



Long work hours and health in China



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ABSTRACT

Using several waves of the China Health and Nutrition Survey (CHNS), this study analyzes the effect of long work hours on health and lifestyles in a sample of 18- to 65-year-old Chinese workers. Although working long hours does significantly increase the probabilities of high blood pressure and poorer reported health, the effects are small. Also small are the negative effects of long work hours on sleep time, fat intake, and the probabilities of sports participation or watching TV. We find no positive association between work time and different measures of obesity and no evidence of any association with calorie intake, food preparation and cooking time, or the sedentary activities of reading, writing, or drawing. In general, after controlling for a rich set of covariates and unobserved individual heterogeneity, we find little evidence that long work hours affect either the health or lifestyles of Chinese workers.

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1. Introduction

China's long weekly work hours, among the longest in the world, have given rise to substantial concerns about the negative effects such a work week may have on workers' health (Mishra & Smyth, 2013). In a recent survey of Chinese workers, for example, respondents pointed to long work hours as one of three major reasons for health problems (Tang, 2013). Some therefore argue that the unprecedented economic growth in China may have taken place on the back of employees' working long hours (Smyth, Qian, Nielsen, & Kaempfer, 2013). As stated by Kingston (cited in Oster, 2014), due to the Confucian belief in total dedication, Chinese employers are prone to overburden their employees. At the same time, the Chinese phenomenon of "Guolaosi" (death by overwork) has received widespread attention in the Chinese media.¹ For instance, a report in the prominent nationwide *China Youth Daily* claims that approximately 600,000 Chinese people die annually from working too hard (Monet, 2014).

There is in fact solid evidence that long work hours can be detrimental to health. For instance, according to Bannai and Tamakoshi (2014), although those who work long hours need more time to recover, a long work week restricts the amount of private time available for recovery, which can lead to exhaustion. Less private time may also give rise to irregular lifestyles and unhealthy behaviors, including lack of sleep, unhealthy diets, smoking, and alcohol consumption. Nevertheless, despite a large body of literature in several academic disciplines on the effects of long work hours on health outcomes, it remains difficult to draw clear conclusions. As several reviewers emphasize (Bannai & Tamakoshi, 2014), results are mixed and evidence on the impact of long work hours on health

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¹ In Japan, this phenomenon is known as "Karoshi".

remains inconclusive, not only because both “long work hours” and health outcomes are variously defined but because of the heterogeneity of individual characteristics and different uses of covariates. For China especially, the empirical evidence is extremely limited: the only three studies we are aware of (Frijters, Johnston, & Meng, 2009; Verité, 2004; Zhao, 2008) all use cross-sectional data and analyze only subjective (self-reported) health measures.

The purpose of this study, therefore, is to examine the impact of long work hours on health among Chinese adults aged 18–65 using data from the China Health and Nutrition Survey (CHNS) from 1991 to 2009. Our work thus makes several contributions to the literature: First, it is the most comprehensive analysis for China, where, as mentioned above, the possible negative effect of overwork is an important public health issue. Second, it fills an important research void on a research topic studied predominantly in the West, thereby providing a valuable tool for international comparison. Third, it uses a broad array of health measures, including not only measures of subjective health but also several measures of objective health (e.g., high blood pressure and obesity). Fourth, it explores several possible pathways through which long work hours could affect health. In particular, it assesses the relation between long work hours and specific lifestyles, such as time spent sleeping, preparing meals, and engaging in physical activities. Finally, and contrary to the majority of studies on this topic, it also includes a panel analysis, which allows to control for unobservable individual heterogeneity.

The general conclusion of our analysis is that long work hours do not seem to have any strong effects on several commonly used subjective or objective measures of health. Nor do our results provide any evidence that long work hours significantly influence diets, physical activity, or sleep time.

The remainder of the paper is structured as follows: Section 2 reviews the related literature. Section 3 describes our data and methodologies. Section 4 reports the results, and Section 5 concludes the paper.

2. Prior literature

2.1. Long work hours and subjective health

One early meta-analysis (Sparks, Cooper, Fried, & Shirom, 1997) of 19 studies on work hours and health provides seemingly clear evidence that long work hours have an adverse effect on self-reported health. Nevertheless, the mean correlation between overall health (including physiological and psychological health) and work hours is only 0.130 for physiological health 0.064 and 0.147 for psychological health, suggesting that the association between work hours and self-reported health is far from strong. Another systematic review based on 27 selected psychological and medical studies (Van der Hulst, 2003) points out that 13 of these studies on the relation between long (40+ weekly) work hours and health use only subjective health measures, including general health, psychological health, physical health, and fatigue. This review finds a strong positive association between long work hours and physical health (somatic, psychosomatic symptoms, and physical strain) but no association with certain aspects of psychological health, including depression, tension/anger, and suicide. A more recent overview based on 19 studies (Bannai & Tamakoshi, 2014) shows that long work hours (40+ weekly or 8+ per day) have a negative association with sleep conditions and also diabetes mellitus (DM) when the latter is proxied by self-reported hypoglycemic medication use. Long work hours are also associated with a higher risk of depression and anxiety symptoms.

Of particular interest to our study is the research on work hours and health in Japan and South Korea, both of which have long work weeks like China (Mishra & Smyth, 2013). For Japan, one examination of how work hours influence the biologic functions of 71 Japanese salesmen aged 22–60 (Iwasaki, Sasaki, Oka, & Hisanaga, 1998), for instance, finds little evidence of significant differences between short and long work hours in the probability of self-reported fatigue (a feeling of local physical abnormality). However, another study based on a cross-sectional dataset of 377 Japanese workers (Nishikitani, Nakao, Karita, Nomura, & Yano, 2005) suggests that overtime has a significant positive correlation with self-rated mental health – as measured by the Hamilton Depression Scale (HDS) and Profile of Mood State (POMS) anger-hostility scores – among both men and women. Nonetheless, once age is adjusted for, overtime work is not significantly associated with self-rated mental health measures. A survey of 843 Japanese male day workers under 60 years, in contrast, indicates that working more than 260 h per month does have a detrimental effect on subjective depression status (Nagashima et al., 2007).

For Korea, based on a field survey of 238 male engineers aged 22–46 in South Korea, Park et al. (2001) identify a significant association between weekly work hours and subjective stress response and fatigue complaints before work. Using the same dataset, Park, Kim, Chung, and Hisanaga (2001) find that respondents working more than 60 h per week are more likely than those working fewer hours to suffer from subjective fatigue complaints. Using the 2006 First Korean Working Conditions Survey, Park, Yi, and Kim (2010) also find that working over 60 h per week is associated with a pronounced increase in stress, especially for males, in comparison to working less than 40 h per week.

We know of only three studies that analyze the effect of work hours on subjective health in China.² The first, based on a survey of 768 workers at 40 export factories in southern China (Verité, 2004), does associate long work hours with self-reported fatigue, exhaustion, sadness, and depression.³ Likewise the second, based on data from the 2008 Urban Migrant Survey covering 3143 urban

² In a study on the relation between overtime and psychological well-being among 130 full-time office workers aged 23–44 in a branch of a Chinese information and communication technology company, Houdmont, Zhou, and Hassard (2011) find that high-level overtime (≥ 15 h/week) has lower levels of psychological well-being than low-level overtime (14 h/week).

³ The 40 factories selected are mainly in the garment, shoe, and knitting industries located in Guangdong, Fujian, Jiangsu, and Zhejiang provinces. The results also indicate, however, that no association exists between long work hours and the risk of occupational accidents (Verité, 2004).

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