

Description for General Public

The reduction of CO₂ emissions and a transition to an energy-efficient economy has become a priority in many advanced countries. When discussing climate policies, an important question is whether such policies will lead to economic stagnation or to the creation of green jobs and growth. Many economies have already been plagued by so-called jobless growth and concerns about future employment impact of new technologies are rising. Identifying forces which acts on the labour market upon implementation of climate policies is therefore crucial.

The main objective of this research project is to better understand the impact of climate policies, in particular environmental taxes, on unemployment and wages. The novel feature which we propose is accounting for adjustment of technology choices induced by the taxes. We will study how climate policy could motivate firms to select more energy-saving production methods and how this switch could influence employment of workers. Furthermore, we will analyze separately the effect on workers with graduate degree and on non-graduate workers.

The history proved that both, the shifts in technology choices as well as the asymmetry of impacts for different groups of workers played an important role during economic transitions. During the early industrialization, for instance, the switch to capital-intensive production has dramatically reduced the demand for farm workers. The differences between the evolution of wages for skilled and unskilled workers were evident during the transition to ICT economy. The transition of an economy to the environmentally friendly production could potentially be characterized by similar dynamics. Understanding these dynamics will help to design an appropriate labour market policy and tax system, which could supplement climate policy to mitigate the adverse effects of the transition.

The bulk of research will involve creating a modelling framework that will help us to understand the relations described above. The model will be used to analyse the dependency between carbon taxes, energy prices and technological change, unemployment and wages. Subsequently we will introduce the distinction between skilled and unskilled workers and analyze the effect of carbon tax (and technological change which follows it) on the two types of workers. In the next part of our research, we will calibrate the model in a way, that allows it to simulate processes in the Polish economy, which is characterized by the highest share of workers in the polluting sectors in EU. The calibrated model enables us to examine the effect of newly proposed EU climate policy targets on the dynamics of unemployment and wages. Finally, we will solve the model for various scenarios of recycling revenue from carbon tax: in the first scenario the revenue will be used to lower income tax, in the second scenario it will be used to lower capital tax, etc. This exercise will allow us to indicate the recycling scheme, which maximizes GDP and minimizes unemployment growth and wage reduction.