Ecological Economics 132 (2017) 124–134

Contents lists available at ScienceDirect

Ecological Economics

journal homepage: www.elsevier.com/locate/ecolecon

Worktime Reduction as a Solution to Climate Change: Five Scenarios Compared for the UK

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ARTICLE INFO

Article history:
Received 27 February 2016
Received in revised form 27 September 2016
Accepted 27 October 2016
Available online xxxx

Keywords:
Business energy use
Climate change
Global warming
Leisure
Time use
Work time reduction

ABSTRACT

Reducing working hours in an economy has been discussed as a policy which may have benefits in achieving particular economic, social and environmental goals. This study proposes five different scenarios to reduce the working hours of full-time employees by 20% with the aim of cutting greenhouse gas emissions: a three-day weekend, a free Wednesday, reduced daily hours, increased holiday entitlement and a scenario in which the time reduction is efficiently managed by companies to minimise their office space. We conceptually analyse the effects of each scenario on time use patterns through both business and worker activities, and how these might affect energy consumption in the economy. To assess which of the scenarios may be most effective in reducing carbon emissions, this analytical framework is applied as a case study for the United Kingdom. The results suggest that three of the five scenarios offer similar benefits, and are preferable to the other two, with a difference between the best and worst scenarios of 13.03 $MTCO_2e$. The study concludes that there is a clear preference for switching to a four-day working week over other possible work-reduction policies.

1. Introduction

The option of choosing between working less and receiving a pay rise is not one that employees are often given. The trend in Western societies has been heavily focussed towards converting labour productivity gains into increased incomes over reducing working time, fuelling our consumption-driven economies. Although it is not yet high on the mainstream political agenda, there is a growing call in the academic literature and beyond to reverse this trend and move towards a society where we work considerably less. The focus of this discussion has to date largely been around the feasibility or impacts on health and happiness, and the macroeconomic consequences, such as employment creation (Antal, 2014; Böheim & Taylor, 2004; Kivimäki et al. 2015).

Recent research has also argued that, next to social and economic benefits, widespread adoption of such a policy could also have environmental benefits (Schor, 2005; Devetter & Rousseau, 2011; Rosnick 2013). This has largely been argued from the perspective that reduced working hours, through reduced incomes, will lead to a dematerialisation of our economies and thus lower energy use from the reduction in consumption. It has been suggested that a 20% reduction in work time could result in a decrease in national energy use by 16% (Nassen et al., 2009). Rosnick and Weisbrot (2007) calculate that the United States could reduce energy use by 20% through following the EU-15 work hours. With the majority of global energy use still coming from greenhouse gas emitting sources, reducing working hours may therefore help in keeping emissions low enough to limit global warming to 2 °C, as advised by the IPCC and accepted in the Paris climate agreement of December 2015.

The literature regarding the environmental impacts of reducing work hours has so far taken the perspective of reducing consumption, without considering the extent of how it could change the time use and energy consumption patterns in society. It also fails to capture the effects on energy use from business activities. A systems perspective is needed to undertake a reliable sustainability assessment. Pullinger (2014) offers practical considerations for designing working time reduction policy, recognising it can be implemented in a number of ways. However, this has not yet translated into systematic analysis of the potentially differing effects such designs could have on our energy (and time) use. If energy usage patterns differ between policy designs, then this means that associated greenhouse gas emissions will be different as well.

This paper tackles this issue by defining five different policy scenarios that could be implemented to reduce the number of working hours in society, and conceptually analysing the potential effects each could have on greenhouse gas emissions. The resulting conceptual framework

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http://dx.doi.org/10.1016/j.ecolecon.2016.10.011
0921-8009/

is then applied to the case of the United Kingdom to quantitatively compare the relative impacts of each scenario. This is followed by a discussion of the results and policy insights.

2. Historical and Global Trends

Keynes (1933) famously predicted that due to gains in technical efficiency over the coming century we would all be moving to a dramatically reduced fifteen-hour workweek. Indeed, following World War II, the global trend was a considerable decline in working hours. In the period 1950–1973 the average decline in working hours per person was 0.57%, per annum, increasing to 0.7% from 1973 to 1980 (Schor, 2005). From this point on however, the trend started to become less steep, with the decline in working hours being only 0.3%. In the United States, working hours actually increased during this period, while others such as Australia remained relatively stable. Some countries, such as Germany continued to reduce working hours, and as can be seen in Fig. 1, German workers now work on average 77% of the hours worked by Americans. Fig. 2 shows the trend of average annual work hours in OECD countries from 1970 to 2013, which have progressively decreased from 2000 to 1780 during this period.

The United Kingdom has been chosen as a case study for the purposes of this paper's analysis. As shown in Fig. 1, its working hours are fairly average within the OECD countries, and its historical trend, shown in Fig. 2, follows the typical trend since 1970. An average UK worker, works around 20% longer hours than a Dutch or German worker, which is equivalent to the work reduction policy we are discussing in the paper. It could therefore be argued that such a policy is far from radical, as it moves the United Kingdom closer to otherwise similar economies of Germany and Netherlands.

Fig. 3 compares the changes in real average wages and work hours in the United Kingdom from 1990 to 2013. While working hours reduced by 5.8%, the increase in real average wages was far more significant at 35.3%. It is clear that the majority of gains in labour productivity over this period were prioritised towards increasing incomes rather than reducing working hours. Schor (2005) argues that this trend has primarily been due to firm-level incentives for longer hours alongside failure in the functioning of trade unions.

There has however been discussion in high income nations regarding whether we should now prioritise reducing work hours, as opposed to wage increases. From a social perspective, the literature has largely concentrated on the negative effect long working hours can have on psychological well-being and stress (Albertsen et al., 2008). It has also become a popular topic of discussion within economists debating our current paradigm of pursuing economic growth; arguably, greater

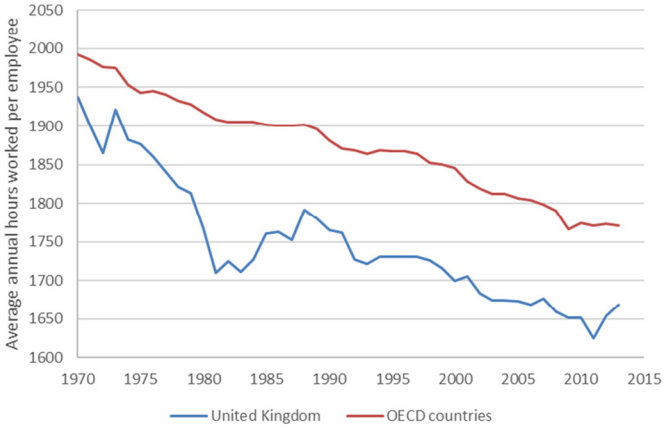

Fig. 2. Change in average annual hours worked in the UK and OECD countries 1971–2013 (Based on data from OECD Stat).

happiness could be achieved by moving to an improved 'work-life balance', where more time is spent with family and friends, or leisure activities are pursued (Kallis, 2011; Van den Bergh, 2011). Through the consequent reductions in incomes, we could move towards a less consumption-driven economy. Under this premise, a small but growing body of literature has been analysing whether such a policy could also help us realise our environmental goals. (Schor, 2005; Nassen et al., 2009; Devetter & Rousseau, 2011; Rosnick 2013).

Modelling by Victor (2012) suggests that in a degrowth or low/no growth economy, worktime reduction may be a relevant factor in keeping unemployment and poverty low, while realising greenhouse gas reductions. The scale of the worktime reductions ranged from 15% for the low/no growth economy to 75% for the degrowth economy. However, a recent literature review on the topic concluded that it often does not capture the complexity of such policies, and ignores the second or third-level effects (Kallis et al. 2013).

Unfortunately, there are few empirical examples to assess the direct effects of a reduction in working hours on society. One case study of interest however is France, where in 1998 the government mandated a reduction in the working week from 39 to 35 h, aspiring to reduce unemployment. The evidence suggests that this was not significantly beneficial for employment or employee satisfaction (Estevão & Sá, 2006). Moreover, workers often work more than 35 h per work through overtime arrangements or second jobs. Despite this, of interest is the large effect the policy has had on social behaviours, particularly the broadening of the traditional peaks in transport and leisure activities.

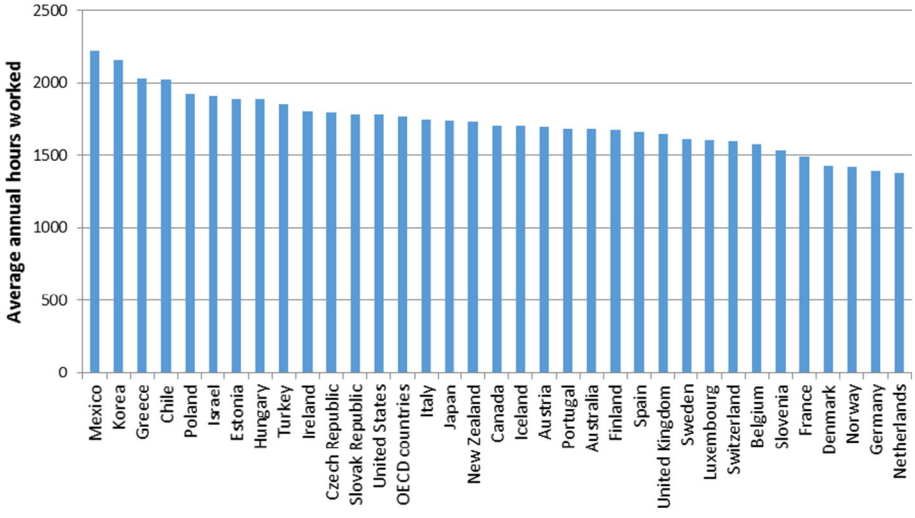

Fig. 1. Comparison of average annual hours worked in OECD countries for 2013 (Data: OECD Stat).