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COMPETITIVENESS IMPLICATIONS OF POLICY REGULATIONS: APPLIED ANALYSIS OF EUROPEAN LEADERSHIP IN CLIMATE POLICY

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Overview

The term "competitiveness" has turned into a catchword in virtually every political debate on new regulatory proposals. However, the notion of competitiveness varies widely and is subject to controversial judgments. As a prominent opponent to the inflationary use of the catchword "competitiveness", Krugman (1994) states that „competitiveness is a meaningless word when applied to national economies." On the other hand, national governments and international organizations seek to assess policy interference with respect to some constructive indicators on "competitiveness". Within the European Union, the European Council started the so-called Lisbon process in 2000 which established the issue of competitiveness as a priority area for EU policy.

Reflecting the policy priorities within the EU, there is the need to measure regulatory decisions against their effects on competitiveness. In first place, this requires the definition of measurable indicators for competitiveness: An issue that can not be clearly measured will be difficult to improve. In second place, it is inevitable to apply methodologies which allow for an appropriate systematic and consistent quantification of competitiveness implications associated with different regulatory options.

Methods

To address both requirements we proceed as follows: We first provide an overview of various definitions of the term "competitiveness". We then illustrate how indicators of sector-and country-specific competitiveness can be operated in a conventional static multi-sector, multi-region CGE framework along the example of EU leadership in climate policy. In order to illustrate the consequences of the European Union moving forward in terms of global climate policy we assume unilateral emission abatement within the EU while trading partners abstain from any comparable carbon emission regulation. We differentiate the unilateral EU policy along two central dimensions: Firstly, the degree of EU leadership in climate policy is measured in terms of the unilateral reduction target of EU emissions vis-à-vis the benchmark situation where no effective emission abatement policy applies; the emission reduction target is set subsequently at 5 %, 10 %, 15 %, 20 %, 25 %, and 30 % of the base year emission level. Secondly, we assume that the level of tax differentiation between carbon-intensive (non-electric) industries and the rest of the economy may vary; the ratio of implicit tax rates to achieve the exogenous EU emission reduction target ranges from unity (i.e. uniform carbon taxes), via factors of 2, 5, 10, and 20 to full exemption of the carbon-intensive industries.

Results

We report the implications of unilateral EU carbon policies for economic welfare, implied carbon taxes, carbon leakage, and selected sector-and country-specific competitiveness indicators (e.g. Revealed Comparative Advantage, Relative Trade Balance, Relative World Trade Share). We use contour plots over the unilateral emission abatement target and the tax ratio to visualize our results.

The competitiveness effects at the sectoral level are exemplarily reported in Figure 1 in terms of changes of Revealed Comparative Advantage (RCA) for the EU carbon-intensive and carbon-extensive industries. The changes of RCA reflect changes in comparative advantage across sectors due to policy interference. With uniform (tax) treatment, sectors which are relatively carbon-intensive lose competitiveness whereas relatively carbon-extensive sectors gain in competitiveness. Losses and gains are reinforced with the magnitude of unilateral emission reduction targets. However, tax differentiation in favor of carbon-intensive industries can largely "neutralize" the implications of emission constraints on sectoral competitiveness.
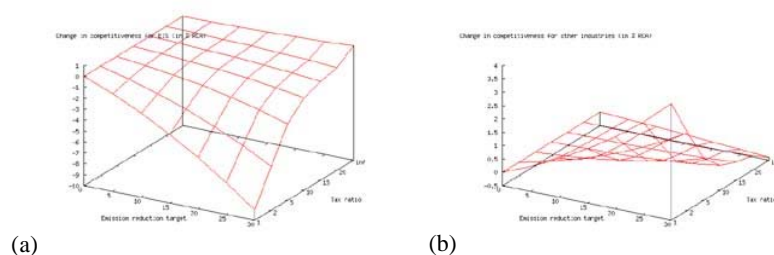

(a)   (b)

Figure 1: Competitiveness implications for carbon intensive (a)
and carbon-extensive industries (b)

Conclusions

Our analysis warrants the careful and complementary use of alternative indicators due to multidimensional nature of competitiveness implications. When assessing competitiveness impacts of policy regulation at the sectoral level, it is important to trade off changes across all the sectors of the domestic economy rather than focusing on only a few branches which might be most exposed at first glance to policy measures. In addition, sectoral implications must be weighted against economy-wide impacts. As a matter of fact, improvements in competitiveness for some industries may not only work at the expense of competitiveness of other industries but induce an overall loss in national competitiveness.

Selected References

Balassa, B. (1965), Trade liberalization and revealed comparative advantage, The Manchester School of Economic and Social Studies 33, 99-123.

Böhringer, C. (2002), Climate Politics From Kyoto to Bonn: From Little to Nothing?, The Energy Journal 23 (2), 51-71.

Bollen, J., H. de Groot, T. Manders and P. Tang (2003), The Kyoto Protocol and EU competitiveness, Paper presented at 6th GTAP Conference, June 12-14, The Hague, The Netherlands.

Felder, S. and T.F. Rutherford (1993), Unilateral Action and Carbon Leakage: The Consequences of International Trade in Oil and Basic Materials, Journal of Environmental Economics and Management 25, 162-176.

Krugman, P.R. (1994), Competitiveness: A Dangerous Obsession, Foreign Affairs 73(2), 1-17.

Peterson, S. (2003), The EU Emissions Trading Scheme and its Competitiveness Effects for European Business. Results from the CGE Model DART, Paper presented at the Joint Research Workshop "Business and Emissions Trading", November 11-14, Wittenberg, Germany.

Reichel, R. (2001), Ökonomische Theorie der internationalen Wettbewerbsfähigkeit von Volkswirtschaften, Deutscher Universitätsverlag, Wiesbaden.