GLOBAL-IQ WP2 Non-market impacts and behavioural analysis of key sectors

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WP2

Tasks

- ## Valuation of non-market effects *(4 tasks)*
  - due to climate change and related to ancillary effect
  - large scale health effects under population dynamics

- ## Adoption of saving installations in households *(2 tasks)*
  - impact of climate change related variables on household behaviour
  - installation of renewable micro-generation technologies

- ## Energy demand estimation *(2 tasks)*
  - demand of households and production function of sectors
  - empirical model that will deal with optimal second best taxation of both

- ## Trade Policy and Climate Policy *(3 tasks)*
  - existing empirical evidence and new theory on competitiveness effects
  - the performances of different policy tools in the long run

Partners

CUNI Charles University in Prague, Environment Center (CZ)

HEID Graduate Institute of International Studies in Geneva (CH)

ISIS Istituto di Studi per l'Integrazione dei Sistemi (ITA)

TSE Toulouse School of Economics (FR)

Wednesday agenda

15:00-16:40   Ancillary effect and externalities, Tasks 2.1.2 & 2.1.3
- Jan Melichar, CUNI: in developed countries)
- Chiara Ravetti, HEID: in developing countries
- Carlo Sessa, ISIS: transport externalities & GRACE model

17:00-17:45   Tax incidence, Task 2.3.1
- Ladoux Norbert, TSE: Cremer's model
- Milan Ščasný, CUNI: DASMOD microsim model

17:45-18:30   Health benefit valuations, Tasks 2.1.1 & 2.1.3
- Vojtěch Máca, CUNI: review of health impacts
- Chiara Ravetti, HEID: China survey
- Jean-Pierre Amigues, TSE: Population dynamics: age, epidemic, population

Friday morning Trade Policy and Climate Change, Tasks 2.4
- Chiara Ravetti, HEID: Where we are in Task 2.4.1 & 2.4.2
- Jean-Pierre Amigues, TSE: Task 2.4.3

I   Valuation of ancillary effect and externalities

CUNI work	HEID work	ISIS work
Damage factors per pollutant or modeling Impact Pathways, i.e. emission-concentration-DRFs-value	Literature review and meta-analysis of DRFs and values	Damage factors per pollutant, emission per vkm per mode
Health Effects, crops, materials, biodiversity, CC	Health Effects	Health (noise, congestion)
Impact in Europe but also outside Europe (North Hemispheric)	Impacts in developing countries	Impacts in Europe
WTPs: EU-representative values	WTP based on meta-analysis of values in literature	WTPs: EU-wide values (revised acc. to EU funded projects)
Input: AQ & HM emission, or energy use	Input: Δ concentrations	Input: vkm per mode and in urban non-urban area
Output: Euro per tech, or for a scenario	Output: Euro per impact category	Output: Euro per tech, or for scenario

I   Valuation of ancillary effect and externalities

WP2 within GLOBAL-IQ

– Examine links - discuss links between modeling approaches in WP2>WP345. List endogenous variables in the models that can serve as exogenous parameters for us

– Supplementary tool - WP2 can serve useful tool for assessing impacts that cannot not be assessed by macro models → WP2 will complement impact assessment

– Useful input for others – improve tools and provide new benefit estimates

Others remarks

– Benefit estimates – based on WTP values as elicited now (or in near past) – how to upscale actual WTPs when valuing impacts in very far future ?

– We will discuss synergies between other projects, particularly with PURGE where PKU and ARUP are as partners

– Ancillary effect associated with reduced abatement costs to mitigate AQ pollutants

– Assessing global challenges (Carlo): aiming at urbanisation scenario (passenger tran), and long-distance transport of goods (freight)

II   Optimal tax and tax incidence

TSE model

– should the taxes be adjusted to mitigate the impact of the shock on households and/or on firms?

– an empirical model in which we are dealing with optimal second best taxation. The model derives second best optimal energy taxes in the presence of externalities.

– optimal energy taxes are affected by redistributive consideration. Optimal energy tax is less than Pigouvian tax → the difference is 10% and exogenous variation in energy price has negligible effect on this difference

– extension of the model: energy and relevant capital delivers jointly energy service

CUNI model

– analyse distributional effect of energy taxation and labor taxation by means of a micro-simulation optimisation model

– simulations for 3000 Czech households, optimise in order to keep revenue neutrality

– link the simulations with [i] assessment of environmental externalities, and [b] inequality measurement

– estimate household demand system

III Health benefit valuations

CUNI

Review of climate change health
effect

Review of literature

Health effect due to heat and cold
stress, extreme events, vector-
borne diseases, etc. and
corresponding monetary values

? Damage function in GLOBAL-IQ
models

HEID work

Air pollution and health in
urban China

Survey

Health production function

Estimate DRF

TSE

Population dynamics and large
scale health effects

Dynamic of the age structure of
the population

Health effects and differential
morbidity under different CC
scenarios

Migration and population density
effects

Risk aversion and adaptation
strategies

Details in afternoon...

14:00-15:30

Preliminary result from the survey in China, by Chiara Ravetti, IHEID

Health impacts & ancillary benefits, by Vojtěch Máca & Jan Melichar, CUNI

Estimation of production function, by Lukáš Rečka, CUNI