



**The Coalition  
of Finance Ministers  
for Climate Action**

# **Strengthening capabilities to undertake economic impact assessments of climate strategies and impacts: the Finnish experience**

**Finland—Prime Minister’s Office**

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**A contribution to the ‘Compendium of Practice from a Global Community of Ministries of Finance and Leading Organizations: Economic analysis and modeling tools to assist Ministries of Finance in driving green and resilient transitions’**

**Topic:** Addressing the climate policy questions facing Ministries of Finance: the economic and fiscal impacts of climate change

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**Finland has a long tradition of conducting very large, multidisciplinary ex-ante impact assessments on long-term and mid-term climate strategies and on general climate change impacts.** These assessments have combined system level energy, economy, and land use, land use change, and forestry (LULUCF) models (e.g., combining the TIMES energy model with a computable general equilibrium model on the Finnish economy). The system-level results have been complemented by detailed sector-specific models on the transportation, building, agriculture, forest, and waste sectors, for example (see, e.g., Koljonen et al., 2014, 2017, 2021). Yet, shorter-term transition impacts and fiscal impacts from climate change have been found hard to assess, while the assessment of the sustainability of public finances is among the core responsibilities of Ministries of Finance. In addition, climate change-related ecosystem impacts and their consequential economic effects cannot be covered sufficiently by current tools.

**New research scoped the most important fiscal impact channels for Finland, covering both adaptation- and mitigation-related impacts, and the best methods of modeling these.** Only some of the numerous identified impact channels could be scoped quantitatively due to the high uncertainties in, and limitations of, the available models. For a small open economy like Finland, for example, international trade, capital, and labor market changes are crucial but very difficult to analyze, even though the project used the global GTAP-E model (Valkonen et al., 2023).

**While Finland has multiple models available to use (see above) and long traditions in the field, based on the experiences of and interviews with multiple Finnish technical and policy experts there is a need to widen and strengthen further the competences of the local modeling community.** Many assessments have been financed with one-off project-based funding, and human resources are particularly thin. The models and modeling expertise at the individual level are located in various institutions, but cooperation has been strong (e.g. the TIMES energy sector models for Finland are run by the VTT Technical Research Centre of Finland, sectoral models on agriculture and forest by Natural Resources Institute Finland (Luke), and general equilibrium models for Finland by a few other institutes).

**Additional difficulties relate to continuity and the risk of losing the existing know-how in the absence of a “new generation of modeling experts”.** Further, as there are no problem-free economic models, and many climate-related shocks to economic systems are difficult to insert into old models that were not originally planned for the task, there is a need to reconsider the modeling approaches. For example, to introduce climate shocks, a model typically needs a very detailed sector-level structure. The available structural models cannot, again, cover transition frictions, forward-looking expectations, short-term market disturbances, or public income and spending details sufficiently. But macro-models with forward-looking expectations, made originally for, e.g., tax-return forecasting, do not have the necessary sectoral detail to introduce climate shocks. The need to combine both climate change- and biodiversity loss-related impacts and policy analysis complicates matters further.

**In addition, in Finland, as in many other countries, problems with governance structures pose further challenges for the development and use of climate- and nature-related economic modeling.** One fundamental challenge is the lack of an explicit mandate in MoFs and, linked to this, limited engagement by many MoFs in developing national climate strategies and Nationally Determined Contributions. This translates into a lack of ownership and know-how in developing climate assessment frameworks and macro-modeling practices. Such work, which would need to involve the key macroeconomic and fiscal departments within MoFs, cannot be carried out without strong ownership and engagement by MoFs together with a number of different other ministries (often alongside academia and relevant research institutes or agencies, e.g., the statistical office, depending on country-specific practices and arrangements) (CFMCA 2020–2023). In Finland, many development projects are taking place under different ministries. The Finnish MoF and Prime Minister’s Office are looking into the Danish modeling practice as part of an EU-financed project that aims to develop participating countries’ modeling capabilities and practices.

Key challenges facing many MoFs in building robust analysis frameworks include:

- **The availability of climate relevant macro-modeling expertise** in the country as a whole (including in academia and relevant bodies);
- **A lack of strong leadership and governance** arrangements to develop and implement assessment frameworks, to ensure these include the necessary resources and know-how;
- **Insufficient political and technical ownership and understanding** about the importance of analytical frameworks in achieving climate objectives and designing related policies;
- **Insufficient regional and international cooperation** to scale up the activities, e.g., bringing together the best expertise and relevant practices.

These challenges could be overcome through the following strategies:

- **At the national level:** by 1) raising awareness about best practices; 2) ensuring modeling know-how and education in academia (e.g., Master's and PhDs programs); 3) identifying the key policy questions, assessment needs, and modeling tools, or development needs to address them; 4) defining the governance and leading roles, and the means for cooperation and coordination among key stakeholders.
- **At the international level:** by 1) engaging in international discussions at the highest political levels; 2) gathering the best possible technical expertise to support joint efforts; 3) sharing best practices and workable solutions; and 4) communicating the importance of economic assessment frameworks in achieving climate objectives.

## References

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