Greenflation Under Heterogeneous Agents

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Abstract

The recent increase in energy prices has renewed interest in understanding how changes in energy prices affect consumer inflation. Additionally, efforts to combat climate change are believed to have contributed to higher prices for energy generated from fossil fuels. This article investigates how shocks to carbon prices affect consumer inflation and demonstrates that incorporating diverse agents into the analysis provides a better understanding of inflation dynamics.

We first employ a Representative Agent New Keneysian (RANK) model to illustrate the contrasting effects of conventional energy shocks (*oil shocks)*, and carbon price shocks. Subsequently, we expand the analysis to a Two Agents New Keynesian (TANK) framework and show that credit-constrained households exhibit dissimilar behavioral responses compared to savers. Notably, households with a limited ability to smooth consumption, i.e., hand-to-mouth households, opt to increase labor supply following an upsurge in energy prices, notwithstanding the fall of wages.

Although the TANK approach provides insights into the varied behavior of savers and hand-to-mouth households, we find that the Heterogeneous Agents New Keynesian model (HANK) is the most effective in replicating empirical data. Furthermore, this model's granularity enables us to disentangle the channels through which carbon prices influence consumer inflation. Specifically, we demonstrate that the impact of these shocks on inflation is contingent on the joint distribution of wealth and income. The proportion of energy expenditure in consumption, which is higher for lower-income households, is also a crucial factor for understanding households' behavior and its implications for inflation and monetary policy.

Keywords: Greenflation, HANK, Energy

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