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**Going beyond the magic 57 – Challenges to develop a detailed  
Single-country CGE for Germany**

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## Going beyond the magic 57 – Challenges to develop a detailed Single-country CGE for Germany

This paper explores the development of a detailed single country CGE model for Germany, where the main challenges are associated with the development of a bio-based Social Accounting Matrix (SAM) together with the requisite satellite accounts. The distinctive features of the model derive from the focus of the analyses being on the impact of agricultural and energy policies on all sectors of the bio-based economy in Germany; in particular the agricultural, food and chemical sectors will be modeled at a more disaggregated level than in the standard national accounts database. This requires additional disaggregation of inputs - intermediate use and final demand, outputs – joint- and by-production within agriculture and its use for further processing, and of agricultural and bio-based policy instruments. The main challenge therefore is the further disaggregation of the agricultural, food, ‘chemical’ and energy sectors in existing SAMs for Germany.

The implementation of the disaggregation of the sectors requires an extended and consistent database. The basic datasets are Supply and Use Tables (SUT) from the national accounts. Agriculture is however less disaggregated than required and, since SUT are transaction matrices, the data are recorded in monetary units. The disaggregation of the bio-based economy draws heavily on the data collated by the Federal Ministry of Food, Agriculture and Consumer Protection and the Common Agricultural Policy Regional Impact Analysis (CAPRI) database. This enables the database to be constructed so that in addition to transactions data it is possible to develop satellite accounts that record quantities of commodities. Moreover commodity market taxes, e.g. VAT, import duties, etc., and subsidies, activity level support, e.g., single-farm payments, can be separately identified. Therefore the compilation of an extended SAM faces a number of methodological and data-handling challenges.

In case of the material use of biomass in the chemical sector, there is no official database about technologies. Shares of biobased input and technological coefficient are not officially available and have to be collected and estimated in an additional step. Because of the huge amount of possible applications of biomass in the chemical sector these initial estimates inevitably have wide confidence intervals but do represent an important first stage in the development of the databases required to further the analyses of the bio-based economy.

The impetus for the analyses derives from the impending changes in the Common Agricultural Policy (CAP post 2013), which the German government has recognized as heralding substantive changes in agricultural policy in Germany, e.g., “Massive state regulation of agricultural markets is a thing of the past. What is important now is to recognize market signals early on and respond to them”, (Minister Aigner). At the same time the German government is committed to policies that will preserve and enhance the rural communities and the amenities provided while seeking to exploit the bio-based economy so as to allow Germany to contribute to the mitigation of climate change.

The results reported in this paper are derived using a variant of the STAGE model that has been customized to include multi-product activities, energy/capital substitution possibilities and detailed agricultural policy instruments. The scenarios explored are derived from the post-2013 agenda for the CAP, specifically the phasing out of coupled payments and an increased emphasis on environment friendly behavior.