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Article

The impact of the UK National Minimum Wage on mental health

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ABSTRACT

Despite an emerging literature, there is still sparse and mixed evidence on the wider societal benefits of Minimum Wage policies, including their effects on mental health. Furthermore, causal evidence on the relationship between earnings and mental health is limited. We focus on low-wage earners, who are at higher risk of psychological distress, and exploit the quasi-experiment provided by the introduction of the UK National Minimum Wage (NMW) to identify the causal impact of wage increases on mental health. We employ difference-in-differences models and find that the introduction of the UK NMW had no effect on mental health. Our estimates do not appear to support earlier findings which indicate that minimum wages affect mental health of low-wage earners. A series of robustness checks accounting for measurement error, as well as treatment and control group composition, confirm our main results. Overall, our findings suggest that policies aimed at improving the mental health of low-wage earners should either consider the non-wage characteristics of employment or potentially larger wage increases.

1. Introduction

Mental health problems affect around 18% of the working-age population in England (van Stolk, Hofman, Hafner & Janta, 2014) and cost the UK economy around £105 billion every year, arising mainly from treatment costs, lost productivity and forgone income (Centre for Mental Health, 2010). Furthermore, treatment costs for mental illness alone represent around 13% of the overall NHS budget (Layard et al., 2012). Given the magnitude of the costs caused by mental illness, it is important to understand its determinants better, especially those relating to the labour market.

A recent OECD (2012) report argues that mental illness is a key issue for labour markets. The reason being that while physical health issues mainly affect the elderly, mental ill-health tends to be concentrated among people of working age. Hence, economic and policy considerations might substantially differ for people with mental versus physical illness (Layard, 2015).

In line with this, the relationship between employment and mental health has received growing attention in the literature (Baert, De Visschere, Schoors & Omey, 2014; Greve & Nielsen, 2013; Paul & Moser, 2009; Tefft, 2012). Previous studies indicate that they appear to influence each other. More specifically, people with low mental health are less likely to be in paid employment (Marwaha & Johnson, 2004; Rinaldi, Montibeller & Perkins, 2011) and conversely, individuals who have been unemployed are disproportionally affected by mental health problems (Diette, Goldsmith, Hamilton & Darity, 2012; Paul & Moser, 2009).

Evidence on the relationship between earnings and mental health is still sparse, especially among individuals at the bottom end of the income distribution. Within the economic literature, a number of studies have tried to disentangle the relationship between wealth and mental health (Apouey & Clark, 2015; Ásgeirsdóttir, Corman, Noonan, Ólafsdóttir & Reichman, 2014; Askitas & Zimmermann, 2011; Cesarini, Lindqvist, Östling & Wallace, 2016; Lindahl, 2005; McInerney, Mellor & Nicholas, 2013). These studies often employ either lottery winnings or the Great Recession of 2008 as exogenous shocks to an individual's wealth (e.g. savings or ownership of property, shares and life insurance). Overall, they find small but positive effects of increased wealth on mental health. While these studies focus on the effect of wealth on mental health, they appear to pay little attention to individuals at the bottom 20% of the income distribution who are twice as likely to experience mental illness compared to individuals with

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average incomes (Meltzer et al., 2002). Furthermore, although wages constitute the core element of income for low-earning individuals, there is limited evidence on the causal effect of wages on mental health.[1]

In this paper, we explore whether wage increases causally improve mental health among low-wage earners. This is important information for policy makers when considering changes to the minimum wage. We exploit the policy experiment provided by the introduction of the 1999 National Minimum Wage (NMW) and employ quasi-experimental methods on data from the British Household Panel Survey (BHPS) to identify the impact of wage increases on mental health.

The UK NMW was a significant policy change introduced in April 1999 aimed at raising the wages of around two million workers with estimated average wage increases of nearly 30% (Low Pay Commission, 1998). Prior to the NMW, the Trade Board Act of 1909 required wage councils to set minimum wages for different industries and these were in place until 1993 while between 1993-1999 there was no legal wage floor in the UK (Metcalf, 1999). Since access to mental health care is associated with income, even in countries with universal health care such as England (White, Gutacker, Jacobs & Mason, 2014), and the minimum wage needed to live a healthy life in the UK has been found to lie above the NMW (Morris, Donkin, Wonderling, Wilkinson & Dowler, 2000), the effect of the NMW on mental health should be non-negligible.

We estimate a series of difference-in-differences (DiD) models, including panel data fixed effects specifications and define mental health using the General Health Questionnaire (GHQ), a psychometrically validated tool. Our findings do not appear to show statistically significant causal effects of the NMW on mental health. Robustness checks, including alternative definitions of treatment and control groups based on the previous economic literature concerning the employment effects of the UK NMW, appear to confirm our main results. We discuss potential explanations for our findings.

The paper offers three main contributions to the literature. First, this paper explores the causal impact of wage increases on mental health, focusing specifically on low-wage earners. Secondly, we provide new evidence on the potential unintended consequences of an important policy (the NMW) on mental health, a particularly relevant outcome for the labour market. In doing so, we contribute directly to the emerging literature on the health effects of minimum wage policies. These studies are mainly US based and still present mixed results. In addition, by employing the UK NMW as a policy experiment, we revisit the only UK causal evidence currently available on the relationship between wages and mental health (Reeves, McKee, Mackenbach, Whitehead & Stuckler, 2016). Our study differs from Reeves et al. (2016) in that we employ alternative definitions of treatment and control groups. Finally, we contribute to the broader literature on the effects of socioeconomic status on mental health by focusing on changes in wages.

2. Data

The data is drawn from waves 7 to 9 (29th of August 1997 to 30th of April 2000) of the British Household Panel Survey (BHPS) with the NMW being introduced in April 1999, that is between waves 8 and 9. The BHPS is a longitudinal dataset, which is representative of the whole of Great Britain. The survey includes rich information on individual and household socioeconomic as well as health related characteristics such as physical and mental health, work, education, wages, income and wealth (Lynn, 2006).

Since our main objective is to estimate the impact of the introduction of the NMW on mental health, our sample does not include individuals who did not qualify for the NMW. This comprises individuals in specific occupations such as the armed forces, the self-employed, as well as retirees.[2] Moreover, since the minimum wage only applied to adults, we drop observations for individuals younger than 18 years old.

2.1. Mental health

We define mental health using the self-reported General Health Questionnaire (GHQ), a validated screening tool for psychiatric illness that is widely used in both mental health research and the economics literature (Apouey & Clark, 2015; Goldberg & Williams, 1988; Hauck & Rice, 2004). The BHPS includes the reduced 12-item version of the GHQ which is based on the following items: concentration; sleep loss due to worry; perception of role; capability in decision making; whether constantly under strain; perception of problems in overcoming difficulties; enjoyment of day-to-day activities; ability to face problems; loss of confidence; self-worth; general happiness; and whether suffering from depression or unhappiness. Respondents score each individual item from 0 to 3 with 0 being the best score. These 12 scores are then aggregated into a scale ranging from 0 to 36 which is *increasing in ill-health* i.e. lower scores correspond to lower mental health (Goldberg & Williams, 1988). Goldberg et al. (1997) show that the 12-item version of the GHQ has a sensitivity (correctly identifying individuals with mental health) of 83.7% and a specificity (suitably identifying the proportion of individuals with mental health) of 79.0%. Furthermore, gender, age and education do not appear to affect the validity of the GHQ (Goldberg et al., 1997). The GHQ also appears to be robust to re-test effects[3] (Pevalin, 2000).

2.2. Covariates

A number of variables were added to our models to control for further observable differences between individuals in treatment and control groups. These variables were chosen for their relevance to mental health, based on previous literature. These include: age; age-squared; gender (Madden, 2010); whether the individual works part-time; region (via the Nomenclature of Units for Territorial Statistics, NUTS); [4] occupation defined as primary, secondary and tertiary sector according to the International Standard Classification of Occupations (ISCO 88);[5] whether the individual works in a small (1-49), medium (50-499) or large (> 500) firm; the season of the year (Tefft, 2012); and whether the individual has a permanent contract (Carrieri, Novi, Jacobs & Robone, 2014) as well as length of employment spells (i.e. the number of days in current employment) (Paul & Moser, 2009). Appendix A provides detailed definitions of each variable (Table A1).

3. Estimation strategy

Our empirical strategy exploits the policy experiment provided by

[1] There is a large literature on the determinants of happiness, which often employs the General Health Questionnaire (GHQ) – as used in this paper – as the main outcome measure, see for example the work by Blanchflower and Oswald (2008); Gardner and Oswald (2007); Oswald and Powdthavee (2008) as well as Dolan, Peasgood, and White (2008).

[2] It might be important to note that the self-employed might present a different relationship between wages and mental health compared to wage workers. We refer to Rietveld, van Kippersluis, and Thurik (2014) for a comprehensive study on self-employment and mental health. We also acknowledge that retirees and individuals in the armed forces might have systematically different levels of mental health compared to the regular workforce. This might be due to several factors including age (retired) and work-environment (armed forces).

[3] Re-tests effects refer to the concept of repeatability that using the same measure (GHQ) on the same person, under the same conditions within a short-time frame multiple times should produce only small variation.

[4] NUTS is a hierarchical system used to identify subdivisions of EU member countries.

[5] ISCO groups all occupations into a hierarchical system which has 10 groups at its highest level (Legislators, senior officials and managers, Professionals, Technicians and associate professionals, Clerks, Service workers and shop and market sales workers, Craft and related trades workers, Plant and machine operators and assemblers, Elementary occupations and the armed forces).