

ECONOMIC DEVELOPMENT AND POLLUTION LEAKAGE

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Overview

Given the increasing importance of the carbon leakage issue in a policy context, pollution leakage has emerged as a potentially important factor in the relationship between economic growth and environmental quality. In addition, the issue of devolution of power to the regional authorities or governments transferred many sustainable development and environmental functions. The regional environmental target maybe comprised by the regional economic growth target. However, the reductions in domestic emissions may come at the cost of increased emissions in other countries.

Method

The economic spillover effects and environmental spillover effects are considered and simulated by exogenously increasing labour productivity in Scotland. We employ a flexible CGE (Computable General Equilibrium) modelling framework which incorporates a set of Input-Output accounts as its core database to examine the impact of labour productivity improvement and interregional migration on regional (Scotland and the rest of UK (RUK))economy and emissions. We measure pollution leakage using a full consumption accounting principle (CAP) of carbon emissions (or carbon footprints).

Results

The simulation calculates the changes in CO₂ emissions in Scotland and RUK because of efficiency-driven growth in Scotland. CO₂ emissions are measured in absolute and per capita terms using both production and consumption accounting principles. There is growth in absolute pollution levels from both a production and a consumption accounting perspective in the region where productivity improves (Scotland) though only under the CPA over the long run in the neighbour (RUK). Moreover, there is no evidence of a conventional Environmental Kuznets Curve (EKC) in the case of Scotland, which predicts that CO₂ level will fall as GDP or GDP per capita rises as a result of increased technological progress.

Conclusions

Economic growth driven by productivity improvement has a negative impact on domestic emissions and also other regions or countries bear the costs of increasing emissions as a result of pollution leakage. This paper suggests if we redefine the KEC in terms of per capita CO₂ emissions set against absolute GDP growth, the inverse U-shaped EKC can be proved in the targeted region (Scotland) when we focus on emissions from a consumption accounting perspective.

References

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