

# **Agriculture and Food in the 21<sup>st</sup> Century**

**Economic, Environmental  
and Social Challenges**

**Festschrift on the Occasion  
of Prof. Dr. Dr. h.c. P. Michael Schmitz  
65<sup>th</sup> Birthday**

**Edited by Monika Hartmann  
and Joachim W. Hesse**

## Preface of the Editors

It is a great honour and pleasure for us to present this Festschrift at the occasion of Dr. Dr. h.c. P. Michael SCHMITZ's 65<sup>th</sup> birthday. This book is meant as a mark of gratitude for and recognition of his productive work over the last 40 years. With their articles his doctoral supervisor, academic students and their students as well as colleagues thank P. Michael SCHMITZ, who has been an inspiring research-partner, scientific advisor, and friend to them.

P. Michael SCHMITZ's professional career started 1975 when he concluded his diploma degree in economics (Diplom-Volkswirt) at the University of Göttingen and began the work on his doctoral degree which he earned at the same university in 1979 under the supervision of Ulrich KOESTER. In 1984 he was awarded his Habilitation at the University of Kiel. Professorships at the Institute of Agriculture Policy and Market Research, University Giessen and at the Institute of Agriculture Economics, University Frankfurt/Main followed as well as extended visits as guest researcher at the International Institute for Applied Systems Analysis in Laxenburg, Austria and at the Department of Agricultural and Applied Economics at the University of Minnesota (USA).

His research interest in the development of countries in transition motivated him to become the coordinator of the university partnerships Giessen with Kazan (Russia) and with Bila Tserkva (Ukraine). It has been P. Michael SCHMITZ's particular belief in the benefits of integrating business, research and education that has motivated him to found in 1995 the Society for Agribusiness-Research with the associated Institute for Agribusiness. The aim of this initiative has been to contribute to the strengthening of competitiveness of agribusiness by research and education. P. Michael SCHMITZ has been a long-time member of the Scientific Council of the German Federal Ministry of Food, Agriculture and Consumer Protection (1992-2012). During this time he contributed to numerous policy recommendations forwarded by this body.

At present P. Michael SCHMITZ holds the positions as Professor for Agricultural and Development Policy at the Justus-Liebig-University of Giessen, Director of the Center for International Development and Environmental Research at the same university, Director of the Institute for Agribusiness in Giessen and Director of the Institute of European Integration at the National Agrarian University of Bila Tserkva (Ukraine).

Those having had the privilege to work with him appreciate his clear economic thinking, his leadership as well as his human approach. His mission has been to train and develop researchers with their own mind. His students are grateful for the guidance and trust they received by him which provided the basis for their later employments in research, business and administration all over the

world. Long before there were any special mentoring and training programs for female researchers he took a lead in the German agricultural economics profession in offering female students to work under his supervision on their doctoral degree, introducing them to his research networks and supporting them in their further careers. Thus, it is not surprising that two of his female students are among the first women who received a position as agricultural economics professors in Germany.

The papers in this book are from former students, six of them are themselves professors by now (and their students) and colleagues who have shared the same research interests as P. Michael SCHMITZ at various points in time. To the extent that several authors contributed to a paper in this volume it is always the first one having a special relationship with P. Michael Schmitz. The book covers theoretical as well as empirical work with respect to challenges to the food and agricultural sector, considering conflicts between social and ecological requests of citizens and market outcome, limitations and requests with respect to policy to tackle those conflicts and empirical evidence for several of those challenges that can contribute to a more evidence based policy formation. Those topics link nicely to the overall title of the book 'Agriculture and Food in the 21st century: Economic, Environmental and Social Challenges'. The contributions have not been professionally reviewed and editing of the papers has been limited to matters of format. The main body of the book is organized according to the two areas 'Agri-food markets and policies' and 'Agriculture, Trade and Development', each covering five papers. At the end of the Festschrift the reader will find the names of all contributors to this book and their affiliations as well as a list of publications by P. Michael SCHMITZ.

The first part of the book is devoted to a discussion about the complex interdependencies between agri-food markets and policies and thus to a research area which has played a central role in the work of P. Michael SCHMITZ over the last decades. Ulrich KOESTER, the doctoral supervisor of P. Michael SCHMITZ starts out with a contribution on 'Morals, Markets and Policies: Views with a Focus on Food and Agricultural Markets'. In his paper KOESTER discusses the relationship between morality and the outcome of market forces at an abstract level as well as considering the special conditions prevailing in the agricultural and food markets. The author shows that market outcomes might lead to consequences which are not in line with a given society's moral code. However, the limits of policy in this respect are also revealed. The author points to the necessity of an institutional framework that provides incentives compatible to the moral norms of society. Only under these circumstances can a 'happy marriage' between morals, markets and policies be expected in the food and agricultural sector.

The second paper by Monika HARTMANN, Johannes SIMONS and Kalkuli DUTTA titled ‘Farm Animal Welfare: A challenge for markets and policy’ investigates the conflict between market outcome and moral norms of society in the case of Farm Animal Welfare (FAW). The authors explain that governmental interventions for improving FAW can be justified if asymmetric information prevails, externalities exist and, to some extent, it shows non-private good characteristics. They also point to the limits of governmental interventions in a global world where regional policy interventions are constrained by WTO trade commitments. Thus, innovative solutions are needed to close the gap between reflective preferences or morals on the one hand and the market outcome on the other. Self-regulating strategies can help overcome the consumer - citizen gap by rising private standards for animal welfare if it is coordinated as shown using an example from the German meat sector. The paper reveals that the issues linked to FAW are far from trivial and their improvement need the effort of all members of the meat value chain as well as the government.

‘From Policy Analysis to Recommendations for Evidence based Food Policy: Some Thoughts on „New“ Policy Instruments’ is the title of the contribution by Roland HERRMANN, Rebecca SCHRÖCK and Matthias STAUDIGEL. Using regulations for geographically differentiated foods and of food taxes as an example the authors investigate to which extent the conditions for an evidence-based policy are fulfilled. Evidence based refers to the effectiveness and efficiency of a policy. The authors show that theoretical considerations and empirical evidence strongly suggest that taxes on foods are neither an effective nor an efficient health-policy instrument. With respect to the protection of geographically differentiated foods they conclude that present EU policies are not evidence based as there is a lack of empirical studies providing insights into e.g. the income and welfare effects of regulations for geographically differentiated foods such as Protected Designation of Origin and Protected Geographical Indication

That policy is not always evidence based is also revealed in the paper by Michaela KUHL on ‘Regulation of agricultural derivatives markets’. The author shows that significant pressure especially by non-governmental organizations on political and private actors and not scientific evidence has initiated new regulations on trade in derivatives and also led to decisions of many banks to withdraw from the market for speculative agricultural derivatives. Though the legal process is still inconsistent between countries and not yet completed KUHL raises the question whether these measures tackle the real problem of price instability and hunger or whether it might even aggravate them.

Christian FISCHER examines in his essay ‘The future food value chain’ the food supply and value chain concepts in the context of the global agricultural and

food system. According to the author today's businesses and value chains are confronted with a fast changing environment. This has already led to a considerable heterogeneity regarding the types of businesses and value chains, a process which likely will continue. Also the way firms collaborate is changing. While traditionally, this was primarily referred to the question of "make" (yourself) or "buy" (from others), now the concept is to "ally" – i.e., to make together. FISCHER also discusses the change in meaning of the word 'value creation'. While this used to refer primarily to profit generation, there is an increasing recognition that capturing value includes the consideration of the social and environmental impact of a firm's activities.

The second part of the Festschrift focus on the link between agriculture, trade and development and thus as well at areas P. Michael SCHMITZ has considerably contributed to with his research. In their paper on 'Impacts of an EU-USA-Free Trade Agreement on Developing Countries' Martina BROCKMEIER, Tanja ENGELBERT and Janine PELIKAN investigate which economic effects might be created by the Transatlantic Trade and Investment Partnership (TTIP) currently under negotiation between the EU and the USA. The analyses are carried out using the static CGE model GTAP as a simulation tool. The authors direct their attention to two aspects; the impacts of such an agreement on developing countries and the importance of non-tariff trade barriers (NTBs) in the total liberalisation effects. Since adequate data for depicting NTBs in a CGE model are not available the ad valorem tariff equivalents of non-tariff trade barriers were econometrically estimated by employing the standard procedure of gravity modelling. The free trade scenario features the elimination of tariffs and a 50% cut of the NTBs between the EU and the USA. While these two trading partners show considerable gains in welfare and GDP due to TTIP the developing countries are not able to realise such improvements. The results clearly indicate that it is important to include NTBs in the liberalisation process.

Effects of a free trade agreement are also analysed in a second contribution. However, they are not the only ones Jong-Hwan KO focuses on in his essay 'South Korea Free Trade Agreement and its Impacts on Agriculture in Consideration of a Different Level of Regional Aggregation: A Computable General Equilibrium Approach'. In addition, he also pays attention to problems of spatial aggregation and assesses for this purpose the free trade agreement between South Korea and the EU which entered into force on July 1<sup>st</sup> in 2011. In his analysis KO represents the EU in 8 spatially different ways in the static CGE model GTAP and compares their free trade effects for Korea and for Germany. The aggregation levels used span from depicting the EU as one entity, in which all its member states are put together, up to the case where each member state is individually

represented in the model. His major findings are indicative of the fact that aggregation matters. KO suggests using the most disaggregated data of the EU for such an analysis.

With his paper 'Food Security and WTO Domestic Support Disciplines post-Bali' Alan MATTHEWS picks up a long-term controversy regarding the question whether WTO rules and disciplines are consistent with the policy environment needed in developing countries to pursue their food security objectives. Though all three pillars of the Agreement on Agriculture are of relevance in this debate the author focuses on the domestic support pillar and thus, the issue addressed in the Bali Ministerial Conference. The author reviews the various proposals made for adjusting WTO rules regarding the treatment of procurements at administered prices undertaken to increase public food security stocks. The intention of those proposals is to increase developing countries' flexibility (policy space) in pursuing currently non-exempt policies if justified for food security purposes. There are two general options to widen a country's policy space in the domestic pillar; first by enlarging the scope of exempt policies and second by increasing the limits on its Aggregate Measure of Support (AMS) support. The message of the paper is that the former is the more preferable approach.

Khandaker M. M. RAHMAN, Mohammad I. A. MIA, Mohammad Z. ABE-DIN and Mohammad Z. RAHMAN analyse Bangladesh's rice production systems from several points of view in their paper on 'Production and Wastage of Rice in Bangladesh'. To these different types of investigations belong an efficiency analysis of rice production and an assessment of losses at the different stages along the entire supply chain of rice. Finally, based on the outcomes of these analyses the authors formulate policy recommendations for improving Bangladesh's food security. According to the variation in the tasks different methods are employed. Most of the approaches are descriptive in nature. The efficiency analysis is based on a stochastic production frontier of the Cobb-Douglas type. Total loss of rice is rather high in Bangladesh. It amounts to slightly more than 30% of gross production. However, this share includes also - a so called - potential loss; i.e. lack of production due to inefficiencies. The causes of these losses are manifold and so are the policy recommendations forwarded by RAHMAN et al.

In his chapter on 'Climate Change Impacts on Agriculture and the Relevance of Adaptation: The Case of Pakistan' Mirza Nomman AHMED investigates the future impacts of climate change on Pakistan's agriculture and assesses past adaptation strategies. The quantitative results are obtained by employing the Ricardian climate change valuation technique. The study places special efforts on including all climate adaption strategies available to Pakistan's farmers and on providing variables for determining spatial effects across the country's Agro-Ecological Zones, provinces and farm-types using a multi-seasonal approach. Climate

change scenarios are based on runs of a Global Circulation Model. They look far into the future, up to 2090. Results of the analysis provide detailed information for the rather diverse farming conditions prevailing across this country but also the different growing seasons. Increases in temperature during the winter growing season affect farming positively. Such a change has negative impacts if it happens during summer months. Also, rain-fed farming is considerably more vulnerable to climate change compared to the one using irrigation. AHMED concludes that farmers in Pakistan have well adapted to the current climatic conditions.

It goes without saying that we are grateful to all contributors to this Festschrift. Without their special commitment this book would not have been possible. Likewise we thank Alexandra BENDER for taking over the formatting activities and Palina MOLEVA for her editorial work. The tangible support provided by the Society for Agribusiness Research (Verein für Agribusiness-Forschung e.V.) is also gratefully acknowledged.

Monika HARTMANN and Joachim W. HESSE