The cost of structural inaction towards a low-carbon economy under high energy and carbon prices

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Introduction

Achieving a low-carbon economy is crucial for reducing greenhouse gas emissions, but the transition requires massive investment. The current geopolitical landscape imposes financial pressure through persistently high energy and carbon prices, amplifying the cost of inaction.

This paper quantifies the impacts of high energy prices and gradually increasing carbon prices on the Irish economy and labour market. It also examines the implications of an additional policy in the form of a carbon tax revenue recycling (RR) scheme, in which the Irish government uses its carbon tax revenues to mitigate the adverse effects of higher energy and carbon prices.

Data and methods

This paper uses Ireland's Environment, Energy and Economy (I3E) model, a Computable General Equilibrium (CGE) model that focuses on the impacts of environmental policies. I3E captures the intricate macroeconomic relationships across 37 production sectors, 10 household groups, and three labour skill types. The study first examines the impact of persistently high energy and gradually rising carbon prices on the Irish economy.

The study then looks at three main ways the Government can use the money it collects from the carbon tax: increasing government spending, giving an equal cash bonus to every household, and lowering the income tax rate for workers. Two additional options test how targeted support could change the results: helping those in need by giving a cash bonus only to the lowest-income household groups (four out of ten) instead of everyone, and giving the income tax cut only to low- and middle-skilled workers, leaving out high-skilled labour.

Results

High energy and carbon prices hurt Ireland’s economy and job market, but the Government can lessen these unfavourable outcomes depending on how it spends the tax revenue it collects. Each policy option considered in this study creates a direct trade-off between economic growth and fairness. Giving equal cash transfers to every household is the fairest approach for families, but it does the least to help the overall economy recover. On the other hand, traditional government spending or general tax cuts on labour earnings help the economy grow, but they leave lower-income households behind. Ultimately, the best solution is targeted income tax cuts for low- and middle-income workers, as this boosts the economy and improves the fairness aspect of the additional policy by encouraging employment and increasing wage income for those who need it most.

Conclusions

A low-carbon transition supported by an RR scheme is required not only to mitigate the adverse impacts of climate change but also to strengthen the resilience of the Irish economy. This conclusion can be generalised to energy-importing, fossil-fuel-dependent countries, as failure to pursue a low-carbon transition increases vulnerability to external price shocks. In the Irish context, the results of this paper provide two important policy insights. First, the adverse effects of fuel price shocks should be mitigated by tailored and targeted policies rather than one-size-fits-all solutions. Second, our results indicate that Ireland will miss its legally binding target for reducing CO2 emissions by 2030, thereby warranting additional policy interventions.