The Macroeconomic Effect of the UK's 2022 Cost-of-Living Payments☆

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Abstract

This paper estimates the macroeconomic effect of the 2022 cost-of-living payments. Using a combination of the microsimulation model PolicyEngine UK and the global-econometric model NiGEM, we find the payments had a noticeable impact on real GDP growth - increasing it by 0.1% - but a minimal impact on inflation. Our paper finds that the transfers were strengthened due to them being targeted at 'hand-to-mouth' consumers who would have spent more of the windfall compared to if the transfer had been distributed across the general population. Consequently, we find that 72% of the those who received the payment were hand-mouth at the time of disbursement. Despite concerns over the inflationary impact of these payments stated at the time, we find an insignificant impact on the price level. We interpret these findings as an example of why fiscal transfers should be judged on their ability to alleviate real income shocks and not on the grounds of macroeconomic stability, as their link to the latter is - at least in this case - tenuous.

Keywords: Fiscal Multiplier, Liquidity-Constrained, Social-Security
JEL Codes: E21, E62, H53

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1. Introduction

The 2008 financial-crisis gave fiscal stimulus a renewed role in the pursuit of regaining macroeconomic stability while monetary policy was constrained at its zero-lower-bound. Although the post COVID-19 inflationary period saw an opposite economic environment, policy makers still utilised cash-transfers to defined households, not to influence macroeconomic stability, but to partially offset the fall in real incomes.

Policy makers in the UK were, however, initially hesitant with such an approach, likely due to concerns over the potential worsening effect it could have on inflation. This would be a somewhat reasonable concern to hold, as the economic effect of cash-transfers is strengthened when hand-to-mouth (hereafter referred to as liquidity-constrained) households are the recipients of stimulus.

Households with sufficient liquidity are rarely observed to spend one-off cash stimulus (Jappelli et al., 1998a; Jappelli and Pistaferri, 2014a; Parker et al., 2013a; Souleles et al., 2006). This is driven by the fact that households only consume from their permanent income. A standard Barro-Ramsey model would therefore suggest a positive temporary income shock from a one-off cash-transfer will be saved in its entirety in anticipation of a future tax-rise to pay for it (Barro, 1974); denoted as a marginal propensity to consume (MPC) of 0.

This simple model assumes that all households have equal access to alternative sources of cash (savings) or debt (credit markets) to act as a buffer to any income shock to allow the household to finance a permanent level of consumption (Canbary and Grant, 2019). However, a large amount of empirical literature, starting with Hall (1978), has consistently found around 20% of households, referred to in this paper as the liquidity-constrained, do not adhere to this permanent income hypothesis because they have little savings and/or are excluded from credit markets.

This inability to draw on alternative sources of liquidity shortens the horizon for financial planning (Campbell and Hercowitz, 2019), resulting in this subset of households being therefore highly sensitive to a change in temporary income (Jappelli et al., 1998a; Jappelli and Pistaferri, 2014a; Parker et al., 2013a; Souleles et al., 2006). As such, papers that model the fiscal multiplier only for liquidity-constrained households often find strong responses, with Kenichi Tamegawa (2012) concluding that the “The maximum value of the multiplier is obtained when the share of liquidity-constrained households is close to unity" (Tamegawa, 2012).

Liquidity-constrained households present the strongest – and arguably sole – demand-side channel for stimulus. The macroeconomic impact of stimulus is therefore determined by its ability to benefit liquidity-constrained households. Subsequent concerns over the potential inflationary effect of the 2022 cash-transfers to the Universal Credit recipient households is therefore not an unreasonable position to hold, given recent papers have found that stimulus transferred through social security programs present high multipliers due the strong presence of households with low-levels of savings (Mosley, 2021; Gechert et al., 2021). This is driven by the qualifying criterion for welfare being similar to what we would expect a liquidity-constrained household to be, such as having household savings being less than £16,000. Put simply, welfare programs are designed to benefit the same households we would expect to be the most likely to spend stimulus.

The effect of the 2022 inflationary period - colloquially referred to as the 'cost-of-living crisis' - on household finances was well documented. Consecutive quarters of rising costs of household necessitates following a decade of stagnant real wages left many households seeing monthly food and energy bills greater than their incomes (Bhattacharjee et al., 2022). Overall household liquidity for lower-income households naturally fell as a consequence, drawing many into a state of being liquidity-constrained, or having no savings at all (Mosley, 2022). Therefore, more households would qualify for welfare and have generally lower levels of savings, thus being more likely to qualify for the support and more likely to spend it due to diminished liquidity levels.

It is therefore likely that the 2022 cost-of-living payments had a stronger fiscal multiplier than fiscal stimulus from the post-2008 recovery period, as it was targeted at a constituency who have the highest concentration of liquidity-constrained households within them, and because overall household liquidity had already been reduced for those on lower-incomes. On the other hand, the number of households who would have received these payments would have been low in number. Therefore it is likely that although the pound-for-pound fiscal multiplier from these transfers would have been atypically high the overall macroeconomic impact would itself have been small.

This paper will therefore estimate the overall macroeconomic effect to determine which force is stronger. In doing so, we will contribute to the understanding of how cash-transfers influence the macro-economy while further assessing the validity of concerns over the inflationary effect of social transfer programs.

To arrive at these estimates, we will use a combination of microsimulation models to compute the number of liquidity-constrained households who would have received these transfers and use its outputs to calibrate the global econometric model NiGEM to estimate its overall macroeconomic impact (NIESR, 2018). The microsimulation exercise will draw on recent developments in forecasting household liquidity though the cost-of-living crisis (Mosley, 2022) and apply them to the PolicyEngine UK microsimulation model. This model provides a more robust sample as it draws on multiple large representative samples of UK households, the Family Resources Survey (FRS) and the Wealth Assets Survey (WAS) in particular. This model is adapted to predict the presence of liquidity-constrained households using Random Forests method, which informs a machine learning algorithm to provide estimates from the sample based on the policy framework employed.

Within NiGEM, the standard consumption equation is specified as a dynamic adjustment path around real personal disposable income (RPDI) and real wealth, which is comprised of financial and housing wealth; this framework is discussed further in (Barrell and Davis, 2007). Consumers can be forward looking or myopic and hold adaptive or rational expectations; government solvency can be turned on or off, allowing for the inclusion of Ricardian equivalence and Barro-Ramsey consumption models. Liquidity-constrained consumers form a share of total consumption; they consume the entirety of their change in RPDI. Through modifying the standard consumption equation in NiGEM, allowing for the creation of a government transfer instrument specifically aimed at the liquidity-constrained, this paper will be able to simulate the macroeconomic effects of targeted transfers at those on universal credit. It will then be able to compare these effects to the counterfactual scenario where transfers are distributed equally among the population.

2. Methodology

2.1. Estimating Liquidity-Constrained Households

The microsimulation exercise will draw on recent developments in forecasting household liquidity through the cost-of-living crisis (Mosley, 2022). These previous projections for household savings were based on the latest WAS, which provides the stock levels of household wealth at the time of collection in 2019/20. Estimates in how each household's income and consumption would have developed each year were then applied to arrive at a forecast of the subsequent level of household savings in 2022-23. These flows allow for the given stock of household liquidity to rise or fall depending on that household's consumption relative to its income for a given time period. This projects consumption based on the household income profile based on the closest match in the Living Cost and Food Survey. This can be considered an estimate of the Average Propensity to Consume (APC) based on household income level and allows for developments in household liquidity to move through time in order for it to be relevant to the period studied. Lastly, earnings develops yearly based on real data and forecasts from NiGEM and benefit income is uprated in line with how it was raised in a given year so that total household income is allowed to develop consistently over time.

Although part of these estimates were provided by the Lifetime Income Distributional Analysis (LINDA) model, the overall exercise can be regarded as a static exercise with assumptions about long-run flows in household savings layered on top of the existing data of stock of household savings. This is therefore not able to fully capture heterogeneous actions of households such as differential consumption decisions within income deciles, as the above exercise treats the consumption basket of two households within the same income decile as the same regardless of factors such as the presence of children. Furthermore, as this work is primarily built on the WAS it is entirely dependent on its accuracy. However, it is known that datasets of this nature under-report household wealth for low-income households (Jappelli et al., 1998b).

To build on this work, this paper will fully simulate household savings within a microsimulation exercise in order to overcome the limitations of previous estimates. The model employed is PoilcyEngine UK, which not only provides a more adaptable framework, its sample of households and their respective household wealth is likely more accurate as it draws on both the FRS and the WAS datasets, meaning it is more able to overcome data limitations and maximise accuracy in estimates regarding low-income households. Within this sample, we predict the number of households to be liquidity-constrained based on the financial profile of each household using a Random Forest prediction. Drawing on the same variables considered to be the sum total of savings in the aforementioned static exercise that is liquid wealth including ISAs that can realistically be drawn on (such as cash ISA but not a lifetime ISA) to smooth consumption. These are summarised in into the expression W_{it}, which can be considered household liquidity (or household savings).

The threshold at which W_{it} is sufficiently low for the household to be considered liquidity constrained is set at household liquidity lower than two-months income based on the Zeldes criteria and consistent with previous studies (Zeldes, 1989). This can be summarised in the following expression which states that a household can be liquidity-constrained (LC_{it}) if liquidity (W_{it}) is less than or equal to 2 months income (Y_D):

$$LC_{it} = 1\left[W_{it} \leq \frac{2}{12}Y_D\right] \tag{1}$$

This equation presents a binary condition to the status of being liquidity-constrained. It could be argued that there are more conditions to include in the understanding of whether a household's liquidity is sufficient enough to enable consumption smoothing, such as whether the household is a renter or owns their own home. This latter approach is taken by Runkle when estimating the presence of such households with panel data (Runkle, 1991). However, the justification here for this measure more relates to limitations on the accuracy of household wealth surveys mentioned above. Given the model employed in this paper is better suited at such analysis it is therefore appropriate to consider liquidity-constrained status based solely on household savings levels relative to income based on the criteria set out by Zeldes.

Due to the importance relative levels of liquidity play in determining the size of a households MPC, papers that provide these estimates often differentiate their analysis into representative and liquidity-constrained households. Estimates of the former can help calibrate economic models to estimate the effect of more realistic stimulus transfers, which as mentioned above are provided to the majority of the population. As liquidity is the strongest, and arguably sole determinant of MPC size, these latter estimates will be used in the forthcoming analysis. A summary of the latest literature in this space is summarised in Table 1, which shows that MPC size are consistently found to be higher for liquidity-constrained households than typical households under range of scenarios and country-settings.

Table 1: Literature Estimates of MPC Size

Authors	Context	MPC Estimates	
		Overall	Liquidity-Constrained
Agarwal and Qian (2014)	2011 Growth dividend (Singapore)	0.8	0.5-0.75
Johnson et al. (2006)	2001 US Income Tax Rebates	0.2-0.4	Larger
Parker et al. (2013b)	2008 US Stimulus Payment	0.5-0.9	Larger
Jappelli and Pistaferri (2014b)	2010 Italian Dataset	0.48	0.7
Canbary and Grant (2019)	1986-2010 UK FRS Dataset	0.5-0.94	0.75-0.94
Fisher et al. (2019)	1999-2013 US PSID Dataset	0.2-0.6	Larger
Gross et al. (2020)	US Consumer Credit Panel (CCP)	-	0.37
Crossley et al. (2021)	Survey over COVID-19	0.11	-

Notes: Comparison across estimates should be done with caution given variation in context and country studied. Overall includes liquidity-constrained households.

Agarwal and Qian (2014) provide estimates at both announcement and dismemberment. Johnson et al (2006) is the first of many papers that uses random timing of stimulus-based welfare number and is replicated in Johnson et al (2013). Tullio et al (2014) find low 'cash-on-hand' households exhibit larger MPCs. Canbary and Grant (2019) find only 50% of households consume from permanent income. Fisher et al (2019) find the MPC tapers off to 0 after the 3rd wealth quintile Gross, Et al. (2016) measure the effects of bankruptcy flag removal on consumption. Crossley et al (2021) do not test for liquidity-constrained households specifically.

We collapse the value of current accounts in credit, savings accounts, liquid investments building society savings plans and investment bonds along with cash, investment and innovative finance ISAs into W_{it}. These are the same variables as in Mosley (2022), and are used to enable the microsimulation model to predict these values based on the financial profile of the household.

Table 2: Microsimulation Outputs

	Liquidity Constrained Households	Median Income
General Population	16.1m (53.8%)	£39,500
Universal Credit Population	2.9m (72.3%)	£29,400

Source: PolicyEngineUK

The projections for liquidity-constrained households is somewhat higher than previous estimates as estimates often hold around the 20-30% mark displayed in Table 1. There are likely two explanations for these higher estimates, the first is the fact that PolicyEngine UK has more statistically accuracy at forecasting household wealth levels at the lower end of the income distribution than those which rely on a single data-set like the Wealth and Assets Survey (WAS). The second is driven by the specific factors to the year studied, which follows a decade of stagnant real incomes and inflation levels not seen this millennium. Moreover, previous simulations of household wealth found divergent trends of low-income households drawing down their liquidity to withstand successive real income shocks such as COVID-19, whereas higher-income households were able to increase theirs during the same set of shocks (Mosley, 2022). In fact, inflation had the greatest impact on household savings when compared to other shocks like COVID-19. Consequently, these results do not seem surprising even if higher than previously thought.

The projections within Universal-Credit recipient population is strikingly similar to previous studies (Mosley, 2021). This is likely due to the fact that a household has to have low levels of savings to be in receipt of Universal Credit, so the projections for liquidity-constrained welfare recipient households should remain fairly stable over time.

This confirms that although the cost-of-living crisis had increased the number of liquidity-constrained households across the population, it did not impact the liquidity status of those who receive welfare.

2.2. Macro model

This paper will use NiGEM to derive the macro-economic impacts of the cost-of-living payments. NiGEM is a global macro-economic model created within a New-Keynesian framework developed by the National Institute of Economic and Social Research (NIESR); its ability to deal with counterfactual policy scenarios, accounting for a wide range of economic sectors, makes it perfect for exploring this research question. Country models are built around the national income identity, and contain the determinants of domestic demand, trade volumes, prices, current accounts and asset holdings. In particular, NiGEM's consumption function can be modified to account for transfers to the liquidity constrained, with feedback from governments, monetary authorities, and changes in international trade. Indeed, this has allowed the model to explore questions of a similar nature, such as in Carreras et al (2016b) where the strength of fiscal multipliers were estimated under different policy scenarios. Agents in the model can be forward looking or backward looking. This flexibility allows this paper to design the exact policy scenario needed to answer this research question, as well as providing the option to explore counterfactual scenarios for robustness.

The consumption function in NiGEM is specified in error correction form as in equation 2 below:

$$\begin{aligned}\triangle log(C_t) = \beta_1 - \beta_2(log(C_{t-1} - log(\frac{HUW_{t-1}}{40})) \\ + \beta_3 log(\triangle RPDI_t) + \beta_4 log(\triangle RNW_t) + \beta_5 log(\triangle RHW_t) + \varepsilon_t\end{aligned} \tag{2}$$

β_2 denotes the error correction adjustment to the expected lifetime income (HUW), assuming a Permanent Income Hypothesis (PIH) style relationship. HUW, standing for Human Wealth, is a forward convolution of RPDI discounted by the real interest rate. β_3 denotes the short-run impact of a change in RPDI on consumption; it can be interpreted as the sensitivity of consumption to immediate changes in RPDI. Difference terms for Real Net Wealth (RNW) and Real Housing Wealth (RHW) are also included to capture wealth effects (β_4 and β_5 respectively).

Under this framework, the short-run difference term for RPDI can be modified to create innovations in income for the liquidity constrained, causing a permanent change in consumption until the income is changed to be lower again. That is, an MPC of 1. For the non-liquidity constrained consumer, the PIH consumer, consumption is modelled as an error correction toward their permanent expected lifetime income. That is, PIH consumers shift their consumption toward a long-run equilibrium based on expected lifetime income. Al-Eyd and Barrell (2005) provide a more comprehensive discussion on how the consumption function is specified and calibrated in NiGEM.

The transfer amount used was £7.2 billion, which has been calibrated to align with a nominal transfer payment of £900 to 8 million people. As NiGEM's headline figures are based in 2019 prices, this figure was re-based to £8.4 billion to provide an effective nominal shock of £7.2 billion. When calculating multipliers, real figures were used (ΔGDP in 2019 prices/£8.4 billion).

Two different scenarios were run, one in which the entire transfer was provided just to universal credit recipients, of which 72% are liquidity constrained, and one in which the transfer was distributed to the entire population equally with the assumption that 53.8% were liquidity constrained and the other 46.2% consumed in accordance with the PIH. In each scenario, the transfer payment was the same- the only difference was the proportion of people receiving it and, of those recipients, the proportion that were liquidity constrained. It should be noted that this implies that, as the same transfer is made to a smaller amount of people, the amount they receive would be bigger. This does not affect the macro-economic outcomes of this paper, but it does have distributional consequences.

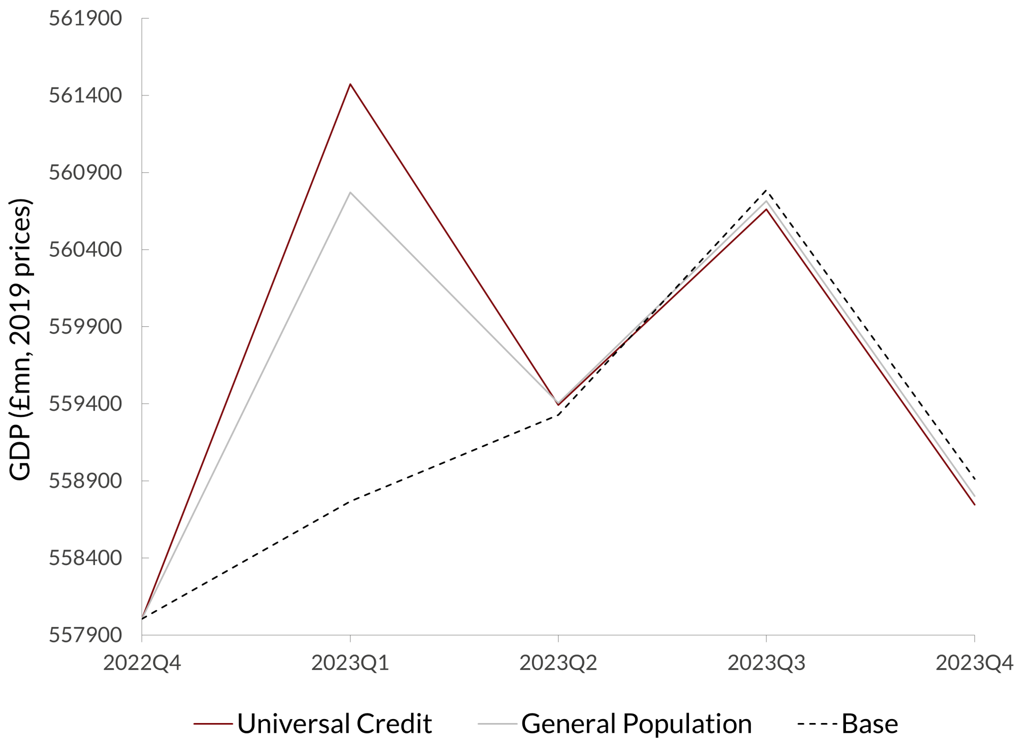
In both cases, the interest rate and tax rate were exogenised to turn off feedback from government and central bank agents to show the pure effects of the policy- that is, transfers were unfunded and monetary policymakers did not react by changing interest rates. When turned on, these slightly worsened the long-run growth prospects, as government agents endogenously raised taxes to meet deficit targets, dampening future consumption.

Agents in the model were set to forward looking, reflecting the fact that the transfer policy was communicated as a one-off payment and did not reflect a sustained shift in income. However, the simulation was configured so that agents in the model did not expect the payment in advance; it was a surprise payment that they knew would be one-off. For robustness, the model was also run with agents holding backward-looking, adaptive expectations but the results did not alter significantly.

3. Results

The results of the macro model confirm that the impact on the macroeconomy is stronger if transfers are focused on universal credit recipients. NiGEM's baseline GDP growth forecast for the year 2023 was 0.32%, but the scenario in which transfers were made to universal credit recipients increased this to 0.43%. In contrast, this increased to 0.40% under the simulation in which the amount was transferred to everyone equally. Therefore, the cost-of-living payments increased GDP by around 0.1% That is a small difference, but in the context of yearly GDP growth being less than 1%, this impact likely played an important role in the UK avoiding a recession.

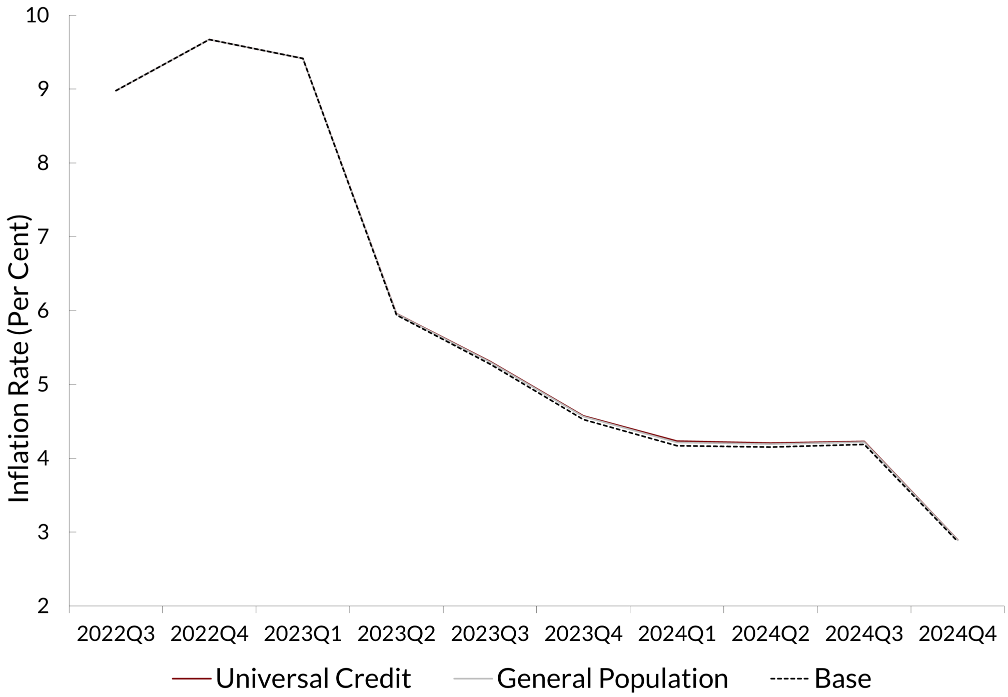
Figure 1: GDP in levels



Notes: Base refers to outurn and forecasted GDP from 2023 Q1.
Source: NiGEM, PolicyEngineUK

Given this transfer was sent at the time of inflation above 10% it would be reasonable to expect this increase in GDP has a strong impact on raising this price level further. This was stated as a key concern of policy makers at the time in driving their hesitancy. Our estimates do not support this concern as we find an indistinguishable impact on inflation.

Figure 2: Inflation in levels



Notes: Base refers to outurn and forecasted inflation from 2023 Q1.
Source: NiGEM, PolicyEngineUK

The multiplier was approximately 30% higher for the universal credit transfer than for the transfer where the population received payment equally. This makes intuitive sense, as the payment is spent by 72% of recipients when transferred to those on universal credit, while it is spent by only 54% of recipients when transferred to the general population; around 30% more people spend the transfer immediately. The payment to the non-liquidity constrained has an small impact on current spending, largely because their lifetime expected income is barely changed so they do not shift their consumption. As Carreras et al (2016b) note, multipliers in NiGEM are generally quite small as "part of the fiscal impulse will be leaked away from the country via trade". Therefore, our paper focuses more on the relationship between the multiplier estimates rather than on their estimated level. Multipliers are provided in the immediate quarter that the transfer is made and the average for the preceding year, which is slightly lower as a result of re-adjustment.

Table 3: Fiscal Multipliers from Transfer Shocks

		Fiscal Multiplier	
Measurement period	Transfer type	GDP	Demand
Immediate Quarter	Liquidity Constrained	0.32	0.64
	Aggregate Transfers	0.24	0.48
Full Year	Liquidity Constrained	0.29	0.52
	Aggregate Transfers	0.22	0.40

Source: NiGEM, PolicyEngineUK

As expected, there was an inflationary reaction to the transfer shock. The transfer to the liquidity consumer leads to an inflationary period that peaks at 0.06 percentage points above base 4 periods after the shock, while the aggregate transfer leads to a peak at 0.05 driven by the lower multiplier. The modelled impact of the shock is shown in Figure 3.

There are two notable observations from this with regards to the size and the timing. In terms of the size, 0.06 percentage points is very small, especially considering that the banks target is 2 percentage points. This lends credence to the fact that the macro-inflationary impact would be minimal. In this case, it would seem that there is a trade-off between inflation and supporting those most at risk in times of economic stress, but it is a high-reward low-cost strategy to concentrate transfers on the liquidity constrained as cost-of-living transfers can significantly improve livelihoods at minimal levels of inflation.

Figure 3: Inflation

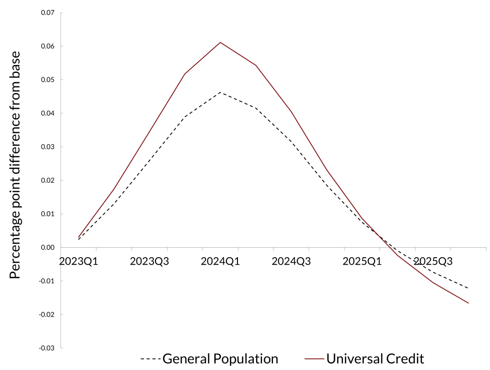


Figure 4: GDP

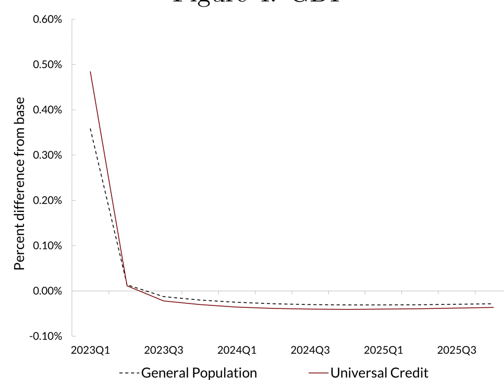


Figure 5: Unemployment

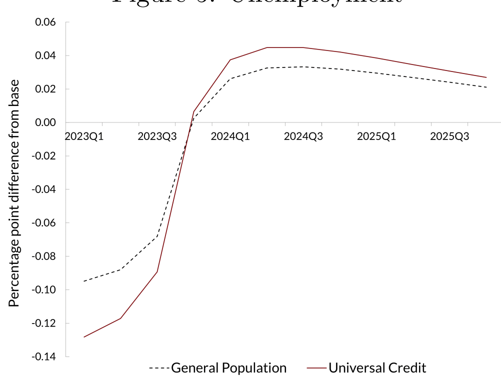
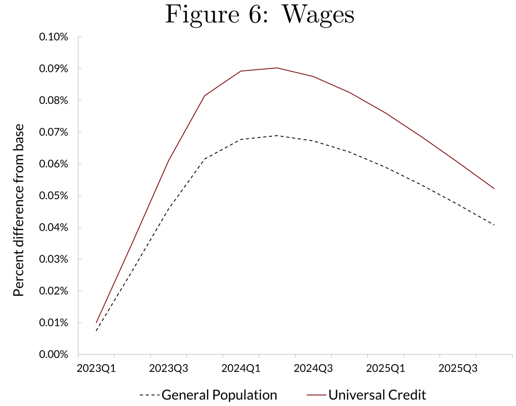


Figure 6: Wages



Notes: General population refers to the scenario where the same value of the total transfer is spread across the general population, red is the same transfer but given only to those on Universal Credit. All figures show estimates as a difference from base.
Source: NiGEM, PolicyEngineUK

Alternatively, the scenario where the transfer were spread evenly across the population would have had further distributional consequences, given this same value spread over a greater amount of people would have meant a diluted per-person windfall. Although this has no impact on our estimates, it should be noted that our general population counter-factual exercise would have lost the ability to meet the primary purpose for these payments which was to alleviate the real income shock for poor and vulnerable households.

With regards to the timing, it is important to state that the peak in the inflationary impact occurs a year after the initial shock. This is driven by feedback effects on unemployment and wage growth; the initial shock increases employment due to the extra demand of the economy, which leads to higher wage pressures. Wages rise in nominal terms, leading to increased unit costs which feed through into inflation. The lags in this process result in the timing of the inflationary peak. This dynamic is shown in Figures 5 and 6. If in a context where inflation is set to fall in the year ahead, the timing of this increase in inflation is important; it does not increase current inflation as such, more so slowing the fall of future dis-inflationary periods.

4. Discussion

Before applying the findings presented in this paper to the context of the 2022 inflationary period studied, the first contribution this paper makes is to the body of literature which estimates the macroeconomic impact of fiscal stimulus. Given we find that the fiscal multiplier is maximised when targeted at those in receipt of social security, this implies that this should be of consideration to policymakers when an economy is in need of expansive fiscal policy. These payments, though small in the context of the wider economy, had a noticeable impact on GDP, raising it further by 0.1%. This can not only strengthen pound-for-pound impact, it can further be enacted quickly by utilising these existing transfer systems (Mosley, 2021); although we should note that this would likely need to be incorporated with other stimulus transfers under such a scenario. Indeed, Carreras et al (2016a) note that government investment generally entails a higher multiplier than transfers. However, as this paper shows, this will depend on the exact nature of the transfer (whether to the liquidity constrained or not) and has different distributional consequences. Overall, this paper contributes to a growing body of literature that estimates high fiscal multipliers from stimulus transferred to social security recipients.

Of course, unlike traditional stimulus, the cost-of-living payments were not designed to impact the macro-economy. Although the primary purpose of these transfers were to alleviate real income shocks for poor and vulnerable households, the hesitancy from policy makers to enact this support measure was stated to be driven concerns over the inflationary effect of these payments. Therefore, our paper has explored to what extent these concerns were justified.

The set of findings estimated present a nuanced picture. On the one hand, the pound-for-pound effect was strengthened due to it being transferred to households in receipt of social security. Compared to typical stimulus transferred to the general population, the fact that the cost-of-living payments were made available only to those on Universal Credit resulted in a greater proportion of this transfer being spent and thus influencing domestic demand. This inability to smooth consumption with their savings means they are forced to spend a greater proportion of the financial windfall; this paper implies that the concerns raised over the potential inflationary effect from such transfers were not totally unjustified.

However, although we find a higher fiscal multiplier from these payments which drove a noticeable rise in GDP, we find a negligible impact on inflation. This is not unexpected, as although the payments presented a large multiplier, they were not of sufficient size or transferred to a sufficient number of households to have had the chance to influence the wider economy. Given domestic demand typically accounts for around 60% of GDP, and that of those households around 20% claim means tested welfare, it can reasonably be assumed that this cohort is not a large enough economic player to realistically influence the economy in the way stated by politicians at the time.

In testing this concern by estimating the inflationary effect of these cost-of-living payments we risk implying that such considerations are central in evaluating the suitability of these transfers. This view is not shared by the authors for the following reasons. Firstly, the respective roles of monetary and fiscal policy are and should remain clear; these are broadly to control inflation and macroeconomic stability on the former side while promoting growth and favourable distributional outcomes on the latter. Concerns raised over the inflationary impact of policies designed to cushion real-income shocks risks confusing this important distinction.

This separation of responsibilities can, however, become more complex and blurred during strong inflationary pressures of the magnitude seen in the year studied. It is reasonable for policymakers to be apprehensive at worsening this situation further with fiscal transfers. Indeed, Dynan states that a key principle for fiscal policy in such an environment should be to *"not make the current inflation problem worse by raising overall demand"* (Dynan, 2022) due uncertainty around the different propensities to consume of different households. Our paper suggests that this uncertainty is lower for particular fiscal policies such as social security, due to unique and broadly homogeneous financial profile of recipient households in terms of being liquidity-constrained. Expansions in such programs can have a more predictable impact as displayed in this paper. Further, such impacts will always likely be minimal, even in such an inflationary environment, due to the fact that recipient households do not present a sizeable enough cohort to impact the wider economy exclusively.

In fact, Dynan further states that existence and at times expansion of existing social safety nets remains appropriate within this context, and that a period of rising prices and the risk of an imminent recession justifies such programs even further. To summarise, although policymakers should be cognisant of the inflationary implications of fiscal policy decisions, this should not necessarily be applied when evaluating the suitability of support payments to vulnerable households. This is because firstly the responsibility of alleviating real income shocks falls exclusively under the responsibility of fiscal policy makers and secondly because, as we find, the macroeconomic impact of such support measures will likely always be low given the fact recipient households do not present in sufficient numbers be of threat to macroeconomic stability.

Furthermore, exploration of the policy scenario space within NiGEM provides additional avenues of inquiry. For example, the current scenario assumes that the UK acts in isolation with it's fiscal policy, but Carreras et al (2016a) show that fiscal spillovers exist when multiple countries adopt the same fiscal approach. Considering that the current pressure on the cost-of-living can be thought of as an global problem, as it was driven largely by Covid-19 and the Ukraine War, it is not unreasonable to assume that other countries would adopt a similar fiscal approach, changing the trade dynamics between countries and ultimately affecting the size of the multipliers and the inflationary effects that come through from the import channel.

The distributional nature of the transfers has not been covered in great detail by the macro-model, however it is important to acknowledge that there will be distributional impacts. As the same payment amount is used but targeted strongly toward a smaller population of those on universal credit, it is reasonable to assume that well being, on an individual level, will be improved much more under the universal credit transfer scenario as the individual payments would be larger. Furthermore, as they are the first to receive the money and can spend it before inflation peaks later on, there exists a "first mover" benefit whereby "the injection of money increases the purchasing power of those who receive the new money first" (Cheng and Angus, 2012) giving the initial recipients an spending advantage before inflation peaks later and the money injection permeates the rest of the economy; in this paper's simulation, this peak hits 4 quarters later. During the cost-of-living crisis, the well being of the least well off is an important policy consideration.

5. Conclusion

This paper has found that the 2022 cost-of-living payments increased GDP by 0.1% and had a minimal impact on inflation. We find that due to the greater presence of liquidity-constrained households who claim Universal Credit (72%), the fiscal multiplier was higher than it would have been than if this transfer was spread across the general population, of which 54% are liquidity-constrained. Although the proportion of liquidity-constrained Universal Credit recipients is consistent with previous literature, the higher proportion of hand-to-mouth households in the general population reflects the impact the cost-of-living crisis had on household savings.

Despite these higher multiplier and GDP estimates, the overall inflationary effect was negligible. This is because the payments themselves only went to a small proportion of UK households, who are not sufficient in size to influence the macro-economy on their own. Therefore, although our high multiplier estimates do not disagree with the intuition behind the stated concerns over the potential inflationary impact of these payments, our paper confirms that resulting impact was minimal.

Our paper finishes with an exploration of what these findings mean for our understanding of fiscal stimulus in both contractions and inflationary periods. On the former side, the finding of high multipliers out of transfers to social security recipients implies this approach should be of consideration to policymakers when in need of expansive fiscal policy. However, the small impact on the wider economy implies that this would likely not be a sufficient approach exclusively. On the latter side, when exploring this finding through the context of the 2022 inflationary episode, the finding of an overall small impact on inflation finds that the concerns from policy makers did not materialise.

We interpret these findings as an example of why fiscal transfers should be judged on their ability to alleviate real income shocks and not on the grounds of macroeconomic stability, as their link to the latter is - at least in this case - tenuous.

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