The fight against climate change: Some proposal for action for Italy in Europe, by Luigi De Paoli

The goal of this article is to formulate some proposals to reduce CO_2 emissions with efficient and effective policies. After presenting three possible ways that countries can follow to define their policies for combating climate change, the article discusses the tools available to implement these policies. It then reviews the reasons why it would be preferable to set centrally the carbon price rather than limit the amount of emissions and let the market setting the price.

On the basis of these considerations some concrete proposals for the policy of combating climate change in Italy and the EU are formulated. It is proposed that Italy re-introduces a carbon tax, called "climate contribution" and defines its evolution in a coordinated manner with the price of ETS emission permits. To make prices of the permits more stable and predictable, it is proposed to reform of the EU ETS by introducing a floor price rather than a market stability reserve. In addition to make the European climate policy more effective and rational, it is proposed that the floor price of emission permits is fixed in such a way that within a decade it is no longer convenient to use coal in electricity production (unless in this period the carbon capture and storage becomes competitive).

Keywords: international climate policy, climate change, carbon tax, prices versus quantities, EU ETS

JEL classification: Q54, Q58, Q48, H23, H41

A model of urban ecological security in ordinary cities: Evidences from the Milan case, by Emanuele Lazzarini and Paolo Nardi

In the last decade, cities has clearly emerged as the places where the challenge posed by climate change and constraints on energy and environmental resources will be won or lost. According to Hodson and Marvin (2009), world cities tend to conform their visions, strategies and policies around a common paradigm of environmental security and sustainability, named "Secure Urbanism and Resilient Infrastructure" (SURI), based on the strategic protection of cities, a new autarky and the development of global urban agglomerations. What about ordinary cities? This case study on Milan offers a very interesting test field to provide how the SURI model does not fit ordinary cities. Results show that Milan still lacks of a recognized and legitimized subject, capable of coordinating a process of urban visioning and narrative building; at the same time an alternative paradigm emerges, based on bottom-up initiatives.

Keywords: urban ecological security, climate change, ordinary city

JEL classifications: Q20, Q54, R00

Support mechanisms for renewable energies: Their respective strengths and weaknesses. A comparison with the common agricultural policy, by Jacques Percebois

A debate is now underway in Europe to decide whether or not the present system for promoting the penetration of renewable energy sources, in particular wind and solar (photovoltaic) energy, should be maintained in the energy balance. This system, based on feed-in tariffs, is increasingly contested because of the undesirable effects which have been observed. Other incentive schemes are possible and the aim of this article is to draw up a balance sheet of the advantages and disadvantages of the main mechanisms likely to assist the penetration of these renewable energy sources.

Keywords: renewable energy, merit order, electricity, agricultural policy

JEL classifications: Q28, Q48, L51

Modelling the nonlinear relationship between CO_2 emissions and energy consumption: New evidence on the role of economic growth, by Ibrahim Dolapo Raheem and Kazeem O. Isah

The objective of this study is to examine the relationship between CO_2 emissions and energy consumption while simultaneously accounting for the role of economic growth. Although a few recent studies have paid attention to the nonlinear relationship between the first two variables, no study that we are aware of, has considered these three variables simultaneously. Using data covering 21 countries for the period 1986-2010, the study found the existence of one threshold level of economic growth, which stood at 5.5 percent. It was also found that above this threshold level, CO_2 emissions impact more on energy consumption and vice-versa. Policy implication is drawn from these results.

Keywords: carbon dioxide emissions, economic growth, energy consumption, and dynamic panel threshold model

JEL classifications: C23, O10, Q41, Q53

Comparing energy scenarios by means of ternary diagrams, by Chiara Bustreo, Guido Meneghini, Carlo Petrovich, Irene Vignotto and Giuseppe Zollino

The use of ternary diagrams is here proposed as a straightforward means to show the relation between the electricity generating mixes and relevant scenario parameters, such as system carbon emissions (gCO_2/kWh) and generation costs (c€/kWh). The effectiveness of the representation is improved by plotting contour lines inside the diagram to help the reader to identify the generation mixes that meet specific economic and environmental requirements. Along with the description of the potentiality of the ternary diagrams in the energy scenario field, an explanatory application is also reported. It demonstrates the helpfulness of the graph in performing preliminary assessments of specific energy policies. The levelized cost of electricity (LCOE) of a future (2030) Italian electricity generation system largely based on renewables - providing 50% of the demand - is plotted in a ternary diagram as function of the combination of different renewable electricity generation shares. The graph clearly shows that the cheapest electricity can be achieved by an electricity generation mix that covers 20-30% of the electricity demand with wind power, 0-20% with photovoltaic (PV) and 10-30% with the other renewables. Further assessments demonstrate that the PV capacity should be limited so as to reduce the installation of expensive energy storage capacity while wind power along with electricity from biomass could effectively contribute in reducing the system LCOE.

Keywords: energy scenarios, renewables, Italian energy policy, ternary diagram

JEL classifications: O21, Q48

An analysis of multi-level collaborative initiatives on sustainable energy in Europe, by Patrick Biard, Edoardo Croci e Tania Molteni

A polycentric, multi-scale, climate governance framework is developing in parallel to the negotiations for a credible global agreement. Subnational governments are increasingly engaged to contribute to climate mitigation. Local climate action is particularly evident in Europe, where regional and municipal institutions are often designing, implementing and monitoring sustainable energy policies, plans and actions in a cooperative way. Strengths and weaknesses of multi-level cooperation initiatives on sustainable energy in Europe are assessed thanks to data collected through the European project Coopenergy. Political commitment emerges as a major driver for successful cooperation, while lack of funding is recognized as a major barrier.

Keywords: multi-level governance, regional and local authorities, sustainable energy, Europe

JEL classifications: H7, Q4, R5

Energy Consumption and human development: Global perspective, by Hiranmoy Roy, Rajaiah Jayaraj and Anshunan Gupta

The important objective of this paper is to study the long run relationship between Energy Consumption (EC) and traditional Human Development Index (tHDI) and impact of Energy Consumption on tradional Human Development Index. The scope of this study is that the energy consumption has a great role to play in enhancing economic growth and maintaining better quality of life and overall human development. The authors have used panel cointegration test to study the long term relationship between traditional Human Development Index and Energy Consumption. To study the impact of Energy Consumption on traditional Human Development Index, panel regression is used. Findings have confirmed the existence of the long run relationship between each other and the Energy Consumption has a significantly positive impact on traditional Human Development Index. To see how EC affects and change HDI an alternative New HDI is also introduced by incorporating energy consumption along with existing indices included in tHDI. After incorporating the energy component in New HDI, most of the countries HDI value slipped except few developed countries.

Keywords: human development, energy consumption, panel data

JEL classifications: P28, Q43, O15

Energy consumption evaluation for sports centers: A method based on optimization classes and qualitative dashboards, by Stefano Elia and Massimo Battistin

An evaluation method for sports center energy consumption is herein described. The proposed strategy can be used to estimate energy consumption at early design phase or serves as the baseline for comparison with the real consumption.

About 200 sports centers – covering all of Italy – have been evaluated for energy consumption. Sports centers can be grouped into optimization classes based on a number of the saving interventions that have been implemented to save energy. The suitable saving processes are listed below.

The consumption indicator of each sports center have been calculated and used in the evaluation model, representing the yearly energy consumption per surface unit of a particular sport structure, per climatic zone and per energy optimization class.

The research also proved the non-linear relation between energy consumption and sports complex size. Therefore a scale factor has been calculated for each complex size and adopted.

Finally, an innovative qualitative dashboard is proposed. The graphic output clearly links a consumption value to statistic data, showing a comparison with other sports centers data in the same boundary conditions.

Keywords: dashboard, energy saving, sport center, optimization interventions, consumption indicators, mathematical model

JEL classifications: L83, Q41, Q55