



ESHET

European Society for the History of Economic Thought



---

**International workshop | Call for papers**

---

\* \* \*

**FACTS IN ENVIRONMENTAL AND ENERGY ECONOMICS,  
MODELS AND PRACTICES, PAST AND PRESENT**

\* \* \*

CIREN – Centre international de recherche sur l'environnement et le développement  
Campus du Jardin Tropical, Paris (France) - <http://www.centre-ciren.fr/index.php/en/>

19-20 October 2018

-

The relation between theories, models and facts is a regular concern in economics. To what extent can concrete facts be taken into account in abstract models? How can we validate or implement a theory if we miss practical information or data? In environmental and energy economics, these questions are even more decisive, because facts are multidimensional: economic variables, social behaviours, but also biophysical dynamics, geological constraints, climate interactions, and so on.

The question 'what to do with facts in environmental and energy economics?' has a long history, because it has always been a crucial issue for economists involved in the study of natural resources and constraints. Resources and pollution have been subjects of economic research at least since the 19<sup>th</sup> century (Jonsson, 2013; Kula, 1998; Missemer, 2017; Robinson, 1989; Schabas, 2005; Wolloch, 2016). On energy, the industrial revolution boosted the reflections on coal dependency (Jevons, 1865; H. S. Jevons, 1915), later replaced by the first analyses of the oil market (Ise, 1926; Stocking, 1925). On pollution, the classic contributions of Pigou (1912; 1924) were the cornerstone of the theoretical proposals until the development of the Coasean approach (Coase, 1960; see also Dales, 1968) based on property rights and transaction costs. Concerning the relation between models and facts, the case of exhaustible resources is particularly relevant. Until the 1920s, economists involved in research on exhaustible resources mostly tried to propose theoretical mechanisms that took into account some facts (physical or economic limits to ore extraction, technological inertia). In the 1920s, a split occurred between a theoretical direction, on the road to Hotelling's 1931 model, and an empirical direction interested in measuring the coupling between energy consumption and economic activities (Tryon, 1927; Tryon and Eckel, 1932). These two directions survived all along the 20<sup>th</sup> century, through other forms and on other particular topics (e.g. controversies between models *à la* Hotelling and models *à la* Hubbert in the peak

oil literature – see Jakobsson et al., 2014; Livernois, 2009; Slade and Thille, 2009). On pollution, missing data obliged economists to substitute the classic pigouvian perspective, or even some Coasean intuitions, by cost-effective second bests in the design of regulation measures (e.g. Baumol, 1972; Baumol & Oates, 1971). This suggests that even when it is an abstraction, a model needs facts to have an operative effect.

Beyond the resources and pollution issues, another topic deserves to be mentioned: energy systems, in particular electricity. From the late 1940s onwards, marginal cost pricing and other theoretical innovations found very practical applications on the electricity market. This may highlight that some concrete objects (e.g. electricity as a homogeneous good, with no stock effect, etc.) are more adapted to theoretical abstractions than others (e.g. oil, which is heterogeneous in its concrete forms).

Today, environmental and energy economists may still wonder ‘what to do with facts’. Past treatments of this question had an influence on current practices. But the 21<sup>st</sup> century facts also convey their own interrogations. Climate change is a systemic issue; measuring its impact requires the incorporation of both economic and biophysical data. This is the role of integrated assessment models (IAMs), which historically emerged in various communities, some of them not strangers to the energy systems tradition. IAMs face new questions in relation to their articulation with facts (interdisciplinary dialogue, incorporation of material flows in economic frameworks, connection between empirical findings on climate damage and damage functions in the models, etc.).

The international workshop that will take place at CIRED – Centre international de recherche sur l’environnement et le développement (Paris, France) aims at discussing and confronting various works on past and present experiences of articulation between models and facts in environmental and energy economics. It is addressed to economists, econometricians, social scientists, historians of economic thought, specialists in economic methodology or epistemology, and economic or environmental historians interested in the topic. The objective of the workshop is to foster the dialogue between creators or users of models and historians to better define and understand the challenges of environmental and energy economics today in its confrontation with realities.

The call for papers is open to all proposals related to the topic described above. The following questions illustrate some issues that could be addressed:

- What are the different methods to incorporate facts in environmental and energy models? What are the difficulties encountered when a modeller tries to incorporate data and facts? These questions could be treated through examples of particular models (IAMs or others).
- How was the relation between theories, models, and facts conceived in the history of environmental and energy issues? What lessons can be drawn from this?
- To what extent do missing data change the perspective of modellers, from *normative* cost-benefit analysis to cost-effectiveness *operational* research?
- How did the development of expertise in the second half of the 20th century change the bridging of the gap between models and facts in environment and energy economics?
- How do modellers incorporate future facts in their forecasting or scenarios exercises? To what extent is it possible to build such future facts? More broadly, how do modellers construct and select the accurate (past, present or future) facts which they want to include in their analysis?

-

The international workshop “Facts in environmental and energy economics, models and practices, past and present” is mainly sponsored by the European Society for the History of Economic Thought (ESHET), via the funded project “Bifurcations in Natural Resources Economics (1920s-1930s)” (<http://www2.centre-cired.fr/bifurcations-in-natural-resources>).

Participation to the workshop (including lunch and coffee breaks) will be free. PhD-students whose papers are accepted for presentation are eligible for travel support. Further transport aid will be available pending on additional funding.

-

All the proposals need to be sent to [workshopcired2018@gmail.com](mailto:workshopcired2018@gmail.com) with your name, institution, e-mail address, a title, an abstract (500 words) and a list of keywords (max. 5).

**Deadline for proposals: March 15<sup>th</sup>, 2018.**

Reply from the scientific committee: April 30<sup>th</sup>, 2018.

Deadline for full papers: September 30<sup>th</sup>, 2018.

**Keynote speaker:**

[tba]

**Scientific committee:**

Fredrik Albritton Jonsson (University of Chicago, USA)

Nathalie Berta (University of Reims CA, REGARDS, France)

Roberto Ferreira da Cunha (IHS CERA, Brazil)

Marion Gaspard (University of Lyon 2, Triangle, France)

Louis-Gaëtan Giraudet (ENPC, CIRED Paris, France)

Frédéric Gherzi (CNRS, CIRED Paris, France)

Céline Guivarch (ENPC, CIRED Paris, France)

Jean-Charles Hourcade (CNRS & EHESS, CIRED Paris, France)

Harro Maas (University of Lausanne, CWP, Switzerland)

Antoine Missemer (CNRS, CIRED Paris, France)

Thomas M. Mueller (University of Paris 8, LED, France)

Franck Nadaud (CNRS, CIRED Paris, France)

Antonin Pottier (University of Paris 1, CES, France)

Nathaniel Wolloch (Tel Aviv University, Israel)

**Contact:** [missemer@centre-cired.fr](mailto:missemer@centre-cired.fr)

-

## References:

- Baumol, W. J. 1972. On Taxation and the Control of Externalities. *American Economic Review*, 62(3), pp.307-322.
- Baumol, W. J. & Oates, W. E. 1971. The Use of Standards and Prices for Protection of the Environment. *Swedish Journal of Economics*, 73(1), pp.42-54.
- Coase, R. 1960. The Problem of Social Cost. *Journal of Law and Economics*, 3(1), pp.1-44.
- Dales, J. H. 1968. *Pollution, property and prices. An essay in policy-making and economics*, Toronto: University of Toronto Press.
- Hotelling, H. 1931. The Economics of Exhaustible Resources. *Journal of Political Economy*, 39(2), pp.137-175.
- Ise, J. 1926. *The United States Oil Policy*, New Haven: Yale University Press.
- Jakobsson, K., Söderbergh, B., Snowden, S., Aleklett, K. 2014. Bottom-up Modeling of Oil Production: A Review of Approaches. *Energy Policy*, 64, pp.113-123
- Jevons, H.S. 1915. *The British Coal Trade*, London: London and Norwich Press.
- Jevons, W.S. 1865. *The Coal Question. An Inquiry Concerning the Progress of the Nation, and the Probable Exhaustion of our Coal Mines*, London: MacMillan.
- Jonsson, F. A. 2013. *Enlightenment's Frontier: The Scottish Highlands and the Origins of Environmentalism*. Yale: Yale University Press.
- Kula, E. 1998. *History of Environmental Economic Thought*, London: Routledge.
- Livernois, J. 2009. On the Empirical Significance of the Hotelling Rule. *Review of Environmental Economics and Policy*, 3(1), pp.22-41.
- Missemer, A. 2017. *Les Économistes et la fin des énergies fossiles (1865-1931)*, Paris: Classiques Garnier.
- Pigou, A. C. 1912. *Wealth and Welfare*, London: MacMillan & Co.
- Pigou, A. C. 1924. *The Economics of Welfare* 2nd ed., London: MacMillan.
- Robinson, T. J. C. 1989. *Economic Theories of Exhaustible Resources*, London & New York: Routledge.
- Schabas, M. 2005. *The Natural Origins of Economics*, Chicago & London: University of Chicago Press.
- Slade, M. E., Thille, H. 2009. Whither Hotelling: Tests of the Theory of Exhaustible Resources. *Annu. Rev. Resour. Econ.*, 1, p.239-260.
- Stocking, G. W. 1925. *The Oil Industry and the Competitive System*, Clifton: Augustus M. Kelley.
- Tryon, F. G. 1927. An Index of Consumption of Fuels and Water Power. *Journal of the American Statistical Association*, XXII(159), pp.271-282.
- Tryon, F. G. & Eckel, E. C. eds. 1932. *Mineral Economics. Lectures under the Auspices of the Brookings Institution*, New York & London: McGraw-Hill.
- Wolloch, N. 2016. *Nature in the History of Economic Thought. How Natural Resources Became an Economic Concept*, London & New York: Routledge.