Socio-economic Impacts of the Paris Climate Action Plan: A Regional Macroeconomic Assessment

Topic: Input-Output Analysis: Regional policies (3)
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Context
The Paris Climate Action Plan sets ambitious decarbonisation targets for 2030 and 2050, requiring substantial investments in building renovation, transport electrification, renewable energy deployment, and district heating networks. While the environmental benefits of such policies are widely acknowledged, their regional macroeconomic implications remain a central policy concern. This paper assesses the socio-economic impacts of the Paris Climate Action Plan on the ÃŽle-de-France region and examines potential spillover effects on the rest of France.

Methodology
The analysis relies on an adapted multi-regional input-output version of the ThreeME (Multi-sector Macroeconomic Model for the Evaluation of Environmental and Energy policies). Originally a multisectoral macroeconomic model developed at the national level and frequently used to evaluate their energy transition pathways, ThreeME has been specifically regionalised for this study to capture the economic structure of ÃŽle-de-France.
Regional modelling presents specific data challenges, notably the limited availability of detailed sectoral statistics compared to the national level. To address this constraint, the national input-output version of ThreeME (base year 2019) was disaggregated into two regions: ÃŽle-de-France and the rest of France.
The regional database combines three main sources: (i) national supply-use tables from Eurostat, disaggregated for energy and transport sectors; (ii) regional macroeconomic and sectoral data from Eurostatâ€™s Structural Business Statistics (SBS), including sectoral value-added, sectoral investment, wages, and household disposable income; and (iii) regional energy consumption data from the French Ministry for Ecological Transition. The resulting regional model comprises 20 production sectors and 26 goods, including 14 energy goods.
The modelling framework adopts an input-output specification without price adjustments, a common assumption in regional economic modelling. It distinguishes between direct, indirect, and induced effects. Direct effects arise from sectoral investment shocks (e.g., construction or energy sectors). Indirect effects reflect intersectoral linkages through intermediate consumption along supply chains. Induced effects stem from increased household income and investment generated by higher economic activity. The decomposition allows the estimation of a lower-bound impact (direct and indirect effects only) and an upper-bound impact (including induced effects).

Results
Results indicate that the Paris Climate Action Plan generates overall positive macroeconomic effects. By 2030, value added is projected to increase by between â‚¬1 and â‚¬1.7 billion in ÃŽle-de-France and between â‚¬1.5 and â‚¬3 billion at the national level. Employment effects are also significant. Across France, the Plan is expected to generate between 13,000 (lower bound) and 26,000 (upper bound) additional jobs per year on average. In ÃŽle-de-France alone, employment gains range between 13,000 and more than 16,000 jobs annually.

Policy implications
From a policy perspective, the findings suggest that ambitious urban decarbonisation strategies can be compatible with, and even supportive of, regional economic growth. Far from constraining economic activity, the Paris Climate Action Plan appears to stimulate value creation and net

employment growth while enhancing household welfare through lower energy bills. Although technically and politically demanding, the decarbonisation pathway represents not only an environmental imperative but also a significant economic opportunity for ÃŽle-de-France.
Overall, this study contributes to the growing literature on subnational climate policy evaluation by demonstrating how regionalised macroeconomic modelling can inform policy debates. It highlights the importance of accounting for intersectoral linkages and induced effects when assessing the broader economic implications of climate action.

Novelty of the research
The novelty of this study lies in two dimensions: political and methodological.
1. Policy perspective: The analysis of regional climate policies in the study provides additional insights for local policymakers, helping them understand not only direct impacts of local measures at regional level, but also the spillover effects at national level.
2. Methodological perspective: The study proposes a method to estimate detailed regional supply-use tables using very limited regional data. In extreme cases, only regional population and value added are required.