



Policy Brief

The impacts of the October 2022 gas and electricity price increase on the UK economy and the cost of living for different household income groups

By Karen Turner, Antonios Katris, Jamie Stewart and Hannah Corbett

Introduction

We use economy-wide scenario simulation analysis to investigate how the increase in gas and electricity prices (faced by all users) under the Energy Price Guarantee and Energy Bill Relief Scheme of the Energy Prices Bill proposed in October 2022) impacts across the UK economy. We isolate the impacts of the increase in gas and electricity prices faced by all consumers/all sectors under what equates to a new price cap/freeze, with particular focus on tracking impacts on household incomes and spending power in different household income groups. One key finding is that, even with the £400 Energy Payment, over the year to come the 20% of UK households on the lowest incomes will still continue to be over £350 worse off in real terms as a result of higher electricity and gas prices across the economy. Overleaf we discuss these in more detail and provide high level thoughts on solutions and associated trade-offs to each.



Crucially, our findings show that lower income households are suffering disproportionately large losses in real spending power, with the 20% of UK households on the lowest incomes hit by a 50% larger increase in the consumer price index (CPI) that reflects their 'average consumption basket' (dominated by essentials such as heat and food). Here, the lowest income households are likely to be facing a 2.4% increase in the average price of goods and services associated with the price hike, compared to an average of 1.6% increase across the 'average' UK, and only a 1% rise for the 20% of UK households on the highest incomes. Generally, the picture is a strongly regressive one, with our results suggesting that 40% of UK households face effective CPI increases at least 25% higher than the UK average.



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1. Our scenario simulation approach

We use a multi-sector economy-wide computable general equilibrium (CGE) scenario simulation model for the UK.¹ This allows us to focus on identifying the main transmission mechanisms through which impacts on a range of key macroeconomic variables (across real quantity measures, such as GDP and household incomes, and price metrics, such as the consumer price index, CPI) are driven and determined.

Our scenario simulations involve introducing a 60% increase in the price of electricity and a 150% increase in the price of gas (both domestically produced and imported), in line with the unit price increases allowed under the October Energy Price Guarantee for households and equivalent for businesses set by the UK Government (widely reported as limiting the average UK household energy bill to £2,500). The £400 Energy Grant Payment is introduced as a transfer from Government to all UK households. This simple scenario simulation approach allows us to focus on and isolate the impacts of increased gas and electricity prices. While our model allows us to track impacts over time, we focus here on the impacts in the first year after these energy prices increase.

Crucially, we identify five household income groups, quintiles (i.e., from the 20% of UK households on the lowest incomes to the 20% on the highest). This involves identifying both differential sources of income (where the lowest income groups rely more on benefits/other transfers from government and the highest more on incomes associated with higher wage rate jobs and returns on investments) and different patterns of consumption (where energy is more important in proportionate if not value terms).

In modelling the impacts of energy prices on costs of production in all sectors of the UK economy, this allows us to focus on how the purchasing power of different income groups is affected by what happens to the prices of all domestically produced goods and services that different income groups spend their money on.

Our key modelling assumption at this stage is in terms of how the UK labour market functions, particularly in terms of wage determination (impacting both producer costs and both nominal and real incomes to households). Here we assume that the national labour supply is fixed, so that when labour demand rises or falls this impacts the unemployment rate. Moreover, we assume that the labour market is imperfectly competitive and characterised by a real wage bargaining process: when unemployment rises, workers lose bargaining power and accept lower real wages, and vice versa.

Going forward in our research, we will subject this assumption (and others) to extensive sensitivity analysis as, in practice, wage bargaining may be more constrained than we have modelled here, certainly in terms of whether underlying nominal wages may be flexible downwards. The key point to make here is that the extent of wage bargaining underlying our results may generate more optimistic outcomes than may actually transpire, given the role of real wage reductions in cushioning the economy-wide contraction that is triggered by a dramatic increase in energy prices.

2. The main findings – rising energy prices have regressive impacts on the real incomes and purchasing power of UK households

Overall, our scenario simulation results show that, even under the effective price caps enabled by the Energy Prices Bill, the energy price shock triggers a contraction in the UK economy. All households are hit by falling real wages and job losses. Crucially, when households become less well off, they spend less and this is the main source of contraction due to the energy price hike, particularly in a global landscape of rising prices (i.e., relative competitiveness loss on export markets may be more limited).

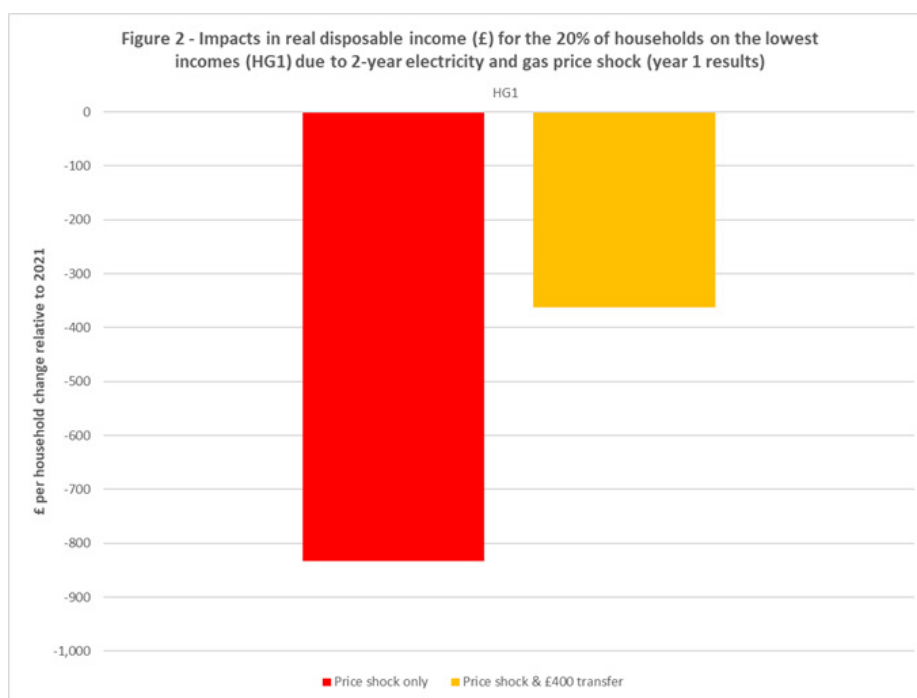
Generally, our scenario simulation work suggests that the energy price shock alone - even with the price cap frozen and Government's £400 support payment for households - will reduce annual GDP by just under 0.6%, and lead to a drop in employment of just over 1%, equivalent to over 300,000 full time equivalent jobs, in the year ahead. This picture, and the impacts on consumer prices, could become much worse if the price cap for businesses is withdrawn after 6 months (at this stage, given the annual data base and dynamic adjustment of our model, we have had to model it as if remaining in place for one year).

However, perhaps the key insight emerging from our scenario simulations is how regressive the impacts are. Our results suggest that the 20% of UK households on the lowest incomes will be hit by a 50% larger increase in the consumer price index (CPI) that reflects their 'average consumption basket', which is dominated by essentials such as heat and food.

Remember, the analysis isolates the impacts of gas and electricity prices, so that we are able to identify 2.4% increase in the average price of goods and services demanded by the lowest income households that is solely associated with the energy price hike. This compares to an average 1.6% increase across all household income groups. Moreover, a 1% rise for the 20% of UK households on the highest incomes is around 2.5 times lower than that seen by the lowest 20% (see Figure 1 on the first page).

These rises are measured in terms of the consumer price index (CPI) measure of the cost of an average ‘basket’ of consumer goods and services, which is usually recorded and reported as an average across all UK households. However, given that our analysis focusses on the different patterns of consumption (items in the basket) for different household income groups, our results reveal how the increase in prices varies depending on what good and services different income groups spend their money on. Given that we focus our simulations on isolating the impacts of increased gas and electricity prices alone, the greater increase in average prices faced by lower income households is due to them having to spend a higher proportion of their disposable income on not only on energy bills. However, we are also capturing the impact of increases in prices of things like food, which use a lot of energy in their production, and which lower income households spend more money on.

This may be considered as a ‘poverty penalty’ and results in the impacts of even the currently contained energy price shock being strongly regressive, including in how higher energy prices by businesses filter through to consumers. And this effect is spreading, with our results suggesting that 40% of UK households are facing effective CPI increases at least 25% higher than the UK average.



Despite the fact that the UK Government is providing direct additional support to all households via the £400 Energy Payment, our analysis also suggests that in the year to come the lowest income households will still continue to be over £350 worse off in real terms as a result of higher energy prices (See Figure 2). This means that households still face the problem of their money not going as far as a result of increased prices they face, despite the pound amount in their pockets going up. Therefore, the level to which benefits or incomes are increased (people’s nominal incomes) – and whether they are uprated in line with average earnings or inflation as reflected in the headline CPI - becomes critical to ensure that living standards for those on the lowest incomes are not significantly eroded in real terms. Crucially, though, our finding that the lowest income households are suffering higher than average CPI increases due to the energy price shock, implies that they will still suffer real income and spending power losses even if all benefits do rise with inflation.



3. Conclusions and future directions

Our analysis shows that due to dramatically higher energy prices compared to this time last year, the lowest income households are facing acutely higher costs than those on higher incomes for their average 'consumption basket', as opposed to the wider average (all UK households) one used to measure inflation. This rise in costs will be even more apparent for those households with above average energy demand, including those in higher income groups, such as families living in places in the Scotland where building efficiency is particularly poor, and the climate is colder, particularly in more remote and/or northern areas, where many homes are not on the gas grid.

It is also clear that the lowest income households still face a significant erosion of their real disposable incomes due to the energy price shock, even with the UK Government's £400 support payment. It is important to note that this support payment was designed to protect households and the economy from the increase of the previous price cap set in April 2022 at a rate equating to the average UK household energy bill rising to around £1900. In previous analysis we found that the £400 payment may be sufficient to offset real income losses to those 20% of households at the bottom of the income scale. However, with the October 2022 cap equating to much higher bills, it is no longer sufficient to offset real income losses associated with the energy price shock.

Therefore, the only immediate way of helping the lowest income households would be to further target Government support. The analysis in this brief suggests that this might require a doubling of the value of the energy grant payment to the lowest income households.

Going forward, attention needs to focus on reducing the energy costs faced by all consumers, including businesses (given the impact of inflationary pressures on the production side of the economy on low-income households in particular). One important aspect of this is improving the energy efficiency of buildings, with the aim of reducing what it costs to actually deliver heating services - with focus on keeping all homes at an efficient and healthy temperature. Another is to quickly identify and deploy energy market reforms that will reduce the market prices for energy reflected in all consumer bills. If effectively designed and deployed, the Cost-Plus Revenue Limit mechanism proposed in the UK Government's new Energy Prices Bill – aimed at breaking the link between soaring gas costs and electricity prices faced by consumers for as long as the current disruption lasts – could constitute an important step in this regard.

References

i Details of our model and examples of our scenario simulation approaches can be found in a number of peer reviewed papers where we simulate a range of energy and net zero policy issues. For example, see:

- Turner et al. 2022, [Policy trade-offs in introducing a CO2 transport and storage industry to service the UK's regional manufacturing clusters](#), published in Ecological Economics, 2022.
- Turner et al., [The relationship between a 'polluter pays' approach to carbon capture, regional policy and 'just transition' employment agendas](#), published in Climate Policy, 2022.
- Alabi et al., [Can spending to upgrade electricity networks to support electric vehicles \(EVs\) roll-outs unlock value in the wider economy?](#), published in Energy Policy, 2020.

Contact

- CEP@strath.ac.uk
- The Centre for Energy Policy, School of Government and Public Policy, Humanities and Social Science, McCance Building, 16 Richmond Street, Glasgow, G1 1XQ