COVID-19: A theoretical evaluation of the comprehensive macroeconomic impact, and the policy mix (monetary and fiscal) required to tackle the COVID-19 contraction in the UK

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Extended Abstract:
Since January 2020, the world has been confronted with a shock of unprecedented nature: a supply shock, causing demand shortage triggered by the spread of coronavirus (COVID-19).
The impact of such a serious global shock has been estimated to that of a deep and prolonged recession, the worst since the Great Depression. Markets and organisations are facing a large decline in industrial and economic activity, and uncertainty about the magnitude of the coronavirus-fueled contraction and the pace of the rebound. These disruptions have been aggravated by the contagion containment measures adopted in the UK since March. All these elements need to be examined in more detail, and quantified, and relevant reliving policies need to be defined.
Here, we aim to model both mechanisms and achieve two objectives: First, to quantify the full impact and transmission of the crisis. Second, to propose (through solid ex ante assessment) potential policy measures that can be taken to alleviate these negative effects.
The impact of the crisis are evaluated on a range of crucial economic indicators such as GDP, unemployment, credit, financial obligations, inflation, housing-and consumption demand, and prices of individual goods. We propose and evaluate monetary and fiscal policy measures that can help alleviate the problem.
We propose two competing, yet straightforward, policy models, in the general equilibrium tradition, to evaluate the macroeconomic effects and the policy responses to COVID-19 in the UK.
We derive a two-layer approach to dynamic stochastic general equilibrium model (DSGE) analysis: A first model, which can account for large monetary injections, in a context of low interest rates. A second model, which accounts for the uncertainty regarding future macroeconomic outcomes of the COVID-19 outbreak, and thus agents need to guess and learn the about potential consequences as the crisis evolves.
The first model is a New Keynesian Rational Expectations model with occasionally binding constraint (due to the zero-lower bound). Money is explicitly modelled and analysed, by inserting a demand for money in households’ utility function and by subjecting money supply to shocks that proxy quantitative easing measures. The coronavirus outbreak is modelled as a sequence of shocks to production and preferences for consumption, that we calibrate to fit the actual drop in production and consumption that we observe in the UK data.
The second one is a New Keynesian Behavioural model where optimizing agents are uncertain of the full effects of the ‘corona-shocks’ and thus need to guess their impact on expected inflation and aggregate output. Yet, they still need to fulfil their financial commitments and satisfy their (money and consumption) demand. ‘Corona-shocks’ impact both the aggregate output as well as the relations between the different production sectors (primary, intermediary and final good producers) including their financial obligations. Authorities use both monetary and fiscal measures.

Data Description:
Macroeconomic data on key variables such as GDP, employment, inflation, consumption, production, interest rates for model calibration

Keywords:
COVID-19, crisis, macroeconomy, uncertainty, behavioural, learning, monetary policy, fiscal policy, recession, recovery
JEL Classification:
E32, E58, E70