

HOW CAN THE UK BETTER ADAPT TO HEAT IN THE WORKPLACE



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The 2022 UK heatwaves, when temperatures of over 40°C were recorded, brought to the fore that the UK is not sufficiently well adapted or prepared to deal with current, let alone future, climate change. There is plenty that could be done to protect the UK's workforce from increasing heat linked to the changing climate.

In common with all countries across the globe, the UK is warming due to anthropogenic climate change. 2022 was the UK's warmest year on record (Met Office, 2024), and in the summer of 2022, the UK recorded temperatures of over 40°C, that would have been statistically "extremely unlikely" without human-induced climate change (World Weather Attribution, 2022; Fankhauser et al., 2023). This type of extreme heat, that has been described as an 'invisible risk' (Brimicombe et al., 2021), is a new challenge for the UK, and evidence suggests that the country was not ready for these temperatures, and that even with some warning, many people could not sufficiently adapt or prepare for the extreme heat (Howarth et al., 2023). This type of heatwave event is likely to be more frequent and more extreme until at least 2050, even if global net zero targets are achieved. Although summer 2022 saw five heatwave periods over the months June to August, only one day experienced temperatures over 40°C (19th July): considering how the UK's ability to prepare for and adapt to this event was weak, this puts into perspective the need for the nation to seriously consider how it can prepare for scenarios where multiple, consecutive, and possibly more extreme, temperatures will be experienced.

Many of the impacts of the 2022 heatwaves have been well

documented. There were over 3000 excess deaths, and though most of these were among those aged over 65 (UHKSA, 2022), other groups were also vulnerable, including children under 1 year old, people with underlying health conditions, and people directly exposed to the heat due to their line of work (Physiological Society, 2023).

Whilst the evidence suggests that some sectors such as energy and water providers are relatively well prepared and resilient to tackle heatwaves (Howarth et al., 2023), there are likely to have been consequences that are harder to evaluate. The health impacts of heat extremes are still not fully understood, and there has not been a comprehensive analysis of the short- or long-term impacts on how workers' health was affected by the 2022 heatwaves, particularly those employed in the high exposure sectors of agriculture, construction, forestry, quarrying and mining. Any health impacts, in addition to being troubling in their own right, almost certainly will have implications for economic growth and equity.

Even in the absence of heatwaves, analysis by Dasgupta and Robinson (Dasgupta et al., 2021; van Daalen et al., 2022; Dasgupta and Robinson, 2023) suggests that the gradual warming that the UK has already experienced over, and above pre-industrial levels is resulting in

labour supply and GDP growth already being measurably lower than they would have been. For example, compared to 1965-1994, labour supply (the amount of labour offered for hire per unit time) is estimated to have been 0.39 percent lower between 1995 and 2000 than it would have been without warming, and 1.86 percent lower between 2016 and 2019. This is equivalent to 6.6 and 29.4 fewer hours of labour supplied per worker per year, respectively. This lower level of working hours translates into lower individual income and lower economic growth. Current economic damages are estimated to amount to around 1% of GDP but are projected to be higher than 7% under a near catastrophic scenario of SSP3-RCP7.0. These data also almost certainly reflect a negative impact on worker health, due to heat stress and increased occupational injuries. However, whilst the southern parts of the UK are most negatively affected, northern areas, including the whole of Scotland, currently appearing to benefit from warming.

ADAPTATION CHALLENGES

There is evidence of autonomous adaptation already occurring, whereby individual workers, where feasible, choose to, and are able to, for example, adjust their work patterns, change their clothing, or ventilate

or cool their homes and workplaces, absent of employer or government actions. Employer-driven adaptation may include the introduction of air conditioning, or changes to work schedules. Though the design of adaptation strategies such as shifting working time needs to consider potential trade-offs on the health of workers and fatigue-related accidents if, for example, sleep patterns are interrupted. More generally, there is much more that the UK could do to protect the UK's workforce from increasing heat linked to the changing climate.

A sensible starting point would be for the government to introduce protections for workers through a statutory maximum working temperature. Currently the UK does have guidelines. For example, the Management of Health and Safety at Work Regulations, states that "[t]emperature in the workplace is one of the risks you should assess, whether the work is being done indoors or outdoors" (HSE, n.d.). And there are currently suggested minimum temperatures. But there is no maximum temperature for workplaces. Increasingly European countries are introducing worker protections from extreme heat by setting maximum workplace temperatures, but these vary considerably across member states (Carbonaro, 2023). The first European Climate Risk Assessment (EUCRA) has identified heat stress impacts on the labour force as a key climate risk facing Europe, and the European Commission is considering additional worker protection action on climate risks in response (EEA, 2024; EC, 2024).

More information is needed. For example, it is only relatively recently that increased incidences of kidney disease have been linked to increasing heat and dehydration

experienced by farm workers (Johnson et al., 2019). More broadly, the short- and longer-term health impacts of heat stress on workers are not sufficiently understood by workers themselves, employers, or the government, and what information one group has may not be known to the others. This asymmetry of knowledge can result in misaligned incentives that lead to worse outcomes for workers and employers alike (Dasgupta and Robinson, 2023). Adequately designed early warning systems can protect workers, and the population more broadly, especially those most vulnerable to heat, from at least some of the worst impacts of heat stress.

We are particularly concerned over the impact of heat extremes on workers in the gig economy, which has been defined as a way of working that is based on people with temporary jobs or doing distinct pieces of work that are paid for separately (CIPD, 2017). Estimates of the number of people who can be considered part of the gig economy vary widely, from the Trades Union Congress (TUC) estimate of around 4.4 million people (14.7%) in 2021, to the Chartered Institute of Personnel and Development (CIPD) estimate of just under half a million (around 1.4% of total employment) in 2022 and 2023. Workers in the gig economy are over-represented by ethnic minorities and people with disabilities, with important implications therefore for inequality (CIPD, 2023). There are no easy solutions for this growing group of workers in the UK who are increasingly likely to be facing the choice during periods of high heat over whether to protect their health, by working less, or protect their income but put their health at risk. Quite possibly people may end up compromising both health and income.

More broadly, adaptation decisions rely on information on the size and incidence of the costs and benefits of adaptation, the feasibility of adapting, the availability of funds, and often political will. There are also important questions to be asked with regards to whether the anticipated risks suggest a policy of acting now to adapt and build resilience, waiting for more information, or accepting an "adaptation gap" and dealing with the consequences ex post.

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