $\beta_7 > \beta_6 > \beta_5$  and in all cases, we predict these parameter estimates will exceed those of  $\beta_1$  through  $\beta_4$ . Additionally,  $\beta_{11}$  captures the existence of any non-sequential occurrences of economic insecurity. Given multiple occurrences of economic insecurity are also likely to interfere with the healing process, we expect  $\beta_{11}$  to have a greater effect on psychological distress relative to  $\beta_1$  through  $\beta_4$ .

The parameter estimates  $\beta_8$ ,  $\beta_9$ , and  $\beta_{10}$  estimate the impact of accumulated economic insecurity in a more current context. Such individuals were economically insecure during cycle 7 and also, have experienced insecurity during sequential past cycles of data. In the case of  $\beta_8$ , the individual has been economically insecure during all lagged cycles of data. Relative to all other states of economic insecurity, or lack thereof, we expect such individuals to possess the highest level of psychological distress. Moreover, the hypothesis that at some point the accumulation of stress from repeated economic insecurity causes a breaking point - i.e. at some point, repeated exposure to economic insecurity means the individual reaches a state whereby a downward spiral in their mental health begins – implies a non-linear relationship. That is, if there is a breaking point, at some point in this series of  $\beta$  coefficients, the difference in parameter estimates will become pronounced.

As noted above, by including the mean level of standardized psychological distress ( $\overline{PD}$ ) during cycles 1 through 3, we control for unobservable permanent personal characteristics that might be associated with cycle 8 psychological distress. Additionally, we also control for several factors thought to be associated with psychological distress ( $X$ ). This includes a set of socio-economic and -demographic variables which contain: current (i.e. cycle 8) income (measured using the Luxembourg Income Study equivalence scale - i.e. we divide real annual household income before taxes but after transfers by the square root of the household size at the time of survey), education, single parenthood, household size, ethnicity, region of residence, and age. An index measuring social support is also included based on research by Sherbourne and Stewart (1991), with higher values on the scale representing higher levels of social support ranging from 0 to 32. The scale is based on the summation of eight questions, each with a 5 point scale (0 for “none of the time” to 4 indicating “all the time”). The questions relate to the respondent having someone to: (i) listen to, (ii) help them in a crisis, (iii) provide information, (iv)

provide advice, (v) provide suggestions, (vi) share their most private worries and fears, (vii) confide in, and (viii) understand their problems.

We incorporate a set of health variables consisting of an energy expenditure index, whether or not the respondent has a chronic illness, and self-reported general health status. The energy expenditure index measures the daily energy expenditure of a respondent during leisure time activities over the three months preceding the survey using the frequency and duration of physical activity. We define the existence of a chronic illness using the NPHS classification which is based on the respondent having any of the following issues: allergies, asthma, fibromyalgia, arthritis, back problems, high blood pressure, migraines, bronchitis/emphysema, diabetes, epilepsy, heart disease, intestinal/stomach ulcers, urinary incontinence, bowel disorder, dementia, cataracts, glaucoma, or thyroid problems. Moreover, NPHS asked respondents to report on their general health using a 5 point Likert scale ranging between “poor” and “excellent”. If the respondent reports their general health as “fair” or “poor”, we classify them as having poor self-reported health. A set of marital transitions variables which evaluate the onset of marriage, divorce, and widowhood are also included. Lastly, we control for the season during which the interview took place.

### 3.3. Results

Descriptive statistics of key variables for males and females can be found in **Table 2**. Working age females on average had a higher level of psychological distress during cycle 8 than their male counterparts. About 50 percent of males and 40 percent of females were employed and job secure for cycles 4 through 7. In contrast, about 3 percent of males and almost 4 percent of females were economically insecure during all lagged cycles of data.

**Table 3** presents the results of our Equation 1 regression model using ordinary least squares for working age males and females. The male results are derived from 1,775 observations with the model explaining about 36 percent of the variation in a respondent's psychological distress level during cycle 8. For females, parameter estimates are based on 1,883 observations with just over 32 percent of the variation explained.

**(Insert Table 2 About Here)**

Working age males and females are quite resilient to isolated past incidences of economic insecurity. In terms of one-time economic insecurity occurrences, only males who experienced job insecurity or joblessness during the previous cycle of data (cycle 7) are predicted to be more psychologically distressed in cycle 8. The magnitude of this effect is about 0.19 standard deviations. It would seem Canadian working age adults who experienced one-time economic insecurity shocks occurring four or more years prior to the cycle 8 survey date, on average, have a level of psychological distress akin to those who were employed and job secure throughout the same time period. Thus, these results suggest a strong healing effect for both males and females as a result of past one-time economic insecurity shocks.

Moreover, both males and females also seem to mentally heal from past accumulated economic insecurity experiences. Excluding the results which control for more current bouts of repeated economic insecurity (i.e. variables which consider economic insecurity during cycle 7), past incidences of repeated economic insecurity are not associated with increased psychological distress in cycle 8. Much like the above findings, these results suggest a robust healing effect for working age men and women.

**(Insert Table 3 About Here)**

With respect to the Breaking Point hypothesis, males who were economically insecure for all lagged cycles of data and those insecure during cycles 5, 6, and 7 are predicted to be more psychologically distressed in cycle 8 relative to their always employed and job secure counterparts. Consistent with our expectations, the magnitude of effect for these outcomes exceeds that of the one-time occurrence of economic insecurity during cycle 7. Specifically, males who were economically insecure during all but cycle 4 of the study period are estimated to have a level of psychological distress in cycle 8 that is just over 0.26 standard deviations higher than those employed and job secure throughout. For males who were economically insecure for all lagged cycles of data, the magnitude of effect is slightly larger at almost 0.29 standard deviations. Interestingly, males who were economically insecure during cycles 6 and 7 are not expected to have an increased level of psychological distress during cycle 8. Although the result has the hypothesized direction of effect, statistical significance is not established (P-value = 0.45). Thus, it would seem that for males, a breaking point emerges once they are exposed to three or more cycles of on-going economic insecurity. However, results for females are in all cases statistically insignificant suggesting a breaking point for them may not exist.

Contemporaneous control variables which are associated with more psychological distress in cycle 8 for males and females include: a higher mean level of psychological distress during cycles 1 through 3, relationship stress, and possessing poor/fair self-reported general health. Additionally, a stronger level of social support is associated with less psychological distress for both males and females.

#### **4. DISCUSSION**

As discussed at the outset of this paper, although spells of economic hardship have been linked with poor mental health, earlier studies emphasized the contemporaneous negative relationship between economic (or job) insecurity and mental health. If we consider economic insecurity to be a flow variable which impacts an individual's current stock of mental health, then accumulated bouts of insecurity may influence current mental health. However, if a healing effect occurs, the effects of past shocks will have a reduced effect relative to more contemporary shocks. We therefore ask: to what extent are individuals able to heal from past one-time economic insecurity shocks? Secondly, we hypothesize that repeated bouts of economic insecurity could cause a cumulative and non-linear deterioration in an individual's mental health – i.e. colloquially, one might say that everybody has a breaking point. Thus, we ask: are individuals reaching a point whereby there is a significant decline in their mental health from repeated spells of economic insecurity?

For this study we define economic insecurity as a state during which the respondent is job insecure or jobless (i.e. unemployed or not in the labour force). Mental health is measured using the Kessler et al. (2002) psychological distress scale which we standardize to have a mean of zero and standard deviation of one. Using cycles 4 through 8 of NPHS data (2000-01 to 2008-09), and noting that this was the oil boom period of declining unemployment in Canada, we find that for many working age Canadians, economic insecurity was not a particular concern. Specifically, 46.3 percent of males and 37.3 percent of females did not report being economically insecure during the study period. Nonetheless, a segment of the population experienced relatively chronic levels of economic insecurity that may have subjected them to a potentially distressful breaking point.

To address causality and mitigate the influence of time-invariant unobserved heterogeneity, our key econometric specification controls for the respondent's mean level of psychological distress during

cycles 1 (1994-95) through 3 (1998-99). Additionally, we only include lagged economic insecurity variables to remove concerns regarding reverse causality. As a result, we control for all possible past occurrences of economic insecurity using a set of dummy variables with the reference category being those who were employed and job secure throughout cycles 4 (2000-01) through 7 (2008-09).

Key results of this paper find a robust healing effect for one-time economic insecurity shocks for both working age males and females. For males, only a recent one-time occurrence of economic insecurity (cycle 7) is associated with a higher level of psychological distress in cycle 8 (0.19 standard deviations). Moreover, working age adults tend to recover from past accumulated experiences of economic insecurity if they were recently economically secure.

However, chronically insecure males are predicted to be more psychologically distressed in cycle 8 relative to their employed and job secure counterparts. In particular, males who reported being economically insecure during cycles 5, 6, and 7 have an estimated level of psychological distress in cycle 8 that is about 0.26 standard deviations higher than those who were employed and job secure throughout. Moreover, males who were economically insecure during all lagged cycles of data are predicted to have a psychological distress score in cycle 8 that is 0.29 standard deviations higher than those who were never economically insecure during the same time period. Thus, relatively speaking, it would seem those who are chronically insecure are in fact those most likely to “break” psychologically.

As suggested earlier, the Healing and Breaking Point hypotheses are not mutually exclusive. Although we often find a healing effect for most working age Canadians, we also find a breaking point effect among men who experience chronic bouts of recent economic insecurity. As an extrapolation of our results, if we were to evaluate the psychological distress during cycle 7 for a male who was insecure for

cycles 4, 5, and 6, a breaking point is expected. However, getting a secure job would likely make a big difference. By cycle 8, for those who then found secure employment during cycle 7, a healing process is expected to take hold, while those still insecure continue to break.

In terms of relative magnitude of effect, chronic economic insecurity is more deleterious to a male's current level of mental health than experiencing contemporaneous bouts of relationship/marital stress but less bad than the death of a spouse. The predicted psychological distress score for a male who recently experienced widowhood increases by 0.39 standard deviations (statistically significant at the 10 percent level) which is 0.1 standard deviations larger than the increase we observe for those who have been economically insecure for cycles 4 through 7. Although the onset of widowhood effect size may be larger in magnitude, this represents a one-time shock to mental health, quite unlike the long term impact of repeated bouts of economic insecurity which may continue into the future.

Ignoring any possible interactive effects, males in poor health who have experienced a chronic level of economic insecurity, are estimated to experience an increase in psychological distress of almost 3 points (based on the 24 point scale). Compared to a male with a mean level of psychological distress, all else constant, this increase would put them into the range of experiencing a psychological distress score just above 5. Based on research by Prochaska et al. (2012), this threshold is associated with moderate levels of psychological distress to the extent of impairing several daily functions including work, household, and social encounters. Additionally, this level of distress is also associated with increased demand for mental health intervention.

For working age females, results pertaining to the Breaking Point hypothesis are statistically insignificant. Other researchers have also found gender difference regarding the effect of economic

insecurity on psychological distress (De Witte, 1999; Kalil & Ziol-Guest, 2008; Kopasker et al., 2016; Lahelma, 1992; Rege et al., 2011). In our data, the most recent cases of economic insecurity predict psychological distress for working age males, but for females, results in all cases are statistically insignificant. This is consistent with what De Goede and Maassen (1988) define as “role theory”, whereby work is viewed as a much more important aspect of a male’s identity relative to that of females. Additionally, it is possible that women who are voluntarily out of the labour force may have been misrepresented in our analysis as being economically insecure. Based on the Canadian Labour Force Survey (CANSIM Table 2820002), the participation rate for Canadian working age males tends to be about 10 percentage points higher relative to females (approximately 90 versus 80 percent).

Unfortunately, NPHS only measured a respondent’s perception of job insecurity and labour market status at the time of survey – retrospective data regarding the respondent’s labour force outcomes during the months intervening between each cycle of data is not available. This has the potential to attenuate results given some respondents may have been economically insecure at points during a cycle prior to the survey date. Consequently, future research using data that capture a respondent’s economic insecurity throughout each cycle may give a more precise indication of the effects of repeated economic insecurity on mental health.

Our key regression model (Equation 1) only controls for prior incidences of economic insecurity so to obviate concerns regarding reverse causality. However, we cannot completely exclude the possibility of simultaneous causation. For instance, consider an individual who experiences an exogenous, yet unobserved in the data, psychologically distressing incident in cycle 7 (e.g. a physical attack) causing them to be economically insecure during that cycle. Moreover, consider that this distressing event also causes psychological distress to remain elevated in cycle 8. As a result, evaluating the respondent’s

psychological distress in cycle 8 as a function of economic insecurity in cycle 7 would attribute all the heightened distress to the insecurity during the previous cycle even though part of this association is the result of the exogenous incident. While we expect events that would cause an individual to remain psychologically distressed for over two years to be the exception rather than the norm, we cannot exclude this possibility. Regardless, future empirical research on this topic may wish to explore alternative methods of identification.

## 5. CONCLUSION

The good news of this study is that although research (see Introduction) suggests a recent rise in the precariat, over the period spanned by our data (2000-2009), just over 40 percent of Canadian working age adults were employed and job secure. However, a portion (somewhat less than 5 percent of the sample) of working age adults experienced chronic levels of economic insecurity.

For the remaining working age Canadians who were occasionally economically insecure, our key question is how much a person's history of economic insecurity matters for current levels of psychological distress. Our findings suggest both males and females are able to recover from past one-time occurrences of economic insecurity, which supports the Healing hypothesis for working age Canadians. However, our estimates predict that males who experience chronic levels of economic insecurity will have a current level of psychological distress that is over one-quarter of a standard deviation higher than those who are employed and job secure throughout the same time period.

Although our data suggests that most bouts of economic insecurity were transitory and individuals were often able to recover, those males who were repeatedly economically insecure were very likely to experience increased levels of psychological distress. These mental health implications of economic

insecurity were not part of the discussion when Canada's social safety net was revised in the mid-1990s and, as a consequence, unemployment insurance recipients as a percentage of Canada's unemployed declined by roughly 40 percentage points (Watson et al., 2016). Our data mostly come from a period when, fueled by what seemed to be relentlessly rising oil prices, a resource boom in Canada steadily reduced the unemployment rate. Since 2014, the price of oil has dropped and Canada's resource boom has turned into a resource bust – so our results have to be qualified as being mostly drawn from a more buoyant labour market than is currently observed in Canada. Hence, given the importance of unemployment insurance to economic insecurity and the very concerning flow-on effects of poor mental health (see Section 2), our results suggest those most vulnerable to repeated bouts of economic insecurity deserve greater attention from policy makers.

#### **APPENDIX A. Supplementary Material**

Supplementary material examining the characteristics associated with repeated spells of economic insecurity can be found at [Insert Link to Online Appendix File Here].

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**TABLE 1. Mean Psychological Distress in Cycle 8 (2008-09)**

	<b>Males</b>	<b>Females</b>
Respondent was Economically <i>Insecure</i> During All Cycles of Data	0.5000 (1.22)	0.4007 (1.19)
Respondent was Economically <i>Secure</i> During All Cycles of Data	-0.2316 (0.74)	-0.0228 (0.97)

Notes: Standard deviations in parentheses.

**TABLE 2. Descriptive Statistics for Key Variables**

	<b>Males</b>	<b>Females</b>
Psychological Distress Scale (Standardized)	-0.0627 (0.90)	0.1367 (1.06)
Respondent was Economically Insecure During Cycle 4 Only	0.0574 (0.23)	0.0768 (0.27)
Respondent was Economically Insecure During Cycle 5 Only	0.0579 (0.23)	0.0501 (0.22)
Respondent was Economically Insecure During Cycle 6 Only	0.0467 (0.21)	0.0452 (0.21)
Respondent was Economically Insecure During Cycle 7 Only	0.0510 (0.22)	0.0463 (0.21)
Respondent was Economically Insecure During Cycles 4 and 5	0.0319 (0.18)	0.0340 (0.18)
Respondent was Economically Insecure During Cycles 5 and 6	0.0259 (0.16)	0.0433 (0.20)
Respondent was Economically Insecure During Cycles 4, 5 and 6	0.0545 (0.23)	0.0897 (0.29)
Respondent was Economically Insecure During Cycles 4, 5, 6 and 7	0.0336 (0.18)	0.0376 (0.19)
Respondent was Economically Insecure During Cycles 5, 6, and 7	0.0394 (0.19)	0.0397 (0.20)
Respondent was Economically Insecure During Cycles 6 and 7	0.0279 (0.16)	0.0286 (0.17)
Respondent was Economically Insecure During Non-Sequential Cycles	0.0761 (0.27)	0.1027 (0.30)

Notes: Standard deviations in parentheses.

TABLE 3. Ordinary Least Squares Regression Results

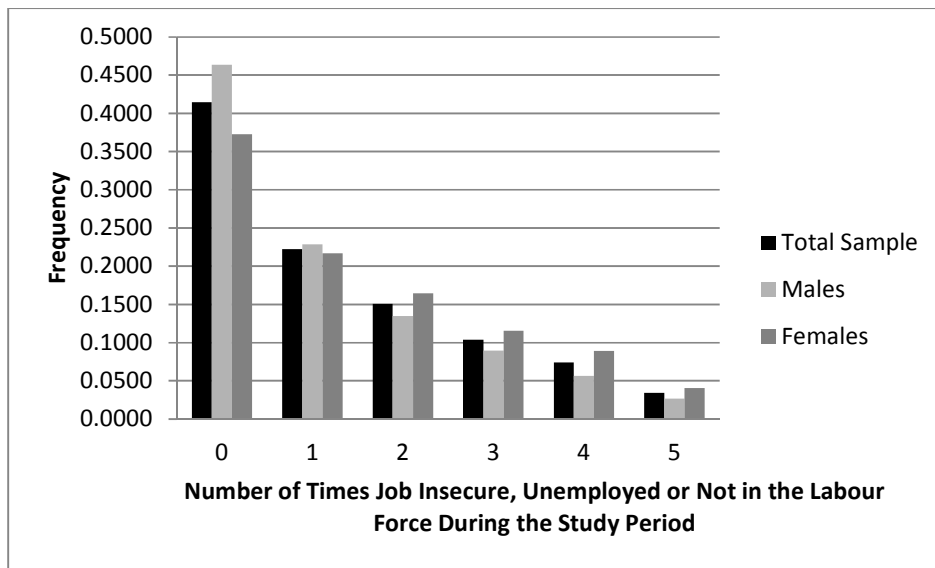
<b>Dependent Variable: Psychological Distress</b>	<b>Males</b>	<b>Females</b>
Respondent was Economically Insecure During Cycle 4 Only	0.0540 (0.08)	0.1844 (0.12)
Respondent was Economically Insecure During Cycle 5 Only	0.0577 (0.08)	-0.1133 (0.11)
Respondent was Economically Insecure During Cycle 6 Only	0.1935 (0.13)	0.0644 (0.12)
Respondent was Economically Insecure During Cycle 7 Only	0.1880* (0.10)	0.1882 (0.14)
Respondent was Economically Insecure During Cycles 4 and 5	-0.0843 (0.10)	0.0625 (0.12)
Respondent was Economically Insecure During Cycles 5 and 6	-0.0224 (0.23)	0.0330 (0.11)
Respondent was Economically Insecure During Cycles 4, 5 and 6	-0.1066 (0.13)	0.0251 (0.12)
Respondent was Economically Insecure During Cycles 4, 5, 6 and 7	0.2895* (0.12)	0.1559 (0.11)
Respondent was Economically Insecure During Cycles 5, 6, and 7	0.2639** (0.10)	0.2238 (0.15)
Respondent was Economically Insecure During Cycles 6 and 7	0.1495 (0.20)	0.1785 (0.13)
Respondent was Economically Insecure During Non-Sequential Cycles	0.1379 (0.10)	-0.0023 (0.09)
Mean Psychological Distress During Cycles 1-3	0.1244*** (0.01)	0.1233*** (0.01)
ln(Real Equivalent Household Income)	0.0157 (0.04)	-0.0050 (0.05)
Education: Less Than High School	-0.0654 (0.10)	0.0610 (0.12)
Education: Some Post-Secondary	-0.0265 (0.08)	0.0835 (0.08)
Education: Post-Secondary Completion	0.0458 (0.08)	0.1409 (0.07)
Respondent has Relationship Stress	0.2775*** (0.07)	0.1947* (0.08)
Respondent is a Single Parent	-0.2518** (0.09)	-0.1214 (0.10)
Household Size	0.0068 (0.02)	-0.0116 (0.02)
Respondent is a Visible Minority	-0.0440 (0.09)	0.0248 (0.15)

Respondent is an Immigrant	-0.0006 (0.07)	-0.0526 (0.09)
Respondent's First Language is French	0.0887 (0.09)	0.1900 (0.11)
Respondent's First Language is Both French and English	-0.0737 (0.16)	0.0984 (0.14)
Respondent's First Language is Neither Official Language	0.0128 (0.08)	-0.0279 (0.10)
Region of Residence: Atlantic Canada	-0.0683 (0.06)	-0.0566 (0.08)
Region of Residence: Quebec	0.0912 (0.09)	0.0551 (0.11)
Region of Residence: Prairies	-0.0622 (0.06)	-0.1783** (0.06)
Region of Residence: British Columbia	-0.0369 (0.07)	-0.0974 (0.09)
Age	0.0083 (0.02)	0.0027 (0.02)
Age – Squared	-0.0001 (0.00)	-0.0001 (0.00)
Social Support Index	-0.0362*** (0.01)	-0.0425*** (0.01)
Energy Expenditure Index	0.0019 (0.01)	-0.0165 (0.01)
Respondent has a Chronic Illness	0.0792 (0.05)	0.1060* (0.05)
Poor/Fair Self-Reported General Health	0.5997*** (0.13)	0.5947*** (0.15)
Respondent Married Since Last Survey	0.2391 (0.15)	-0.1372 (0.11)
Respondent Separated Since Last Survey	0.0730 (0.15)	-0.2700 (0.23)
Death of Spouse Since Last Survey	0.3905 (0.23)	-0.1111 (0.15)
Respondent Interviewed During Winter	0.0418 (0.05)	-0.0768 (0.06)
Respondent Interviewed During Spring	0.1023 (0.42)	0.9349** (0.28)
Respondent Interviewed During Fall	0.0331 (0.05)	-0.0800 (0.06)
Constant	-0.0085 (0.60)	0.8776 (0.70)
Observations	1,775	1,883

R-Squared	0.3620	0.3203
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Notes: Standard errors in parentheses; \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ .

ACCEPTED MANUSCRIPT

**FIGURE 1. Frequency of Self Reporting Economic Insecurity**

Source: National Population Health Survey data

**Highlights**

How much do past spells of economic insecurity matter for psychological distress?

Economic insecurity is defined as being job insecure or jobless.

We condition on initial distress and only include lagged insecurity variables.

Healing: only recent economic insecurity is predictive of more current distress.

Breaking: for males, chronic insecurity causes dramatic increases in current distress.