



The impact of the Great Recession on health-related risk factors, behaviour and outcomes in England



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ABSTRACT

This paper examines the impact that the Great Recession had on individuals' health behaviours and risk factors such as diet choices, smoking, alcohol consumption, and Body Mass Index, as well as on intermediate health outcomes in England. We exploit data on about 9000 households from the Health Survey for England for the period 2001–2013 and capture the change in macroeconomic conditions using regional unemployment rates and an indicator variable for the onset of the recession. Our findings indicate that the recession is associated with a decrease in the number of cigarettes smoked - which translated into a moderation in smoking intensity - and a reduction in alcohol intake. The recession indicator itself is associated with a decrease in fruit intake, a shift of the BMI distribution towards obesity, an increase in medicines consumption, and the likelihood of suffering from diabetes and mental health problems. These associations are often stronger for the less educated and for women. When they exist, the associations with the unemployment rate (UR) are nevertheless similar before and after 2008. Our results suggest that some of the health risks and intermediate health outcomes changes may be due to mechanisms not captured by worsened URs. We hypothesize that the uncertainty and the negative expectations generated by the recession may have influenced individual health outcomes and behaviours beyond the adjustments induced by the worsened macroeconomic conditions. The net effect translated into the erosion of the propensity to undertake several health risky behaviours but an exacerbation of some morbidity indicators. Overall, we find that the recession led to a moderation in risky behaviours but also to worsening of some risk factors and health outcomes.

1. Introduction

The virulence of the Great Recession has triggered interest on its social spill-overs, in particular its impact on population's health and wellbeing. Indeed, while the direct effect of the crisis in terms of worsened macroeconomic indicators is obvious, there are negative externalities in terms of population welfare that demand quantifying. The relationship between macroeconomic conditions and health outcomes has been studied in the literature (Ruhm, 2000, 2003, 2005; Neumayer, 2004; Gerdtham and Ruhm, 2006) but a clear understanding of this relationship is yet to be established. Evidence is often limited to few countries and, most recently, it has largely focused on EU-bailout countries and their conclusions seem to depend on the methodological approach and the type of health outcomes considered.

This paper contributes to the growing body of literature on the impact of economic recessions on health risks and outcomes by focussing on the specific case of the Great Recession in England. The UK

is the second largest economy in the EU, one of the largest financial hubs in the world, and was therefore one of the countries hit the hardest by the Great Recession. The UK shrunk by 4.3% in 2009 alone (Eurostat, 2017) and the government had to bail out and nationalise large domestic banks (National Audit Office, 2017), leading to increased government debt and deficit. While we would expect the impact of the Great Recession in England to be paradigmatic, the effects of the crisis in this country have received less attention than others. Besides filling this gap, this paper also contributes to the literature by, first, examining individual level data (rather than country or regional aggregated data) in England. Second, we include not only risks factors and behaviours such as smoking, drinking or BMI (more commonly examined in the literature), but also examine health outcomes and dietary choices such as consumption of fruit and vegetables. Our approach is original insofar we use intermediate health behaviours and morbidity instead of mortality. Our assumption is that health behaviours, as intermediate factors in the health production function,

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provide a wider picture of the impact of the recession, as changes in health behaviours may precede changes in mortality rates. Third, we capture adverse macroeconomic conditions by exploiting not only the regional Unemployment Rate (*UR*), but also a *post-2008* indicator variable that reflects the impacts of the recession that transcend worsened *URs*. Fourth, our specifications account for the potential endogeneity of income. The relationship between income and health has long been established with individuals in higher income levels being in better health. The problem of reverse causality between health measures and income in this context has not been considered when using individual level data and our estimates account for this using an instrumental variables approach.

We use the Health Survey for England (HSE), a repeated cross sectional dataset, for the period 2001–2013. Our results indicate that changes in regional *URs* are associated with a *decrease* in cigarette consumption, explained by a shift from heavy to moderate smoking and a *decrease* in drinking. Higher *URs* are associated with a decrease in the probability of mental problems. Effects on all other measures are captured by the *post-2008* indicator variable instead: the aftershock of the Great Recession translates into a *decrease* in fruit intake; an *increase* in BMI and the likelihood of being obese; *increased* demand for medicines and in the likelihood of suffering from diabetes and mental health problems. All these associations are often stronger for those less educated and vary by gender.

The paper is structured as follows. Section 2 summarises the existing literature relating to health outcomes and economic downturns. Section 3 presents the HSE data on health risks, health intermediate outcomes, and socio-economic controls and describes the variables used to capture macroeconomic conditions. Section 4 lays out the empirical strategy and Section 5 presents the results of the benchmark case and its extensions. Section 6 provides a discussion and section 7 concludes.

2. Background

The link between economic recessions and health has been documented by Ruhm in a number of studies that use data pre-dating the 2008 recession mostly with regional *UR* as a measure of worsened economic conditions. It has been shown that risk factors such as smoking increase during economic expansions while there is a reduction in physical activity and a boost in less healthy diets (Ruhm, 2000, 2005). Overall, physical health often deteriorates during economic upturns as shown by increased mortality (Ruhm, 2000; Neumayer, 2004). There appears to be some consensus that worsened economic conditions also lead to poorer mental health (Ruhm, 2003; Charles and DeCicca, 2008) but the effect on suicides has been mixed, with some evidence that mortality is counter-cyclical (Ruhm, 2000; Lopez-Bernal et al., 2013; Reeves et al 2012, 2014; Barr et al., 2012), but another study showing that suicides are pro-cyclical (Neumayer, 2004).

In general, changes in mortality appear to be partly attributed to changes in behaviour. Tight economic conditions typically are associated with a shift towards more moderate drinking habits possibly because of an income effect (Ruhm and Black, 2002; Ettner, 1997; Xu, 2013; Charles and DeCicca, 2008). Evidence on the association between economic recessions and weight is mixed. Ruhm (2005) and Jonsdottir and Asgeirsdottir (2014) find it is reduced when the economy worsens whereas Charles and DeCicca (2008) conclude that obesity increases.

Such health effects are not necessarily the same for the entire population and often appear to be dependent on age, gender, ethnicity and education. Typically, for young adults and those in working age, downturns in the business cycle translate into reduced mortality and higher healthcare use (Ruhm, 2000, 2003). Older individuals tend to experience an amelioration of risk behaviours instead (Ruhm and Black, 2002). Women are less affected by adverse economic conditions and even improve their mortality rates (Neumayer, 2004). However, males experience the biggest reduction in morbidity (Ruhm, 2003) possibly through less engagement in risky behaviours such as drinking (Ruhm

and Black, 2002), decreased smoking and increased physical inactivity (Ruhm, 2005). Unhealthy behaviours in the US appear to be procyclical in particular for non-whites (Ruhm, 2005). Haaland and Telle (2015) find that less educated and lower income groups are not hit harder by increased unemployment in terms of mortality indicators than the more advantaged groups. However, there is evidence that better educated (young) individuals respond more to higher unemployment by reducing risky behaviours such as drinking and smoking (Cutler et al., 2015). Other studies have found no gender differences in changes in health status, mental health and drinking intensity due to economic downturns (Davalos and French, 2011; Davalos et al., 2012).

Several other papers have supported an overwhelmingly procyclical effect of the economic environment on health (Brenner and Mooney, 1983; Brenner, 1987; Tapia-Granados, 2005; Gerdtham and Johannesson, 2005; Gerdtham and Ruhm, 2006; Tapia-Granados and Diez-Roux, 2009; Haaland and Telle, 2015). Yet, some limited evidence exists of a countercyclical relationship between economic crises and mortality indicators (Cutler et al., 2002; Gerdtham and Johannesson, 2005; Svensson, 2007; Economou et al., 2008). Most of this early evidence on the pro-cyclical impact of economic fluctuations on health outcomes is based on data from the 1970s to the 2000s. When more recent data has been used, the procyclical hypothesis has been weakened substantially (McInerney and Mellor, 2012; Stevens et al., 2015; Ruhm, 2015).

The Great Recession that started in December 2007 has been the deepest world economic crisis since the 1950s. Not surprisingly, there has been a large body of literature examining its impact on health outcomes (Stuckler et al., 2011; Suhrcke and Stuckler, 2012). Empirical evidence shows that the 2008 recession led to an increase in suicides (Lopez-Bernal et al., 2013; Reeves et al 2012, 2014), which appears to be associated with government spending and is gender and age specific (Antonakakis and Collins, 2014, 2015).

Some evidence from Europe suggests that the 2008 recession had a beneficial impact on health, except for suicides (Toffolutti and Suhrcke, 2014; Regidor et al., 2014), but Gili et al. (2013) and Modrek et al. (2015) find that unemployment increases mental health problems. The evidence is not supportive of the pro-cyclical effect of the business cycle for Greece, one of the most hard hit by the Great Recession (Simou and Koutsogeorgou, 2014; Vantoros et al., 2013, 2014; Vantoros and Kavetsos, 2015; Hessel et al., 2014). Using data from Iceland, Jónsdóttir and Ásgeirsdóttir (2014) found an impact on body weight and the effects of losing weight were stronger for those who lost their job relative to those that remained working.

Recent studies from the US have largely focused on how the recession of 2008 affected population subgroups. Pablonia (2015) show that Hispanic boys were more likely to consume alcohol, marijuana and to become obese, girls more likely to smoke and black girls to drink more. Further evidence shows unemployment was associated with lower self-reported mothers' health and increased tobacco and drug use, especially for those with a disadvantaged background (Currie et al., 2015). Older adults in the US reported lower subjective measures of mental health as a consequence of a wealth loss after the market collapsed in the last quarter of 2008 (McInerney et al., 2013). Access to health care may also be affected by lower health insurance coverage (Cawley et al., 2015). Other approaches have also concluded that financial distress has a negative outcome on healthcare resource use, mental health and life expectancy across OECD countries (Currie and Tekin, 2011; Clayton et al., 2015).

3. Data

To further explore this issue our analysis exploits data from the HSE, a cross-sectional survey taken yearly from a representative sample of about 9000 English households. We specifically use data on respondents above 16 years of age for the period 2001–2013. In addition to socio-economic characteristics, the HSE includes information on a

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