

### Overview

#### Environmental Tax Reform

Aims at increasing taxation of environmentally damaging activities while reducing other taxes and/or redistributing tax revenue to households or firms. The different effects of the tax reform are often called dividends. These are: (1) increased environmental quality, (2) improved welfare and (3) increased growth prospects through induced innovation.

#### Context

The Swiss Federal Council (SFC) has decided as part of the "Energy Strategy 2050" to go forward with an environmental tax reform. Accordingly, a "steering" system will replace after 2020 the existing promotional measures of reducing CO2 emissions (energy and CO2 emission taxes, used to finance subsidies to renewables and building renovations). This system will include alternative fiscal measures that aim at achieving the energy and environmental targets of the SFC, by setting appropriate price signals through the market.

#### Objective

This project aims at measuring the economic and social impacts of an environmental tax reform in Switzerland through a specific computational model of endogenous growth. The focus will be on illustrating the economic growth prospects achieved through induced innovation.

#### Methodology

We will develop a Dynamic Computational General Equilibrium Model (DCGE) of the Swiss economy with a detailed representation of the Swiss tax system and social structure. The DCGE framework models endogenous growth based on R&D investment. The figure explains the structure of each economic sector. The model will allow us to measure any growth effects of the fiscal reform on each of the economic sectors but also on the Swiss economy as a whole.

#### Expected results

A carbon tax distorts relative prices triggering substitution of inputs and innovation in less polluting sectors. If this effect outweighs the income effect of increased taxation, economic growth will be stimulated, even in the case of a strict environmental policy. Growth is expected to be further promoted when revenues from energy taxes and environment related contribution are redistributed back to consumers and firms.

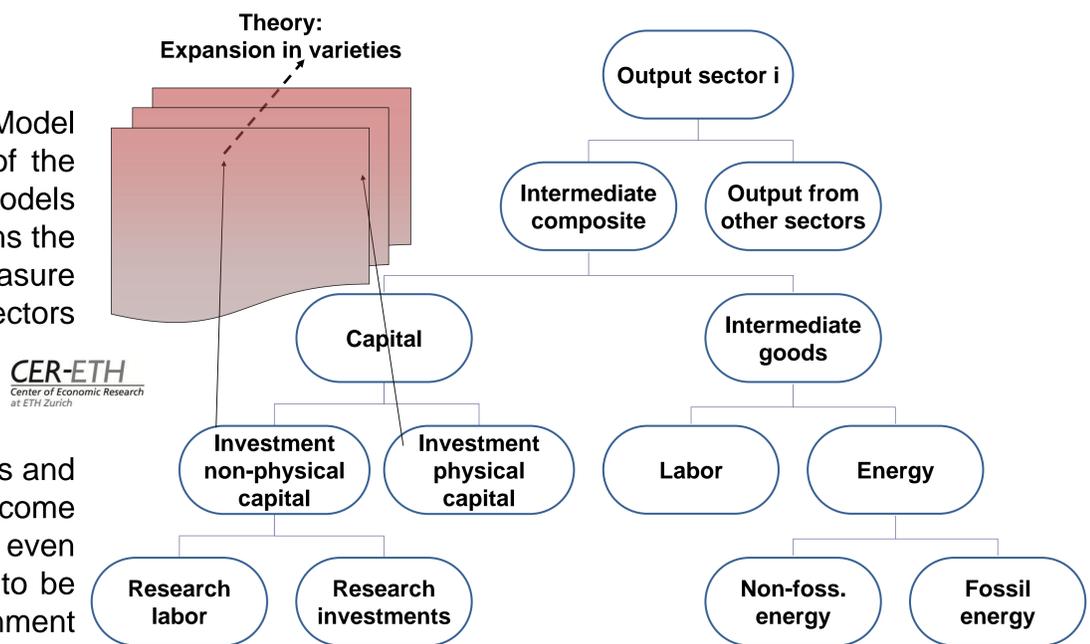


Figure: Sectoral structure of the economy

### Partners and Collaboration

A collaboration with other parties is not foreseen.

### Energy Turnaround

#### Contribution to the realization of "Energy Strategy 2050"

The project will determine the economic and social consequences of a green tax reform to their full extent in a dynamic framework. Most notably, we will measure the effects of induced economic growth through investment in clean innovation and substitution away from polluting energy resources meeting this way the emission and energy targets of "Energy Strategy 2050".



Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich



Center of Economic Research  
at ETH Zurich

### Contact

Prof. Dr. Lucas Bretschger  
Center of Economic Research (CER), ETH Zürich  
Zürichbergstrasse 18, CH-8032 Zürich  
Phone: +41 44 632 21 92, E-mail: [lbretschger@ethz.ch](mailto:lbretschger@ethz.ch)

Team Members  
Dr. Lin Zhang, [linzhang@ethz.ch](mailto:linzhang@ethz.ch)  
Dr. Andriana Marcucci, [madrana@ethz.ch](mailto:madrana@ethz.ch)  
Christos Karydas, [karydasc@ethz.ch](mailto:karydasc@ethz.ch)