IS EU COMMON AGRICULTURAL POLICY (CAP) SUPPORTING OTHER COUNTRIES IN ACHIEVING THE SDGS? ASSESSING POLICY COHERENCE FOR DEVELOPMENT

Yves Zinngrebe[1,], Jurij Berger[1], Robert Müller[2], Guy Pe'er[3], Sebastian Lakner[1]*

1) Georg-August-University Göttingen, Department for Agricultural Economics and Rural Development, Platz der Göttinger Sieben 5, 37073 Göttingen, Germany. YZ: yves.zinngrebe@agr.uni-goettingen.de; JB: jurij.berger@agr.uni-goettingen.de SL: Sebastian.lakner@agr.uni-goettingen.de
2) Dr. Robert Müller Consultancy, Neue Schönholzer Str. 16, 13187 Berlin; RM: robert@bridge-builders.de
3) German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Deutscher Platz 5e 04103 Leipzig, Germany; GP: guy.peer@ufz.de
** Corresponding Author*

Policy Coherence for Development (PCD) and WTO agreements require the Common Agricultural Policy (CAP) and related policies to consider its impacts on international markets and on the (sustainable) development in other countries. Based on a review of secondary literature on the EU policy impacts on other countries, we assess the level of policy integration and evaluate to what extent it is coherent with the concept of PCD and the achievement of Sustainable Development Goals (SDGs). Abolishing export subsidies and reducing the distortive effect of domestic support to European farmers has led to a greater market orientation and facilitated market access with mixed effects: Competitive, middle-income countries are the main beneficiaries of the liberalisation of the European market. Meanwhile for the poorest countries it leads to an "erosion" of special trade preferences and agreements. Additionally, producers from poor countries struggle to meet standards of the European market. In order to fight poverty and hunger in the poorest countries and to compensate losers of liberalisation and high market barriers additional mechanisms are required. Possible examples are Economic Partnership Agreements (EPAs) or support for capacity building. Increasing EU imports (demand for feed supplies, bioenergy, meat and other agricultural products) can have significant ecological impacts in countries outside the EU, leading to biodiversity threats, shrinking forests as carbon sinks and other environmental threats, while consuming a limited global biocapacity. In the update adjustment of the PCD agenda related to the SDGs, the EU has to develop a CAP as part of a coherent policy mix that acknowledges trade-offs and produces political incentives in a way that helps poor countries to meet the SDGs and reduces the EU's global ecological footprint.

INTRODUCTION: THE CAP AND POLICY COHERENCE FOR DEVELOPMENT

With a budget of about almost €60 Billion/year (corresponding to 40% of the EU's budget, the Common Agricultural Policy (CAP) is governing agricultural production and rural development across Europe. The CAP allocates direct payments to farmers (so called "pillar 1 measures"), supports rural development measures (pillar 2) and balances impacts on vulnerable European markets. Domestic support measures for agriculture in the EU have been highly criticised for their impact outside the EU, especially on developing countries and thus, for its incoherence with development policy objectives (Boysen, Jensen, and Matthews 2016; Urban, Jensen, and Brockmeier 2016). To align policies of the EU and its member states towards the eradication of poverty and the general idea of sustainable development, as articulated in the Millennium Development Goals (MDGs), the Policy Coherence for Development (PCD) has been institutionalised through the 'European Consensus' (EU Commission, 2006). The Consensus requests the

EU to "*prioritise support to the least developed and other low-income countries (LICs*)" (article 10) and support agriculture and rural development as central pillars for poverty reduction and growth, while "*respecting the capacity of eco-systems" (article 83) acknowledging its responsibility to assure environmental sustainability and compliance with related international agreements*" (article 105). According to the concept of PCD the objectives of development should be considered "*in all policies that it [the EU] implements which are likely to affect developing countries, and that these policies should support development objectives where possible*" (Boysen, Jensen, and Matthews 2016, 2). With respect to Article 206 and 207 of the TFEU the European Union seeks to support a harmonious development of world trade and a progressive reduction of barriers to trade. The WTO Agreement on Agriculture (AoA) established common rules for agricultural trade. Constraints for domestic support were introduced to limit the use of measures that directly impact production decisions and distort trade. The tendency that the same countries (DK, FIN, NL, SE, UK) that push the PCD agenda also call for a more radical CAP reform (Matthews, 2008) can be viewed as an indicator for the strong interrelation of the two discourses. Past successive reforms the EU used a number of policy instruments which aimed at supporting market prices (e.g. import tariffs, export subsidies and market intervention). These measures were categorised as being distortive to trade and were subject to important reforms of the CAP to meet the AoA (Mittenzwei, Britz, and Wieck 2014; Matthews 2008; Josling and Tangermann 1999). Besides the indirect effects from domestic market measures, the EU as 'the single largest importer of agricultural products form the poorest developing countries' (Desta and McMaohn, 2015: 715) also has a strong impact on agricultural development in developing countries . A stronger Impact Assessment (IA) of PCD resulting in a 'public shaming' of countries failing to meet PCD requirements has produced political resistance to specific PCD indicators (Carbone and Keijzer, 2016: 5). By contrast, the recent PCD assessment simply concludes "*following the 2013 reform, the Common Agricultural Policy is now delivering support to EU farmers and rural communities in a manner that does not distort markets or trade*" (EU Commission 2016a: 18). However, literature points to remaining issues and conflicts. This article summarises scientific knowledge on the impacts of the CAP and related policies on global market stability, trade and ecological impacts and discusses resulting political implications.

SUBSIDIES AND MARKET DISTORTIONS: IMPACTS ON DEVELOPING COUNTRIES AND GLOBAL MARKET STABILITY

According to the AoA and further WTO commitments, the administered market prices were reduced after 1992 and coupled direct payments for farmers were transformed to be decoupled from production to meet 'green box'[1] requirements. Over the last years, the OECD observes a reduction of single commodity transfers (SCT) for most commodities, which can be viewed as an indicator for the degree of distortion caused by direct payments. For the period from 1986 to 2015 we see a decrease in the percentage SCT for wheat from 52 % to 0 %, from 51 % to 0 % for maize, from 71 % to 4 % for milk, from 62 % to 23 % for refined sugar and from 56 % to 29 % for beef and veal. (OECD 2017: p.3).

[1] Due to the AoA domestic support measures were placed into three boxes with respect to their distortionary effect on international production and trade. As defined in Annex 2 of the Agricultural Agreement the 'green box' includes measures with no or minimal distortion to trade and must not involve market price support (WTO 2002).

Recent reforms of decoupling direct payments had the objective to reduce market and trade distortions. Mittenzwei et al. (2014) show only minor distortive effects on production and trade of support measures under the green box scheme. Modellings from Gohin & Latruffe (2006) show that both fully or partially decoupled payments have limited distortionary effects on production and trade. Urban et al. (2016) show that the assumed degree of decoupling plays a crucial role for the outcome of the modelling and the evaluation of trade effects. A case study modelling the impact of removing the CAP support including import tariffs and export subsidies on the economy in Uganda finds marginal (positive) effects the country's GDP (+0.03%) and its indicators of poverty (Boysen et al. 2016). However, the authors note results might even be overestimated and suffer from strong methodological and theoretical challenges and the difficulties of separating CAP effects from other political and economic factors (Boysen et al. 2016).

Besides the impact of direct payments on national price levels, there is also a risk of increasing volatility on international markets. A reduction of direct price support measures in past reforms is expected to have a positive impact on international market stability and price volatility (e.g. Pinstrup-Andersen 2013; Johan Swinnen, Knops, and Van Herck 2013; Tangermann 2011; von Ledebur and Schmitz 2012; Rudloff 2009; Matthews 2008; Tyers and Anderson 1992). However, there is no empirical research yet on these effects.

Additionally the EU agreed on limiting the use of export refunds (Figure 1) which were strongly criticised for their price dumping effects. However, consequences for developing countries are not uniform: On the one hand net-importing countries benefit from price dumping effects of export refunds at least in the short-run. On the other hand low prices negatively affect net-exporting countries (Boysen, Jensen, and Matthews 2016; Urban, Jensen, and Brockmeier 2016; J. Swinnen and Squicciarini 2012; Johan Swinnen 2011; Bureau and Gohin 2009; Matthews 2008).Hence, differences of winners and loser among and within countries require coherence analyses to consider more than country averages, as often done in CGE models (Cantore et al., 2011).

The European Commission itself concludes that the past reforms "*have significantly improved market access opportunities for developing countries and reduced market distortions, thereby progressively reducing CAP impact on the trade and development opportunities of these countries*" (EU Commission 2013, 105). Nevertheless, Matthews (2008, p.3) assumes that "*it is highly unlikely that the payment of such large sums to farmers makes absolutely no difference to their production decisions*".

TRADE BARRIERS AND TRADE PARTNERSHIPS

Even though the nature of trade barriers has changed and agricultural protectionism has been significantly reduced in the EU, there are still significant hurdles to market access for developing countries. One effect of the liberalisation process is referred to as "*preference erosion*". It describes the effect that trade liberalisation diminishes the value of preferential trade conditions for developing countries. Commodity protocols fixing quotas and commodities were estimated to support agricultural exports from African sub-saharan countries with € 1.2 billion annually (Perez and Jallab, 2009 in Desta and MacMahon, 2015). Different preferential trade schemes, such as Generalised Scheme of Preferences (GSP), GSP+ (greater preferences to those countries by ratifying and implementing 27 international conventions in the area of human rights, the envi-

ronment and good governance) and the Everything but Arms initiative (EBA) accounted for 4.18 %, 0.46 % and 0.46 % of total EU imports (Carbone and Keijzer, 2016). These preferential trade agreements were found to produce rents up to 4 % of total value of exports, functioning as indirect development aid for those countries (Milner et al.2009). Accordingly, when moving to free trade the poorest countries lose with preference erosion. Meanwhile, other countries that had been excluded from the preferential trade access benefit from liberalisation (e.g. Brazil, Argentina, Uruguay, Thailand, China) (Matthews, 2008). Furthermore, it is up to local power structures within the countries to determine the beneficiaries of those agreements. As a new instrument for agricultural trade Economic Partnership Agreements (EPAs) shall facilitate market access for poor countries. While EPAs were meant to be finalised by 2008, there was only one agreement signed in 2015, which gave preferential bidirectional market access to CARIFORUM[2] countries and the EU, defining duty and quota agreements for rice and sugar (Desta and McMahon, 2015). In their analysis of preferential trade agreements, Desta and McMahon (2015) find a frequent exclusion of EU products from preferential schemes, whereas typically tropical products, such as cocoa, coffee and tobacco are easily introduced and receive most of their added value within the EU.

Particularly sanitary and phyto-sanitary measures, technical barriers to trade and private standards and certification are challenging for smallholders in developing countries (Desta and McMaohn, 2015 Matthews, 2011, 2008). Desta and McMAohn (2015:719) conclude: "*whatever gains were made through policy reforms and international agreements to reduce openly protectionist import barriers have been lost to no-less protectionist instruments in the form of regulatory standards*". For least developed countries, missing infrastructure, corruption and lack of complementary services such as trade finance or risk assurance are mentioned as obstacles to become producers for the European market (Matthews, 2008). As the above findings display, a market orientation of the CAP alone does not guarantee market access and benefits to poor countries. Winners of the trade liberalisation are mainly middle-income countries with strong agricultural production and losers are mainly the vulnerable population in low-income countries (Matthews, 2008). As an important component of the policy mix, development aid can be used to support the losers of preference erosion and support poor developing countries to evolve the capacities to comply with standards in the EU (Matthews, 2008, 2011).

EXPORTING THE ENVIRONMENTAL FOOTPRINT OF EU PRODUCTION

The European agricultural production and consumption patterns have a strong ecological and social-ecological impact on countries outside the EU. However, it seems this is largely ignored by the PCD literature. From a global perspective a "*business as usual*"-scenario of agricultural production and consumption patterns projects the global biocapacity required for cropland production to increase by 60 % from 2002 to 2050, which will further be strengthened by increasing demand of agricultural commodities for bioenergy and biomass for industrial uses (Kitzes et al. 2008). Contradicting the Kuznets-theorem, recent projections predict that developing countries will not reduce their ecological footprint alongside economic development, but will instead be locked into their role of biocapacity providers for growing consumption in the political north, including the European Union (Asici and Acar, 2016, Mills and Waite, 2009, (Teixido-Figueras and Duro, 2014).

[2] 15 member countries the Caribbean community and the Dominican republic

Particularly livestock production in Europe depends on feed imports from non-European countries (mainly soybean) that can be viewed as imports of virtual land (e.g. Antonelli 2015): free imports of feedstock in combination with subsidies for animal production were found to incentivise the import of virtual land since the 1960s (Khatun 2012). VonWitzke & Noleppa (2010) report an increasing net import of virtual land into the EU, reaching some 35 million hectares in 2007/08. Virtual land for animal feed in Europe is predominantly provided by the South American continent. Mainly in Brazil it is favoring deforestation, which is associated to a loss of biodiversity and ecosystem services as well as GHG emissions (Boerema et al. 2016, Khatun 2012). Serrano (2012) finds that latest CAP reforms together with trade liberalisation will further increase imports of virtual land. Removal of subsidies and trade liberalization is projected to lead to increased direct imports of beef from South America with even worse environmental consequences if produced on the expense of deforestation (Antonelli et al. 2015, Verburg et al. 2009). Zahrnt (2011) highlights the role of the world market as a buffer, helping the global South to adapt to disastrous climatic events such as droughts in specific parts of the world by securing food supply from other regions.

Also EU biofuel policies cause land use change outside the EU (WBGU 2008), mainly in South East Asia through palm oil cultivation and through imports of ethanol from sugar cane also in countries like Brazil (Miyake et al. 2012). Although biofuel production is a lucrative market for biofuel exporters, it has been reported for causing (violent) social social –ecological conflicts between stakeholder groups in the global South (Ide and Selbmann, 2016). A stronger competition for agricultural land leads to higher food prices, problematic for poor consumers of the South (Matthews, 2008). While the driving policy is RED (Renewable Energy Directive), CAP mechanisms are strongly connected as they are have been reducing agricultural areas over the last decades. Although energy premium and a special set-aside scheme of the CAP were abolished in 2009; currently member states have the possibility to promote it through rural development policy (https://ec.europa.eu/agriculture/bioenergy/cap_de). The boom in biofuel production until 2009 caused a diversion of rapeseed oil grown in the EU to biofuel use, leading to a large increase of palm oil imports also for alimentation purposes (Miyake et al. 2012). Finally, there may also be trade-offs between environmentally friendlier farming in the EU and effects outside Europe. In a modeling analysis, Pelikan et al. (2015) find that a possible increase of Ecological Focus Areas (EFAs under Pillar I, greening) in the EU may lead to increased land use outside the EU causing GHG emissions of 21 tonnes CO2e per hectare (assuming 7% of arable farm land devoted to EFAs). Also other measures fostering environmental benefits that reduce productivity in the EU may increase the EU's footprint elsewhere (von Witzke & Noleppa 2016). Also EU policies on genetically modified organisms (GMOs) and pesticides impact areas outside the EU. (Masip et al. 2013) point out that current policies are paradoxical, since use of GMOs and pesticides are handled for cultivation in the EU than for import, leading to lower productivity with possible effects on land use and use of GMOs/pesticides elsewhere.

Production and consumption patterns in a global economy are coupled and require systemic analyses in order to track impacts and enable sustainable development of agricultural production and land-use (e.g. Liu et al. 2015; Lenschow et al. 2016, Watkins et al., 2016). Questions of how much production shall be incentivised in which places around the globe should be a fundamental contextual considerations when designing EU policies for agriculture, international trade and economic cooperation.

DISCUSSION

Findings in literature conclude a strong interrelation of CAP, PCD and trade policy. The CAP has successfully produced a less distorted agricultural market (see section XX) and has inspired similar initiatives in developing countries, such as Comprehensive African Agricultural Development Programme (DAADP) (Desta and McMahon, 2015; Matthews, 2011). Analyses on the power relations in those processes identified a strong relation in between CAP and trade, concluding that EU advances of preferential trade agreements have "happened despite the CAP rather than because of it" (Desta and McMahon, 2015: 717). Reforms of the policy mix have been criticised for "giving with one hand and taking away with the other" (Carbone and Keijzer, 2016: 8). Adjusting policies produces winners and losers - also within the developing countries - and further reforms have to be confronted with a sensitive mix of policies (Matthews, 2008). Furthermore, ecological and social impacts of EU policies and resulting trade-off decisions have to be approached by both, future scientific evaluations and political decisions.

The EU is currently discussing a new consensus for development that is meant to address all Sustainable Development Goals (SDGs) articulated by the UN 2030 Agenda for Sustainable Development (EU Commission, 2016b). Europe is good at setting agendas and has an average commitment to tackling symptomatic problems in developing countries, while doing less against structural problems (Carbone and Keijzer, 2016). Lessons learned from the experiences with PCD are that it still lacks a transparent analytical framework to analyse advances, and that it requires political will and mandate to produce coherence (Carbone and Keijzer, 2016). The complex interconnection of a global economy and multi-dimensional challenges resulting from the idea of sustainability will make certain incoherencies unavoidable. Instead, interdisciplinary, multi-criteria analyses have to provide insights on systemic in the different dimensions of sustainability in order to make transparent trade-offs and synergies.

REFERENCES:

Antonelli, Marta, Giuseppina Siciliano, Margherita Emma Turvani, and Maria Cristina Rulli. 2015. "Global investments in agricultural land and the role of the EU: Drivers, scope and potential impacts". *Land Use Policy* 47:98-111.

Boerema, Annelies, Alain Peeters, Sanne Swolfs, Floor Vandevenne F, Sander Jacobs, Jan Staes, and Patrick Meire. 2016. "Soybean Trade: Balancing Environmental and Socio-Economic Impacts of an Intercontinental Market". *PLoS ONE* 11(5): e0155222.

Boysen, Ole, Hans Grinsted Jensen, and Alan Matthews. 2016. "Impact of EU Agricultural Policy on Developing Countries: A Uganda Case Study." The Journal of International Trade & Economic Development 25 (3). Taylor & Francis: 377–402.

Bureau, J Christoph, and Alexandre Gohin. 2009. "Farm Support Policies in the European Union: An Appraisal of Their Non-Distortionary Effects." In Non-Distorting Farm Support to Enhance Global Food Production, 141–86. Trade and Markets Devision, Food and Agriculture Organization of the United nations.

Carbone, Mauricio, and Niels Keijzer. 2016. "The European Union and policy coherence for development: Reforms, results, resistance". The European Journal of Development Research, 28(1), 30-43.

Desta, Melaku Geboye, and Joseph A McMaohn. 2015. "The Common Agricultural Policy and

the UN Development Goals: Can Do Better?". Journal of World Trade, 49(4), 699-734.

EU Commission. 2006. "The European Consensus on Development", European Union 2006/C 46/01, url: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ%3AC%3A2006%3A046%3A0001%3A0019%3AEN%3APDF

EU Commission. 2013. “EU 2013 Report on Policy Coherence for Development.” Brussels. http://ec.europa.eu/europeaid/2013-eu-report-policy-coherence-development-pcd_en.

EU commission. 2016a. "Assessing the 2005 European Consensus on Development and accompanying the initiative "Proposal for a new European Consensus on Development”, European Union, url:https://ec.europa.eu/europeaid/sites/devco/files/swd-assessing-2005-consensus-387-20161122_en.pdf

EU Commission. 2016b. "Communication for a new consensus for development", European Union, url: https://ec.europa.eu/europeaid/sites/devco/files/communication-proposal-new-consensus-development-20161122_en.pdf.

Gohin, Alexandre, and Laure Latruffe. 2006. “The Luxembourg Common Agricultural Policy Reform and the European Food Industries: What’s at Stake?” Canadian Journal of Agricultural Economics/Revue Canadienne D’agroeconomie 54 (1). Wiley Online Library: 175–94.

Josling, Tim, and Stefan Tangermann. 1999. “Implementation of the WTO Agreement on Agriculture and Developments for the next Round of Negotiations.” European Review of Agricultural Economics 26 (3). Oxford Univ Press: 371–88.

Ledebur, Ernst-Oliver von, and Jochen Schmitz. 2012. “Preisvolatilität Auf Landwirtschaftlichen Märkten.” 05/2011. Arbeitsberichte Aus Der vTI-Agrarökonomie.

Khatun, Kaysara. 2012. "Reform or reversal: implications of the Common Agricultural Policy (CAP) on land use, land use change, and forestry (LULUCF) in developing countries". Conservation Letters 5:99-106.

Masip, Gemma, Maite Sabalza, Eduard Pérez-Massot, Raviraj Banakar, David Cebrian, Richard Twyman, Teresa Capell, Ramon Albajes, and Paul Christou. 2013. "Paradoxical EU agricultural policies on genetically engineered crops". Trends in plant science, 18(6), 312-324

Matthews, Alan. 2008. “The European Union’s Common Agricultural Policy and Developing Countries: The Struggle for Coherence.” Journal of European Integration 30 (November 2014): 381–99. doi:10.1080/07036330802141998.

Matthews, Alan. 2013. "Unfulfilled expectations? The EU’s agricultural and fisheries policies and Africa". The European Union in Africa: Incoherent Policies, Asymmetrical Partnership, Declining Relevance.

Mittenzwei, Klaus, Wolfgang Britz, and Christine Wieck. 2014. “Does The‘ green Box’ of the European Union Distort Global Markets?” Bio-Based and Applied Economics 3 (1). Firenze University Press: 1.

Miyake, Saori, Marguerite Renouf, Ann Peterson, Clilve McAlpine, and Carl Smith. 2012. "Land-use and environmental pressures resulting from current and future bioenergy crop expansion: A review". Journal of Rural Studies, 28(4), 650-658.

Meijerink, Gerdien, and Thom Achterbosch. 2013. CAP and EU Trade Policy Reform: Assessing impact on developing countries. LEI, part of Wageningen UR.

Pelikan, Janine, Wolfgang Britz, and Thomas Hertel. 2015. "Green light for green agricultural policies? An analysis at regional and global scales". Journal of Agricultural Economics, 66(1), 1-19.

Pinstrup-Andersen, Per. 2013. “The Political Economy of Food Price Policy.” In Food Price Policy in an Era of Market Instability - A Political Economy Analysis, edited by Per Pinstrup-Andersen, 479–87. Oxford University Press.

Rudloff, Bettina. 2009. “Volatile Agrarpreise: Das Stabilisierungspotential Aktueller EU-Reformen.” In , edited by Stiftung Wissenschaft und Politik -SWP- Deutsches Institut für Internationale Politik und Sicherheit, 39. Berlin: SWP-Studie S 26.

Segrelles Serrano, Jose Antonio. 2012. "The European Union's Common Agricultural Policy and Latin America's Food Sovereignty: A Dialectical Interrelation". Scripta Nova-Revista Electronica De Geografia Y Ciencias Sociales 16:1-23.

Swinnen, J., and P. Squicciarini. 2012. “Mixed Messages on Prices and Food Security.” Science 335 (6067): 405–6. doi:10.1126/science.1210806.

Swinnen, Johan. 2011. “The Right Price of Food.” Development Policy Review 29 (6): 667–88. doi:10.1111/j.1467-7679.2011.00552.x.

Swinnen, Johan, Louise Knops, and Kristine Van Herck. 2013. “Food Price Volatility and EU Policies.” In Food Price Policy in an Era of Market Instability - A Political Economy Analysis, edited by Per Pinstrup-Andersen, 457–76. Oxford University Press.

Tangermann, Stefan. 2011. “Risk Management in Agriculture and the Future of the EU’s Common Agricultural Policy.” International Centre for Trade and Sustainable Development. Issue Paper 34 (34).

Tyers, Rod, and Kym Anderson. 1992. “Disarray in World Food Markets.” Cambridge Books. Cambridge University Press.

Urban, Kirsten, Hans G. Jensen, and Martina Brockmeier. 2016. “How Decoupled Is the Single Farm Payment and Does It Matter for International Trade?” Food Policy 59: 126–38. doi:10.1016/j.foodpol.2016.01.003.

Verburg, René, Elke Stehfest, Geert Woltjer, Bas Eickhout. 2009. "The effect of agricultural trade liberalisation on land-use related greenhouse gas emissions". Global Environmental Change, 19(4).

WBGU. 2008. Zukunftsfähige Bioenergie und nachhaltige Landnutzung. Wissenschaftlicher Beirat der Bundesregierung für globale Umweltveränderungen: Arbeitsexemplar der Bundesregierung in der Entwurfsfassung von 2008, 2. Jg.

Witzke, Harald von, and Steffen Noleppa. 2010. "EU agricultural production and trade: Can more efficiency prevent increasing ‘land-grabbing’outside of Europe?". Study commissioned by OPERA.

Witzke, Harald von, and Steffen Noleppa. 2016. "The High Value to Society of Modern Agriculture: Global Food Security, Climate Protection, and Preservation of the Environment–Evidence from the European Union". In Food Security in a Food Abundant

World: An Individual Country Perspective (pp. 55-65). Emerald Group Publishing Limited.

WTO. 2002. “Domestic Support in Agriculture - The Boxes.” https://www.wto.org/english/tratop_e/agric_e/agboxes_e.htm.

Zahrnt, Valentin. 2011. “Food security and the eu’s common agricultural policy: Facts against fears”. ECIPE (European Centre for International Political Economy) *Working paper*, (1), 23.