

The Support of DG Reform to the Department of Finance



Dipartimento
delle Finanze

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Workshop
Tax policy analysis with the new Italian IRENCGE-DF
model

Rome, 31 March 2022 (online)

Outline

□ Background and Context

- ✓ Structural tax reform proposals
- ✓ NRRP and Structural Reforms
- ✓ Green transition and social and territorial cohesion

□ SRSP4: Assessment of Environmental and Regional Tax Reforms in Italy

- ✓ SRSP Projects
- ✓ Motivation, Objectives and Timeline
- ✓ Tax Microsimulation and Economic Models at the Department of Finance

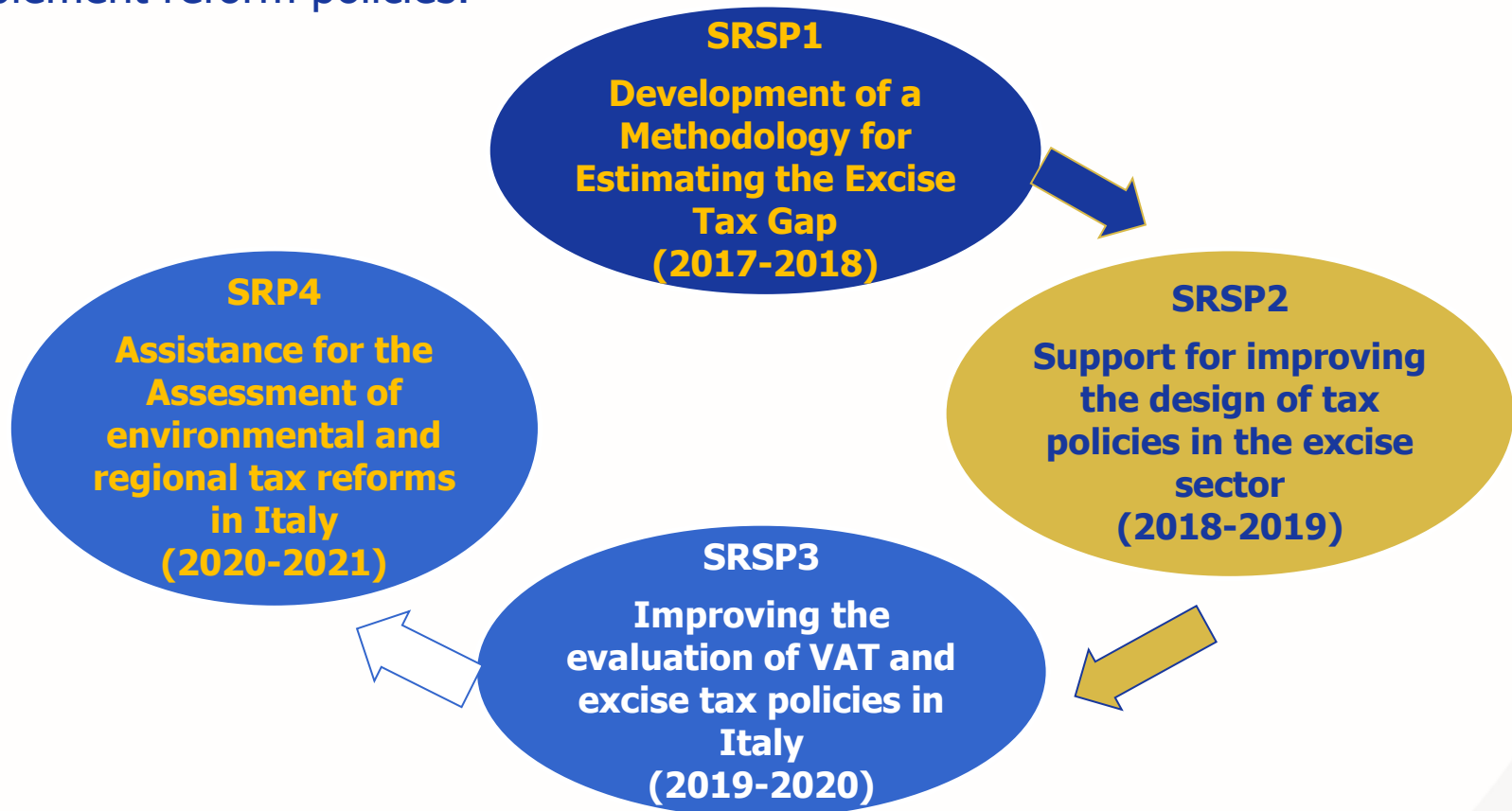
□ IRENCGE-DF Model in a Nutshell

- ✓ Innovations and Main Features
- ✓ Simulation Scenario: Environmental Policies and Regional Impacts
- ✓ Result Highlights

SRSP projects

SRSP Projects

Since 2016, the Italian Ministry of Economy and Finance (MEF) has requested assistance to improve the methodological and evaluation tools available at the Department of Finance for enhancing the capacity to formulate, develop and implement reform policies.



SRSP4 - Assistance for the Assessment of environmental and regional tax reforms in Italy

Motivation

- Need for assessing the shift of the tax burden from labour taxes to environmentally related taxes; importance of evaluating cohesion-friendly tax policies. Lack of adequate methodologies at the Department of Finance

Objectives

- To include environmental data and relations in the new Computational General Equilibrium (CGE) model, with a focus on environmentally related taxes
- To integrate the CGE model with regional information in order to quantify the spatial effects of tax policies in Italy
- To enlarge the spectrum of the results achieved thanks to previous SRSP projects
- To adjust our micro and macro models with new environmental and regional information for supporting tax policy reforms

Timeline

- November 2020: Starting of project activities
- I quarter 2021: First project outputs (e.g. Assessment Report, Data input, etc.)
- II quarter 2021: Development of environmental and regional modelling
- III quarter 2021: Usage of project outputs for supporting the budget law process
- IV quarter 2021: Extension of the project using remaining resources to further train MoEF staff
- I quarter 2022: Final Workshop

Linking microsimulation and economic models....

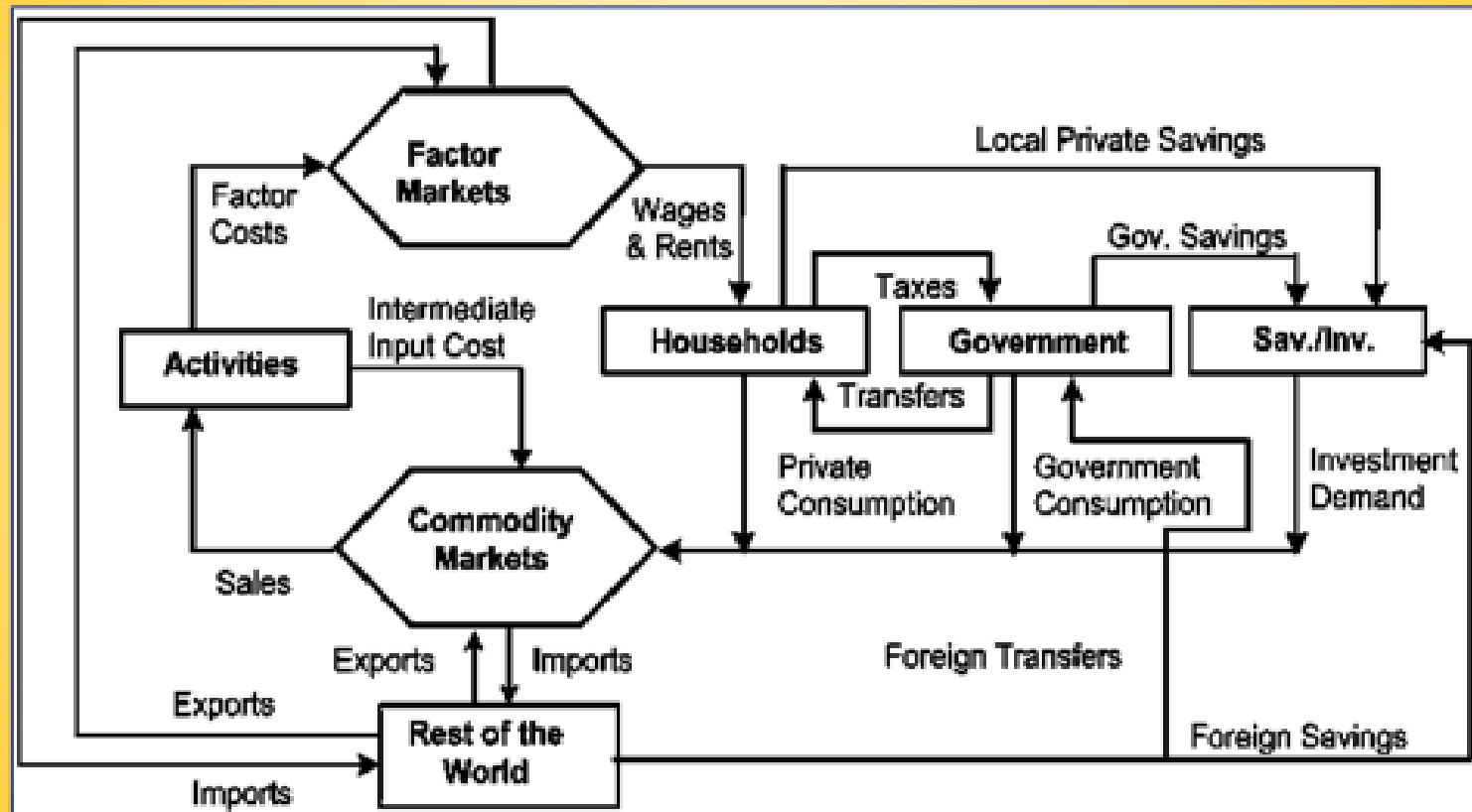
Tax	Microsimulation Models (Non-Behavioural) 1 st order effects		Economic Equilibrium (Behavioural) 2 nd order effects	
	Revenue Effects	Distributional Effects	Partial Economic Equilibrium	General Economic Equilibrium
PIT	TAXBEN-DF (I)	TAXBEN-DF (II)	Labour Supply (Income Elasticity of Labour Supply) EUROMOD and TAXBEN-DF (III)	Tax-Focused CGE Model ITAXCGE-DF
CIT	CITSIM-DF (I)	CITSIM-DF (II)	(Devereux-Griffith-Investment-Tax Adjusted User Cost of Capital) CITSIM-DF (III)	Regional Environmental CGE Model IRENCGE-DF (Environmental module)
VAT and Excise duties	VATSIM-DF (I)	VATSIM-DF (II)	(QAIDS-Deaton-Muellbauer-Price and Income Elasticity of Demand) VATSIM-DF (III)	IRENCGE-DF (Regional module)

CGE model and policies

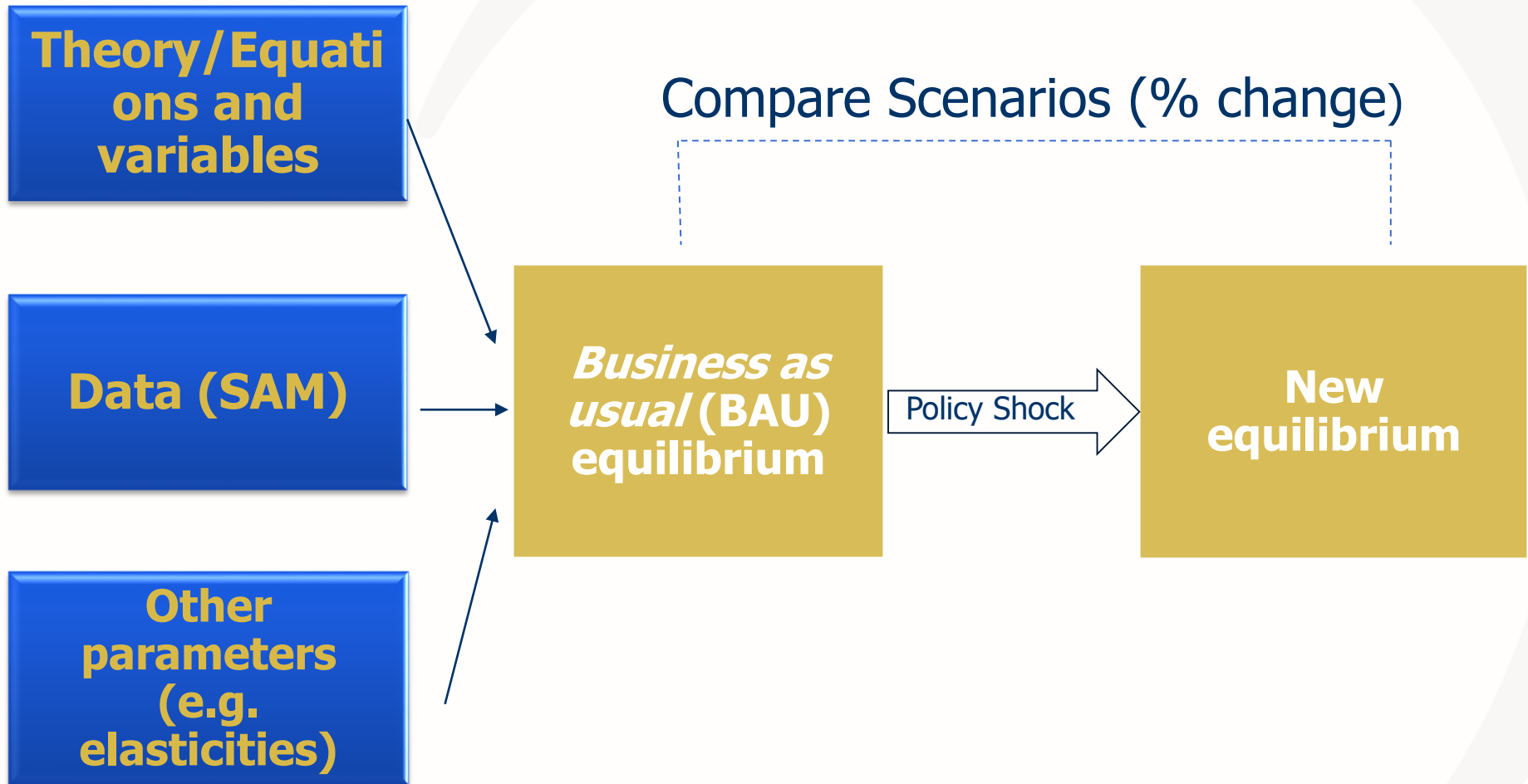
IRENCGE-DF

- The Italian Regional and Environmental Computable General Equilibrium of Department of Finance (IRENCGE-DF);
- Single-country CGE model with regional and environmental modules;
- It is tailored to the specific SAM (environmental and regional) built for Italy;
- Multi-sector, multi-household (and multi-regional) CGE Model;
- *Fully integrated Approach* to link MSMs and CGE Models
 - ✓ Input from MSMs (tax policy shocks) and Output from CGE (distributional effects across households).

A Stylised representation of the CGE: IRENCGE-DF



How does IRENCGE modelling work?



Which data feed into the IRENCGE model? ...a general SAM structure

10 households deciles

	Activities	Commodities	Factors	Households	Firms	Government	Taxes	Savings & investment	ROW	TOTAL
Activities		Domestic supply								Gross Output
Commodities	Intermediate inputs			Household consumption		Government consumption		Investment demand	Exports	Demand
Factors	Compensation of Factor									Factor income
Households			Wages, factor rents		Profits	Transfers to households			Foreign remittance	Household income
Firms			Profits							Firm income
Government							Direct and indirect taxes		Foreign aid/grant from abroad by the government	Government income
Taxes	Production taxes	Commodity & import taxes	Taxes on production factors	Personal income tax	Corporate income tax					Tax income
Savings & investment				Household savings		Government savings			Current account balance	Savings
ROW		Imports								FX outflow
TOTAL	Gross output	Supply	Factor spending	Household expenditure	Firm expenditure	Gov expenditure	Tax Revenue	Investment	FX inflow	

details in taxes

Combining modules: the environmental module

The environmental module features:

- Detailed energy specification that allows for capital/labour/energy substitution in production;
- Intra-fuel energy substitution across all demand agents;
- Multi-output multi-input production structure;
- Energy system extended with 11 different types of technologies, including renewable and clean energy;
- Extended environmental policy: carbon tax and cap on emissions on different sectors/gas;
- Multiple HHs;
- Climate damage and adaptation functions;
- Air pollution impacts on labour productivity.

Combining modules: the regional module

The regional module features:

- Regionalized SAM with information on 20 sectors / 20 commodities, Households and Firms;
- Detailed information on regional taxes;
- Local governments;
- Bilateral regional trade flows.

This module allows to evaluate the impacts of national policies that might have different impacts on regions and sectors.

Results are broken down at regional and sectoral level:

- Regional Value added and Production;
- Welfare impacts differentiated by region;
- Labour migration across regions;
- Bilateral trade flows across regions.

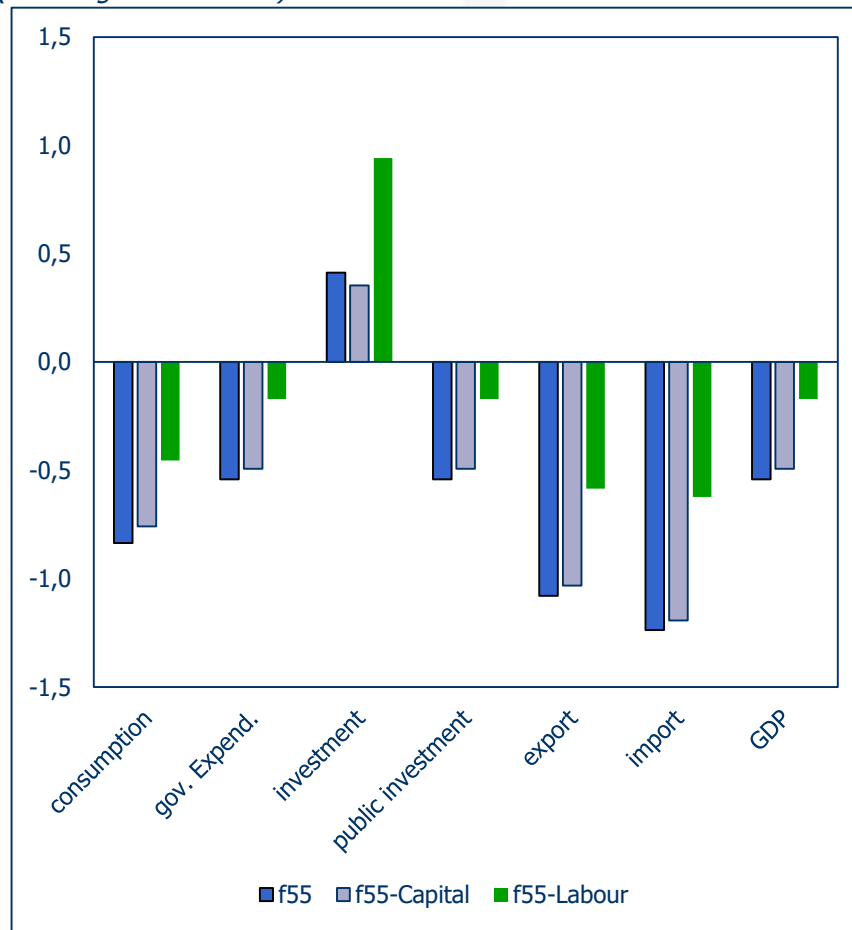
What do the model results look like?

Is there scope for a tax shift *pro-growth* policies?

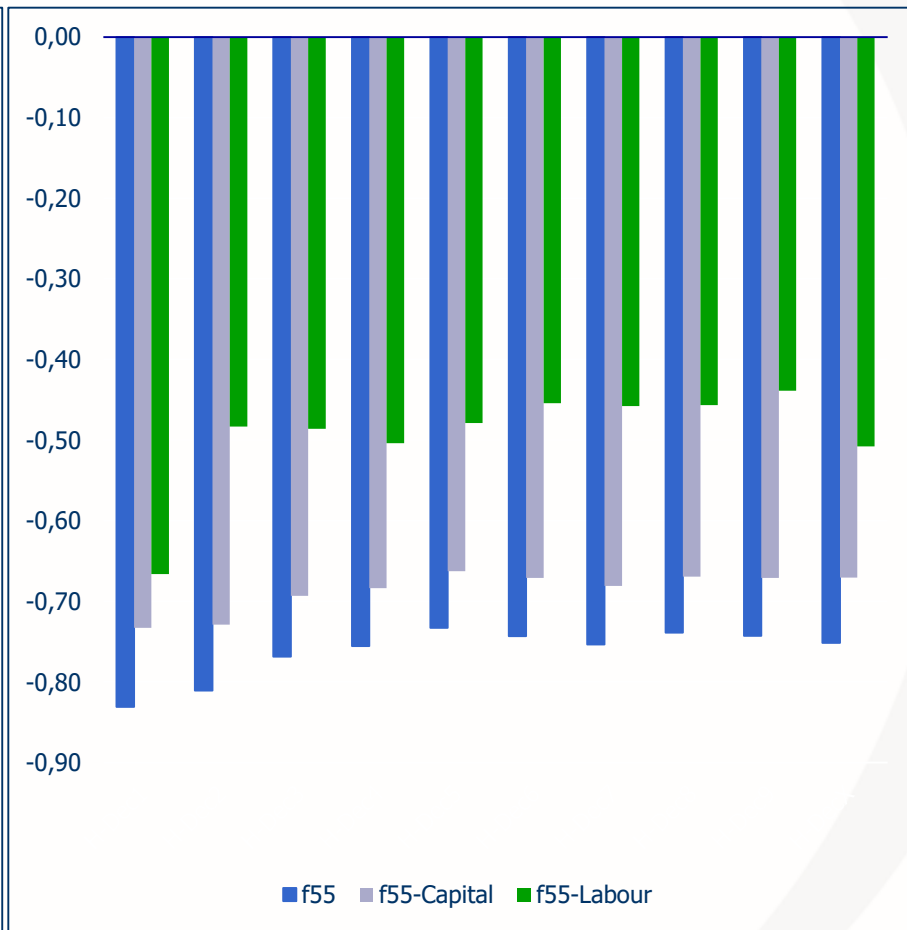
Taxes and contributions	Tax reduction	Δ GDP (billion 2017 €)	Δ Revenues (billion 2017 €)	Fiscal Multiplier (Δ GDP / Δ Revenues)
Corporate income tax	-10%	4.05	-3.25	-1.25
Social Security Contributions (paid by employers)	-10%	10.85	-13.07	-0.83
Excises	-10%	3.48	-5.30	-0.66
VAT	-10%	2.05	-10.53	-0.19

What effects of climate neutrality policies on the economy and welfare?

Alternative policies scenarios : effects on macroeconomic variables
(% change wrt Baseline)

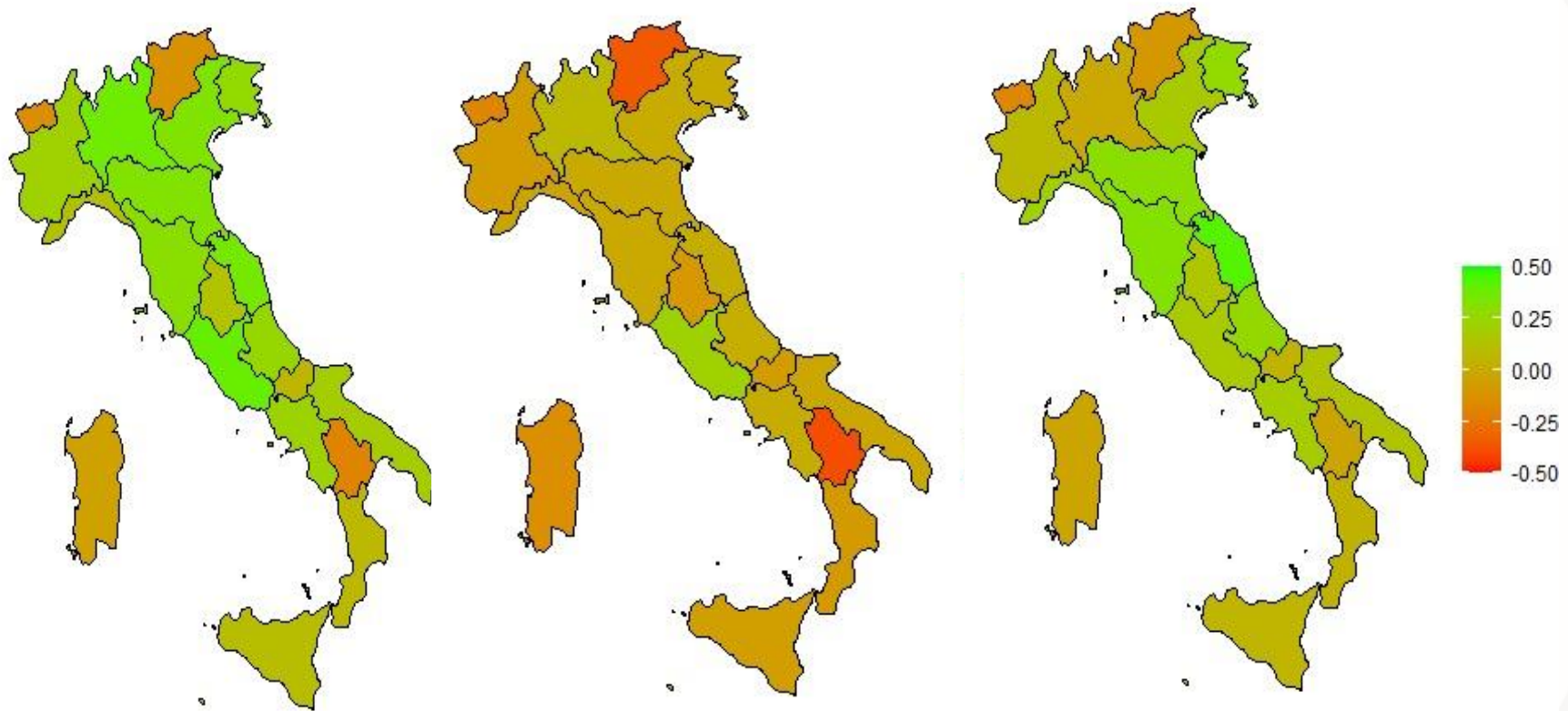


Alternative policies scenarios: effects on welfare
(% change wrt Baseline)



What effects of a fiscal shock on subnational taxes across regions?

Regional Value Added (% change wrt Baseline in 2030)



Irap phased out

Irap/Ires tax shift

Irap/VAT tax shift

Concluding remarks

- Thanks to the assistance received from EU Commission, significant progress in the design and evaluation of structural tax reforms in Italy (e.g. environmental taxation and regional taxation)
- IRENCGE captures the interaction between the variables of interest to the policy analyst and provides helpful insights to simulate cost-effective, inclusive and sustainable reforms
- However, models are an aid to the policy analyst not a means of providing the “right” answer
- Constructive relation with the EU DG reform will be particularly useful over the next few years to support the government in implementing the Recovery and Resilience Plan.