

Task 4.6

The effect of climate policy on migration and its consequences on income inequality

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1. Task description

The need for ‘greening’ the economy and its production processes, driven notably by climate policies may boost the demand for high-skilled workers. In a context of free worker mobility within the EU, migration of tertiary educated workers likely amplifies local positive externalities (e.g. technological spill overs, higher demand for cleaner environments), while increasing interregional inequality. Some regions will be capable to attract these workers, while others will lose them. This will thus create locally virtuous/vicious circles. We propose a theoretical framework and empirical analyses to explore the impact of climate policy scenarios from Task 4.5 and analyse the implications of migration on interregional income distribution.

2. Background / Setting

The need for ‘greening’ the economy and its production processes, driven notably by climate policies is likely to boost the demand for high-skilled workers. In a context of free worker mobility within the EU, migration of tertiary educated workers amplifies local positive externalities (e.g. technological spillovers, higher demand for cleaner environments). Some regions will be capable to attract these workers, while others will lose them. This will create locally virtuous/vicious circles and amplify interregional inequalities. Policies can be designed to alleviate these effects and redistribute the gains from green tech across European regions.

3. State-of-the-art

A growing literature in economics analyses the impact of climate change on migration and inequality within and across countries (Burzynski et al., 2022). Conte et al. (2022) build a multisector dynamic spatial integrated assessment model to study the effects of a unilateral carbon tax on population and welfare, accounting for the endogenous location of economic activity and population. The cost of an environmental

tax is local, while the CO₂ reduction it generates and the subsequent reduction of global warming is global. There is hence a trade-off between local effects (a fiscal cost in this paper) and global effects (a climate externality), which might be unfavorable to local policies (a unilateral tax). However, endogenous sorting of heterogeneous workers (across occupations and/or geographic locations) might reinforce local externalities from technology and pollution, and hence affect the regional distribution of activity and income (Burzynski and Peri, 2023).

4. Advancement compared to the state of the art

We build a theoretical model and provide numerical simulations to explore the impact of climate policy scenarios in a context where heterogeneous workers can sort across sectors and regions and high-skilled workers foster the adoption of green tech. We analyse the implications of migration on the interregional income distribution. To the best of our knowledge, our study will be the first to account for endogenous sorting of worker across countries when highly-educated workers can favour technological spillover effects through adoption of cleaner technologies. The model can also be extended to compare the optimal coordination within the EU given different objectives, such as minimising negative externalities from pollution or minimising income inequalities.

5. Research to be done

For this task, we will first develop a general equilibrium model that allows for endogenous migration and technology spillover effects from high-skilled migration. The model will then be calibrated on observed activity and population distributions. Counterfactual policies, such as region-specific technological developments, will be simulated. We will study the consequences of these policies on regional human capital and income distributions, which will allow to study different types of inequalities. We will also analyse the impact of different coordination policies within the EU.

6. Methodology

We will build a general equilibrium model accounting for positive externalities of high-skilled workers on technical change accounting for multiple production sectors and multiple regions in Europe. Given the

heterogeneous distribution of production sectors across European regions, the benefits from cleaner energy are likely to have divergent impacts. On the one hand, the most polluted regions would benefit most from clean energy adaptations. On the other hand, for highly educated workers, these regions might provide less professional opportunities. The possibility for workers to endogenously sort across sectors and locations might reinforce the dynamics between migration and climate change. Finally, the model can be used to reflect on the optimal coordination policies at the level of the European Union.

The model will be calibrated using regional macro-economic population statistics and individual level data provided by the EU-LFS and OECD DIOC to calibrate correlations among individual characteristics (eg. skills, wages...). The model can be enriched in different dimensions, which might require additional data sources.

7. Data sources

- EU-SILC: European Union Statistics on Income and Living Conditions
- EU-LFS: European Union Labour Force Survey
- OECD-DIOC: OECD Database on Migration

References

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- Conte, Bruno, Klaus Desmet, and Esteban Rossi-Hansberg. On the Geographic Implications of Carbon Taxes. No. w30678. National Bureau of Economic Research, 2022