

Clarifying the Muddle Over the Green Race

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1. THE GREEN RACE IN THE EU CRISIS CONTEXT

“Green race” refers to the economic race for low-carbon technologies. Its economic underpinnings are not straightforward. The emergence of green race rhetoric in the 1990s—opposing at that time the US and Japan—was accompanied by heated debates among economists on the scientific value of the very idea of a race, when applied to countries and not to firms. Some outstanding economists such as Krugman dismissed the idea of any race between countries. Yet the empirics have dramatically changed over the last decade. International trade, which today represents an even greater share of national GDP than in the 1990s, no longer covers finite products but rather tasks, enlarging the scope of “tradable” activities opened to world competition. Further, it increasingly occurs between high-wage and low-wage countries in both service and manufacturing sectors, two features that were far less salient 20 years ago. Consequently, the race for technology and for technology-induced productivity gains is now primarily a race for jobs – and more specifically, for non-routine and non-tradable jobs associated to the so-called green new technologies.

In its macro dimension, the “green race” unfolds in the EU in a quite specific context. Contrary to the US, the EU resorted mostly to capital accumulation, imitation and adaption of technological innovations made elsewhere to spur its own growth between 1945 and the 1970s. By the late 1980s, the most advanced European countries had caught up with the technology frontier. As the room for technological imitation shrank, the EU slowly shifted toward innovation and endogenous technological change as its main sources of growth. At stake for the EU now is to find in green technologies not only a means to move toward a low-carbon society, but also a vehicle to boost exhausted growth. How much growth and how many jobs could be created by green technological breakthroughs and deployment is the question IDDRI’s “Muddle over green race” study¹ has tried to address, focusing on the renewable energy sector.

2. A RACE FOR TECHNOLOGY OR A RACE FOR JOBS?

How much productivity gains (and overall growth) can be expected from renewable energy (REN) deployment remains an empirical issue. Innovations in the REN sector *alone* seem to offer uncertain potential for economy-wide productivity growth. The first reason is that no breakthrough technologies are expected in the REN sectors studied—namely wind and photovoltaic (PV)—in short and

1. Voituriez, T., Balmer, B. (2012), “The Muddle over Green Race”, *Studies* N°01/12, IDDRI, Paris, 38 p.

medium terms. Incremental innovation will not change the EU macroeconomic imbalances nor the production and consumption pattern by itself. Second, the likelihood for REN (ideally included in a breakthrough technology cluster) to generate economy-wide productivity gains similar to the ones triggered by breakthrough innovations such as electricity (1920s) and IT (1990s) for instance seem rather small in the perspective of a carbon-unconstrained future. Converging expectations toward a low-carbon future is a prerequisite for green growth.

Labour and sector (value added) perspectives are much more certain and supportive of REN innovation and deployment. In the two renewable value chains examined, the majority of value added and jobs are located within the EU, with so far limited entry from foreign firms into significant segments of the chains. EU workers and consumers have enjoyed the benefits of the historical involvement of some key EU firms and countries in the research, development and deployment of innovative wind and PV technologies. The original mix of public incentives, regulations, subsidies and risk-taking behaviour of private companies all result in clear EU leadership of the wind energy sector in most of the global value chain segments, and the majority of business opportunities created worldwide benefiting EU PV firms (balance of system, inverter, installation).

Ongoing changes in the respective wind and PV supply chains illustrate two distinct narratives of globalisation. In conventional competition, early-mover firms gain an advantage over competitors through innovation and economies of scale in an oligopoly market structure. This is the case for the wind sector. EU firms involved in the wind energy supply chain operate as *sustainable* leaders, gaining and sustaining an edge through their experience curve and captive market shares.

In the second narrative of globalisation—the hypercompetition mode—no sustainable leaders can be protected by captive markets, trade secrets or patents and economies of scale. Rapid shifts can occur in the production process at various (and increasing numbers of) stages across firms and countries depending on the marginal cost of rapidly evolving technology. Even though hypercompetition unfolding in the PV value chain is currently beneficial to EU firms and jobs (particularly in thin film, third generation PV and inverters), it does not lead to clear and sustainable EU leadership as in the case of wind energy. In this respect, the PV industry seems more fragile and policy-dependent than the wind energy sector.

Yet declining costs of PV cells and modules should lead to a rising share of value added captured by downstream activities, whose costs are predictably stable in the EU and related non-tradable jobs worldwide. More value added (and related jobs) should therefore be created in Europe in the PV sector, should EU public policies remain supportive and stable.

3. HARNESSING GLOBALISATION FOR THE GREEN ECONOMY

Even though the current competition structure in wind and PV energy value chains is beneficial to EU firms, this situation might not be stable over time. Hypercompetition could become the dominant narrative in the wind value chain (offshore) along with a progressive worldwide shift towards renewables, while barriers to entry in emerging (and booming) captive markets such as China could mean hypercompetition in the PV sector, which could turn oligopolistic and conventional, to the detriment of EU firms prevented from accessing such markets. In both sectors, public policies are at stake.

Globalisation rules play a key role indeed in countries positioning in the green race and the green economy. In 2010, developing economies overtook developed ones for the first time in terms of ‘financial new investment,’ comprised of spending on utility-scale renewable energy projects and provision of equity capital for renewable energy companies.

In the same time, the financial downturn has prompted many countries to look at the sustainable energy sector as a source of economic growth and jobs, allocating ‘green’ stimulus funds that prioritise sustainable energy. Interestingly enough, sustainable energy policies encompass supply and demand oriented measures which, for almost all of them, have trade effects likely to be disputed for their impairing or nullifying other countries’ expected gains from World Trade Organization agreements. Additionally, some loopholes are likely to become prominent and make the dispute settlement process awkward and long-lasting, impairing the world trading system efficiency.

At stake in the green race and in the green economy is for countries to agree on the appropriate balance of rights and obligations, allowing them to secure their policy space for sustainable energy investment and production, while avoiding trade distortions. The (green) economy cannot be fixed without global governance being fixed as well. ■