

Economic impact of natural gas flow disruptions

Topic: Disaster Analysis I

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In this paper we use a non-linear programming approach to predict the wider interregional and interindustry impacts of natural gas flow disruptions. In the short run, economic actors attempt to continue their business-as-usual (BAU) and try to follow established trade patterns as closely as possible. In the model this is mimicked by minimizing the information gain between the original pattern of economic transactions and the situation in which the flow of natural gas is disrupted. We analyze four scenarios that simulate supply shocks to Russian export stops of natural gas by means of a model based on an interregional input-output table with six sectors and six regions.

The simulations show that at the lower levels of aggregation considerable effects are found. At the aggregate level of the whole economy, however, the effects of Russian gas boycotts of Europe are negligible for Europe and only a little less so for Russia itself. Interestingly, the effects on the size of the economy, as measured by its GDP, are predominantly positive for the European regions, but negative for Russia. The effects on the welfare of the populations involved, however, as measured by the size of domestic final demand, have an opposite sign; with predominantly negligible but negative effects for the European regions, and very small positive effects for the Russian population.